THE
2021-22

Dental UPDATE

A 20-hour Survey of Pressing Clinical, Practice Management, Legal and Risk Management Issues in the Practice of Dentistry

American Educational Institute, Inc.

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David R. Victor, JD
President

Dear Registrant:

You practice in a dynamic and challenging environment. While keeping clinically current is imperative, it isn't enough. You must also acquire the knowledge necessary to successfully manage your practice, avoid legal pitfalls and minimize myriad liabilities exposures. ***The 2021-22 Dental Update*** is designed to assist you in that endeavor.

In one course you will receive 20 hours of vital instruction from national experts in the fields of dentistry, law, medicine, asset protection, psychology, and practice management. And their presentations include topics ranging from handling high conflict patients, medical emergencies in the dental office, stress management, and prevention of office-based infections, to medicine in dentistry, sleep disorders, pain management, and even human trafficking.

To help you assess your level of comprehension we offer brief self-evaluations that may be taken either before or after the presentations concerned. These tests are included in this syllabus and are identified by the black edges of the pages on which they are featured.

As always, I am very interested in your reaction to this year's presentation. Please do me the favor of taking the time to complete the evaluation questions presented on screen for each presentation. In addition, I encourage you to contact any of our faculty members directly with questions or comments.

Finally, I urge you to take advantage of the experience and expertise of your colleagues taking the course via our real-time and interactive chat feature. Should you have any technical or other questions about the program's operation just ask them at our help desk and AEI's experienced staff will respond promptly.

Thank you for your participation and please accept my best wishes for a safe, enjoyable and enlightening visit.

Cordially,
American Educational Institute, Inc

David R. Victor, Esq
President

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COURSE OBJECTIVES

After completing ***The 2021-22 Dental Update*** you should have acquired the knowledge that will enable you to better:

- Grow your practice through better doctor and staff **communications with patients**.
- Respond to **medical emergencies** in the dental office.
- Implement protocols and systems to **create an office culture of accountability**.
- Identify **stress and burnout** symptoms and learn strategies to manage them.
- Understand how to **make your practice an effective sales organization**.
- Understand when and how to bring on and retain **dental associates**.
- Identify the characteristics and treatment risk implications of a variety of **medications and diseases**.
- Identify **pain management** alternatives including proper opioid use.
- Understand **office-based infections** and reduce their spread.
- Better prepare for and execute a **practice sale** or merger.
- Identify and address common **sleep problems**.
- Identify and address the relationship between **sleep disorders and chronic pain**.
- Identify victims of **human trafficking** and understand the dentist's role in responding to a suspicion.
- Understand **high conflict patients** and how to better manage them

All learning objectives above address IOM/ACGME core competencies.

THE 2021-22

Dental UPDATE

FACULTY DISCLOSURES

The individuals listed below have control over the content of ***The 2021-22 Dental Update***. None of them have a financial relationship with a commercial interest whose product or services are discussed in the presentation(s) over which they have control:

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Daniel G. Pompa, DDS, of Roslyn, New York, practiced as an oral and maxillofacial surgeon for over 30 years in New York City and currently heads Advanced Practice Seminars which offers lectures to dental students and practitioners both nationally and internationally. He is a fellow in both The American Association of Oral and Maxillofacial Surgeons and The International Congress of Oral Implantologists. At present Dr. Pompa is a visiting speaker at eight U.S. dental schools and has given over 500 lectures for numerous organizations and societies.

Dr. Pompa was named a "Leader in Continuing Education" by *Dentistry Today* for the last four years in a row and has been published in many journals including the *Journal of the American Dental Association, Dentistry Today* and *New York State Journal of the Academy of General Dentistry*. He is also an inventor, having been issued a U.S. Patent for his contribution in developing a protocol for CT guided surgery used in dental implantology. This patent is cited in over 250 new patents today.

You may contact Dr. Pompa with questions or comments at 516-287-0917, or by email at Pompa@APS4DDS.com.

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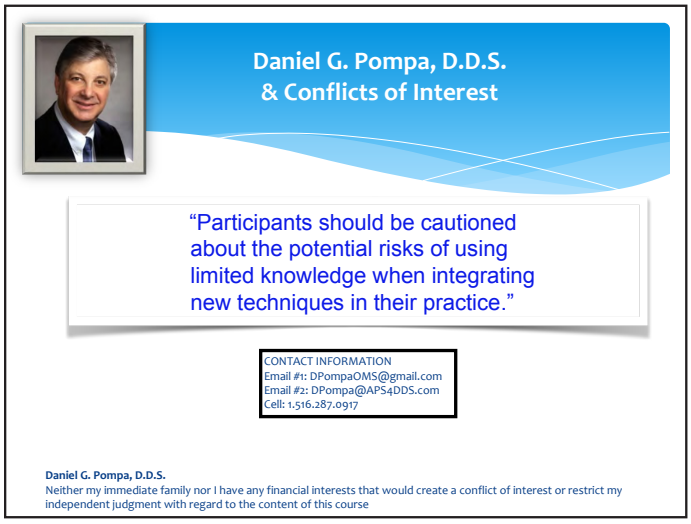
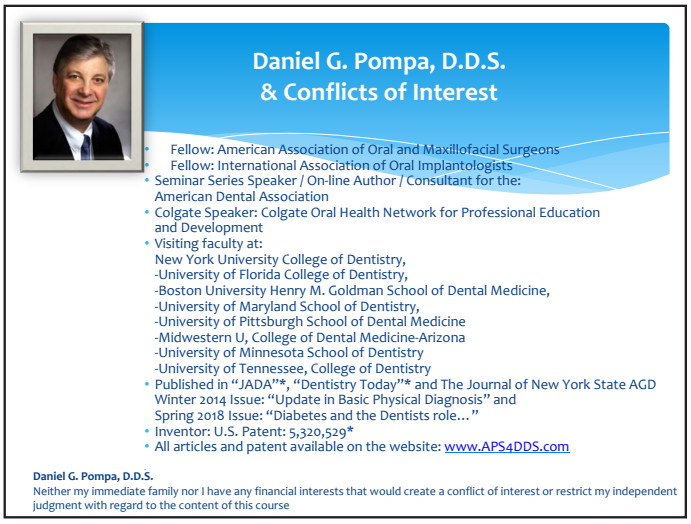
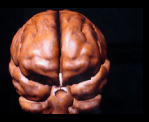
Medical Emergencies in the Dental Office: Parts 1 - 4





Median Temporal Lobe and the Pre-Frontal Cortex

- 80% of the time in *Intuitive and Emotional* mode = System I MTL
  vs.
- 20% of time for *Deliberative and Logical* thinking = System II PFC



3 Systems

- System I = Limbic Sys = ***Med Temp Lobe*** FAST Automatic, Emotional - **Right Side** 80% of the time
- System II = VentroMedial ***Pre-Frontal Cortex*** SLOW Cognitive, Deliberate, Analytical **Left Side** 20% of the time
- System III = allows switching from one to the other

How we Respond to Stress…

- Renouard Article, 2017 on website Oral Surgeon-Paris, France

Are "Human Factors" the Primary Cause of Complications in the Field of Implant Dentistry?

Franck Renouard, DDS/René Amalberti, MD, PhD/Erell Renouard

Int J Oral Maxillofacial Implants 2017;32:e55–e61. doi: 10.11607/jomi.2017.2

Renouard F., Amalberti R., Int J Oral & Maxillofacial Implants, Vol 32; Number 2, 2017

Are "Human Factors" the Primary Cause of Complications

- In Medicine, the frequency of diagnostic errors ranges from 5% to 20%. Estimated 100,000+ deaths a year from misdiagnosis

How we Respond to Stress… People involved:

- Cannon : 1929 Fight or Flight
- Laborit : 1986 Fight Flight or **Freeze**
- Renouard: 2017 **Human Factors**
- Harvey: 2020 GP - **"Office Staff Trained"**

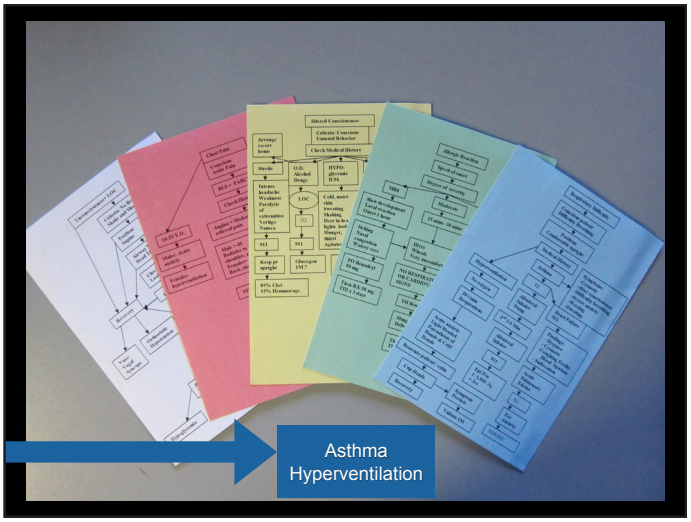
Ultimate

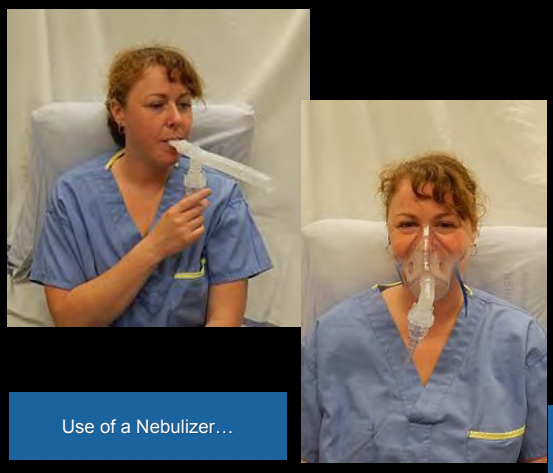
To access the Pre Frontal Cortex:

- **(Stop)** Need to pause and regroup
- QRG / QRH - Color Coded Cards
- Focus (PFC cannot multi-task)
- One way to have a favorable outcome is by ***practicing mock drills***

Ways to improve care in an emergency:

- **"Sterile Cockpit"** - restricts and forbids casual conversation during difficult or stressful stages of any procedure
- **"Checklist"** = Safety and Tasks - QRH, - in our case "Color-Coded Cards"
- **"Closed-Loop Communication"**

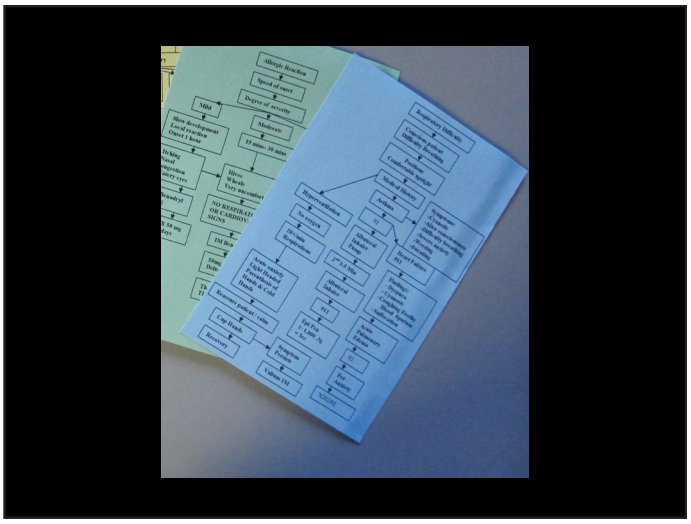




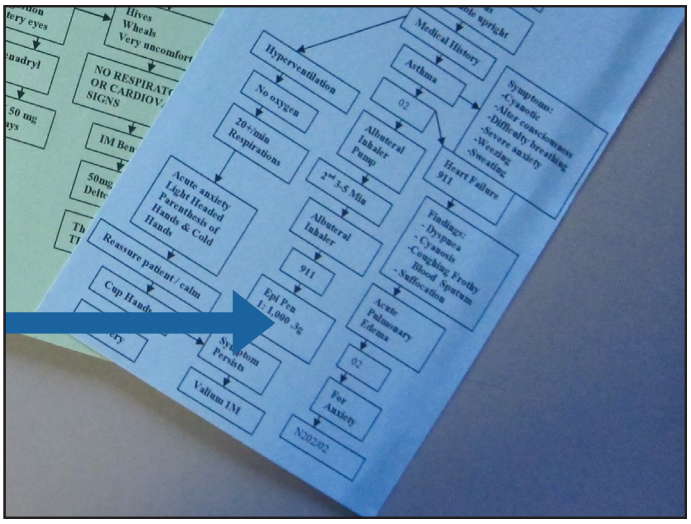
Use of a Nebulizer…

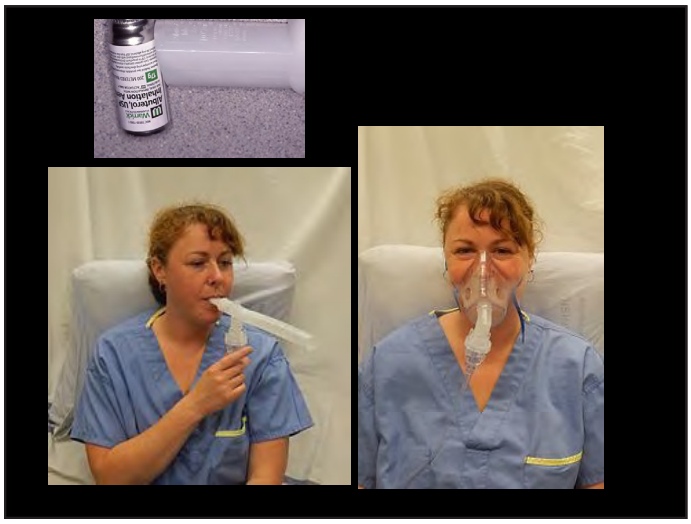
Next?


EPIPEN
REPLACE
AND HOLD on thigh approx. 10 seconds to deliver drug
3 GET EMERGENCY MEDICAL HELP
NEEDLE END




Albuterol Sulfate
Inhalation Solution, 0.083%*
2.5 mg* / 3 mL
FOR ORAL INHALATION ONLY
STERILE


Medical History
Asthma
Hypoventilation
No oxygen
20+/min Respirations
Albuterol Inhaler Pump
2nd 3-5 Min
Albuterol Inhaler
911
Epi Pen 1:1,000 .3g
Acute anxiety Light Headed Paresthesis of Hands & Cold Hands
Reassure patient / calm
Cup Hands
Symptom Persists
Valium 1M
Acute Pulmonary Edema
02
For Anxiety
N2O/O2
Heart Failure
Symptoms:
-Cyanotic
-Altered consciousness
-Difficulty breathing
-Severe anxiety
-Wheezing
-Sweating
Findings:
-Dyspnea
-Cyanosis
-Coughing, Frothy Blood Sputum
-Suffocation




EPIPEN
REPLACE
AND HOLD on thigh approx. 10 seconds to deliver drug
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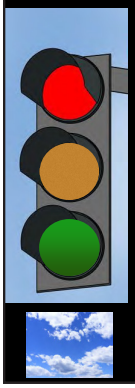
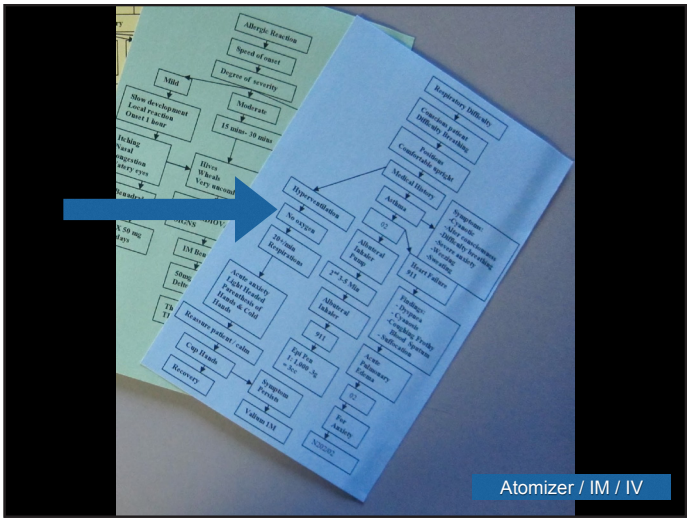
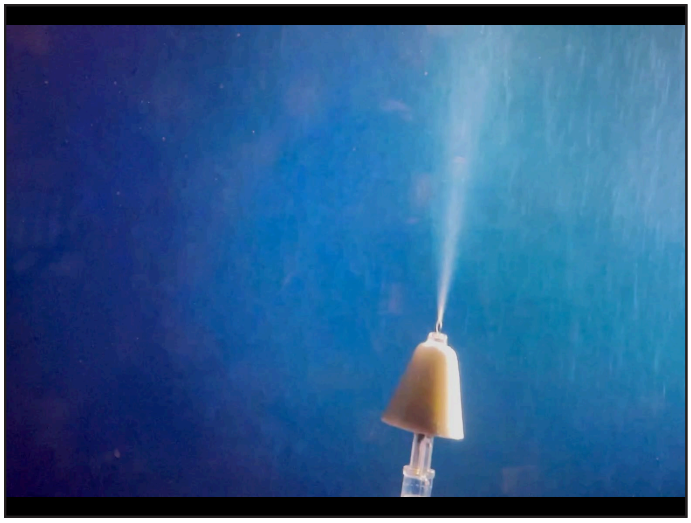
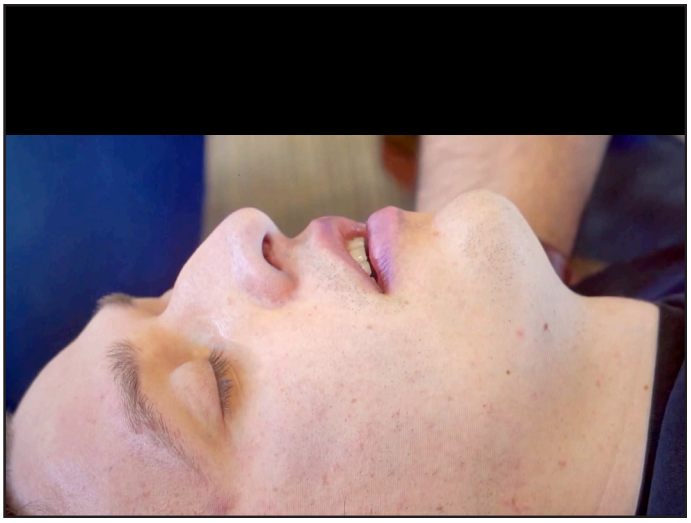
Color Coding Emergencies

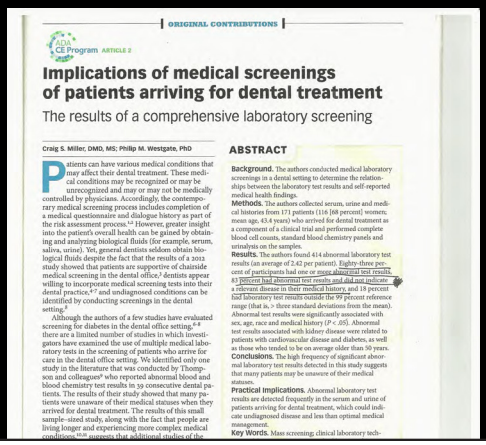


- WHITE=LOC=Syncope (Fainting)
- RED=Cardiovascular=Angina, M.I., Cardiac Arrest
- YELLOW=AC=Altered Consciousness- Insulin Shock= Hypoglycemia, Seizure, Hyperthyroid, Stroke, Drug Reaction, Acute Adranal Insufficiency, Hypotension
- GREEN=Allergic Reaction---Anaphylactic Shock
- BLUE=Respiratory=***Hyperventilation***, Asthma, Airway obstruction, P. E., C.H.F.









ORIGINAL CONTRIBUTIONS

ADA CE Program ARTICLE 2

Implications of medical screenings of patients arriving for dental treatment

The results of a comprehensive laboratory screening

Craig S. Miller, DMD, MS; Philip M. Westgate, PhD

ABSTRACT

Background. The authors conducted medical laboratory screenings in a dental setting to determine the relationships between the laboratory test results and self-reported medical health findings.

Methods. The authors collected serum, urine and medical histories from 171 patients (116 [68 percent] women; mean age, 63.4 years) who arrived for dental treatment as a component of a clinical trial and performed complete blood cell counts, standard blood chemistry panels and urinalysis on the samples.

Results. The authors found 414 abnormal laboratory test results (an average of 2.42 per patient). Eighty-three percent of participants had one or more abnormal test results; 83 percent had abnormal test results and did not indicate a relevant disease in their medical history, and 18 percent had laboratory test results outside the 99 percent reference range (that is, > three standard deviations from the mean). Abnormal test results were significantly associated with sex, age, race and medical history ($P < .05$). Abnormal test results associated with kidney disease were related to patients with cardiovascular disease and diabetes, as well as those who tended to be on average older than 50 years.

Conclusions. The high frequency of significant abnormal laboratory test results detected in this study suggests that many patients may be unaware of their medical statuses.

Practical Implications. Abnormal laboratory test results are detected frequently in the serum and urine of patients arriving for dental treatment, which could indicate undiagnosed disease and less than optimal medical management.

Key Words. Mass screening; clinical laboratory tech-

Results of Miller Study

- 83% of patients had 1 or more abnormal reading
- 1 in 5 patients had significantly abnormal readings, e.g. LFT and creatinine levels (Liver and kidney dysfunction)
- 50% of patients with *Cardio Vascular Disease, Diabetes or both* had abnormal kidney function- (Creatinine or BUN levels)

Effects of Age on Renal Function

- 1% of function is lost every year after the age of 40
- Reduced ability to excrete drugs and metabolites -
- Elevated elimination half/time for many drugs including Anesthetics and Antibiotics
- GFR<60 for 3 months - requires dose reductions and/or lengthening dose intervals - link available to you —

Stages of Kidney Disease (Chronic Kidney Disease) **CKD**

Stage 1: GFR* 90 or greater (normal kidney function)
Stage 2: GFR 60-89 (mild decline in kidney function)
Stage 3a: GFR 45 - 59 (mild to moderate decline in kidney function)
Stage 3b: GFR 30 - 44 (moderate to severe decline in kidney function)
Stage 4: GFR 15-29 (severe decline in kidney function)
Stage 5: GFR < 15 = End Stage Renal Failure

*GFR = Glomerular Filtration Rate

< 60

Stages of Kidney Disease (CKD)

Stage 1: Creatinine levels: 0.5 - 1.3 ml/dl, males slightly >
Stage 2: Creatinine levels: 1.5 - 2.0 ml/dl
Stage 3: Creatinine levels: 2.1 - 5.0 ml/dl
Stage 4: Creatinine levels: 5.1 - 7.9 ml/dl
Stage 5: Creatinine levels: > 8.0 ml/dl

> 5

Effects of Age on Hepatic System

- Longer elimination half/times
- Reduced dosage requirements with age as therapeutic level may approach toxic levels

Link for modification of dosage and/or interval for Rx for patients with CKD

CKD generally become prevalent when GFR falls below 60 mL/min/1.73 m2 (stage 3 CKD or greater)

http://www.aafp.org/afp/2007/0515/p1487.html#afp20070515p1487-t8

IOS = Index of Suspicion

- Causes of Peripheral Numbness (18)
- Causes of Seizures (not form Epilepsy) (5)
- When to give Supplemental Oxygen (10)
- Syncope (LOC) causes (23) and causes that are Iatrogenic (6)

Peripheral Numbness (18)

- Hypoglycemia*
- Hypothyroidism
- Hyperventilation*
- Hypertension*
- Hyperglycemia*
- Alcohol Abuse
- Stroke*
- Myocardial Infarction*

Peripheral Numbness

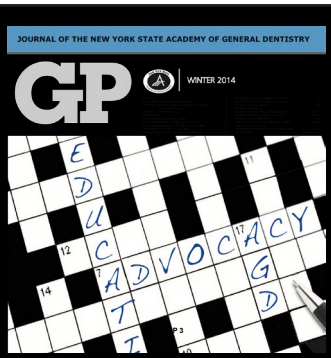
- Shingles
- Raynaud's Disease
- Lyme Disease
- Rheumatoid Arthritis, Lupus
- Vitamin Deficiencies: B1,B6,B12
- Toxins: Lead and Mercury
- Medications: Gabapentin and Amitriptyline, Metronidazole*
- Lymphoma and Multiple Myeloma

Unusual causes of LOC – as a first sign

- Hypoglycemia Unawareness
- UTI with a Diabetic patient

First sign (IOS) of a Medical Emergency:

- Altered Consciousness (AC) is almost always the earliest sign of a ***Medical Emergency***
- The earliest sign of altered consciousness is ***Confusion***



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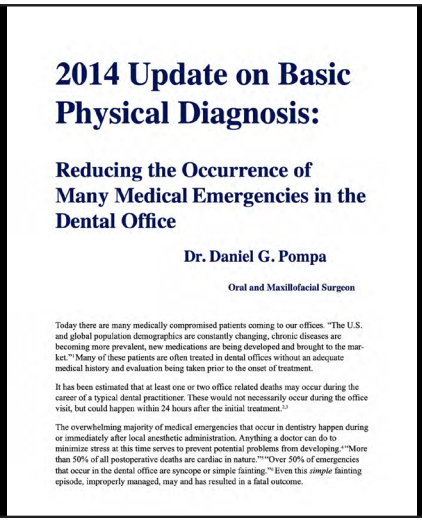
Winter 2014



2014 Update on Basic Physical Diagnosis:

Reducing the Occurrence of Many Medical Emergencies in the Dental Office

Dr. Daniel G. Pompa

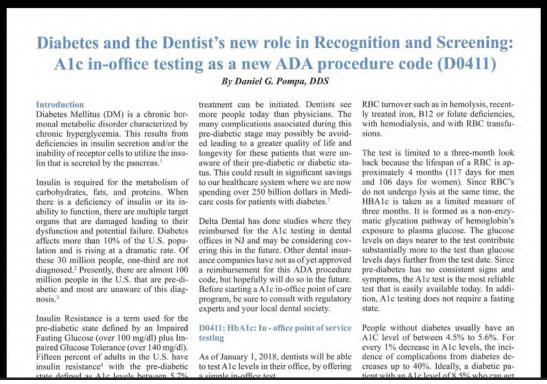
Oral and Maxillofacial Surgeon

Today there are many medically compromised patients coming to our offices. "The U.S. and global population demographics are constantly changing, chronic diseases are becoming more prevalent, new medications are being developed and brought to the market."[1] Many of these patients are often treated in dental offices without an adequate medical history and evaluation being taken prior to the onset of treatment.

It has been estimated that at least one or two office related deaths may occur during the career of a typical dental practitioner. These would not necessarily occur during the office visit, but could happen within 24 hours after the initial treatment.[2,3]

The overwhelming majority of medical emergencies that occur in dentistry happen during or immediately after local anesthetic administration. Anything a doctor can do to minimize stress at this time serves to prevent potential problems from developing.[4,5]"More than 50% of all postoperative deaths are cardiac in nature."[6,7]"Over 50% of emergencies that occur in the dental office are syncope or simple fainting."[8] Even this *simple* fainting episode, improperly managed, may and has resulted in a fatal outcome.

NYSAGD Journal Spring 2018



Diabetes and the Dentist's new role in Recognition and Screening: A1c in-office testing as a new ADA procedure code (D0411)

By Daniel G. Pompa, DDS

Introduction

Diabetes Mellitus (DM) is a chronic hormonal metabolic disorder characterized by chronic hyperglycemia. This results from deficiencies in insulin secretion and/or the inability of receptor cells to utilize the insulin that is secreted by the pancreas.[1]

Insulin is required for the metabolism of carbohydrates, fats, and proteins. When there is a deficiency of insulin or its inability to function, there are multiple target organs that are damaged leading to their dysfunction and potential failure. Diabetes affects more than 10% of the U.S. population and is rising at a dramatic rate. Of these 30 million people, one-third are not diagnosed.[2] Presently, there are almost 100 million people in the U.S. that are pre-diabetic and most are unaware of this diagnosis.[3]

Insulin Resistance is a term used for the pre-diabetic state defined by an Impaired Fasting Glucose (over 100 mg/dl) plus Impaired Glucose Tolerance (over 140 mg/dl). Fifteen percent of adults in the U.S. have insulin resistance[4] with the pre-diabetic

treatment can be initiated. Dentists see more people today than physicians. The many complications associated during this pre-diabetic stage may possibly be avoided leading to a greater quality of life and longevity for these patients that were unaware of their pre-diabetic or diabetic status. This could result in significant savings to our healthcare system where we are now spending over 250 billion dollars in Medicare costs for patients with diabetes.[5]

Delta Dental has done studies where they reimbursed for the A1c testing in dental offices in NJ and may be considering covering this in the future. Other dental insurance companies have not as of yet approved a reimbursement for this ADA procedure code, but hopefully will do so in the future. Before starting a A1c in-office point of care program, be sure to consult with regulatory experts and your local dental society.

D0411: HbA1c: In - office point of service testing

As of January 1, 2018, dentists will be able to test A1c levels in their office, by offering

RBC turnover such as in hemolysis, recently treated iron, B12 or folate deficiencies, with hemodialysis, and with RBC transfusions.

The test is limited to a three-month look back because the lifespan of a RBC is approximately 4 months (117 days for men and 106 days for women). Since RBC's do not undergo lysis at the same time, the HBA1c is taken as a limited measure of three months. It is formed as a non-enzymatic glycation pathway of hemoglobin's exposure to plasma glucose. The glucose levels on days nearer to the test contribute substantially more to the test than glucose levels days further from the test date. Since pre-diabetes has no consistent signs and symptoms, the A1c test is the most reliable test that is easily available today. In addition, A1c testing does not require a fasting state.

People without diabetes usually have an A1C level of between 4.5% to 5.6%. For every 1% decrease in A1c levels, the incidence of complications from diabetes decreases up to 40%. Ideally, a diabetic pa-

What is the #1 Emergency in the Dental Office?

Worldwide incidence: 1 Billion

over 50% untreated
only 20% under control

AHA New Guidelines

- Was 140/90 = HTN
- Now 120/80 and over = pre-HTN
- Now Stage 1 HTN = >130/80
- Now Stage II HTN = >140/90

The New Normal…

	Systolic	Diastolic
• Normal	< 120	< 80
• Pre-Hypertension	120 -129	<80
• Stage 1 Hypertension	130-139	80-89
• Stage II Hypertension	>= 140	>= 90
• Hypertension Urgency	>= 180	>=120
• Hypertensive Emergency	>= 180	>=120

AHA: 2017 Highlights for Guidelines

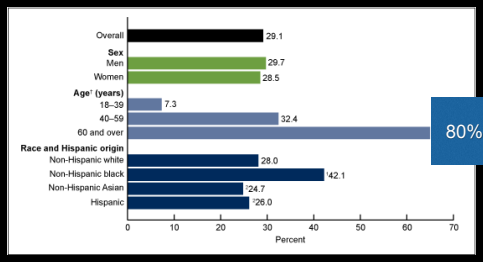
What this means..

- 50% of all Americans had HTN
- 80% of those over 65 have HTN
- Conclusion of >1000 Studies and
- **2015 Sprint Study** - which was ***stopped*** as those with goal of Systolic BP = 120 and below did so much better!
- They had 25% less Stroke and
- 27% less Mortality

Sprint Study

- A research Study by the NIH to answer the question:
- Will lower BP reduce the risk of Heart and Kidney Diseases, Stroke, and age related declines in Memory and Thinking

Hypertension breakdown



- 55% (++) of HTN Population not treated and
- only 20% (-) of diagnosed HTN pt's are controlled.

"Careful and constant monitoring of cardiovascular and respiratory (adequacy of ventilation) vital signs, and the patient's state of consciousness should be performed after <u>each</u> local anesthetic injection"

Hypertension…

- Now almost 50% of Americans have Hypertension
- Over 2/3's of individuals who have their first heart attack have Hypertension (70%)

Hypertension…

- Over 3/4's of those who have a first stroke have Hypertension (80%)
- Primary Cause of CHF (untreated HTN)

The Dental Society has shown that up to 25% of DDS's are now recording BP

Signs and Symptoms of Hypertension

- Headaches-typically a dull pain in the back of the head on waking in the AM.
  peripheral numbness

Early morning headache R/O's

- HTN
- Carbon Monoxide Poisoning
- Brain Tumor
- Sleep Apnea

Hypertensive Crisis

- Headache
- Nosebleed
- Chest Pain
- Seizures
- Back Pain
- Confusion
- Blurred Vision
- Nausea
- Vomiting
- Shortness of Breath

Hypertension:

- Even if controlled with meds - still more likely to have complications of HTN vs. if able to bring it under control without meds

Hypertension: Prevention

- Wt. loss = for every - 2 lbs. - 1 mm Hg
- Minimum of 30 minutes/day exercise or 3 (10) minute cycles - 4 mm Hg
- Alcohol use* 1 glass 5 oz wine - 4 mm Hg *If over 5 oz = raises BP especially for men
- Cut down Salt intake = up to - 8 mm Hg

Hypertension: Prevention

- AHA Recc: 1,500 mg. Sodium/day (average intake is 4,000 mg.)
- UK did a study from 2003-2011* whereby they decreased the consumption by 15% and found a 42% reduction in Stroke and 40% reduction in Heart Disease
- Note: only 10% of Sodium is in Salt we add

*British Medical Journal Open, April 14, 2014

Hypertension

- End organs of HTN are Brain, Heart, Kidney and Eyes.

End Organs for Diabetes are:

- Eyes - Must be below 7 A1c
- Kidney - Must be below 7 A1c
- Cardiovascular - Must be below 6.5 A1c
- **Nerves: Neuropathy Must be below 7 A1c**
- **Teeth and Perio Disease**

What is A1c

- Hemoglobin A1c, also known as glycated or glycosolated hemoglobin, is a measure of the amount of glucose attached to red blood cells and directly relates to the average blood glucose levels over a period of 3 - 4 months (due to the life span of a RBC ~ 120 days*). **Patient fasting is not required prior to an A1c test. The more recent 30 days is more significant than 90~120 days ago.**

*Males = 117 days = RBC life
Females = 106 days = RBC life

The Maastricht Study

- Demonstrated that in Pre-diabetes there are **microvascular** changes associated with impaired **function in the skin** (cardiovascular) **and vascular impairment in the retina.**

*Circulation. 2016;134:1339-1352. DOI: 10.1161/CIRCULATIONAHA. 116.023446

Periodontal Changes:

- ***"Evidence suggests that periodontal changes may be one of the first clinical manifestation of diabetes"***
- Lamster, Lalla, **JADA,** Vol 139, Supp 5, Oct **2008** pp19-24
- Since >33% of patients with DM don't know they have it.

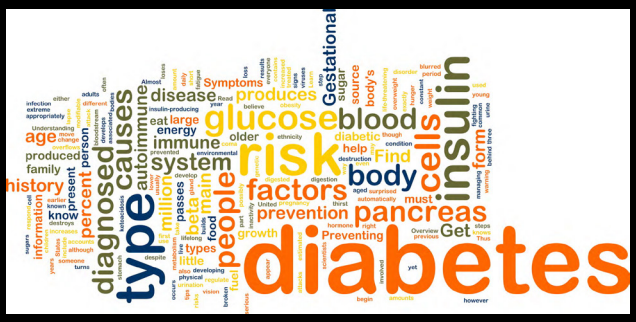
A1c Testing…

Who should be tested: A1c

- Up to 2015: 40 and over who are overweight
- ***2017: ADA Recommendations:***
  -Adults (any age) who are overweight
  -Anyone who has risk factors for Diabetes:
  a) High Blood Pressure
  b) Family History of Diabetes
- **By age 45, *everyone* should be tested**

An ideal Periodontal and Maintenance Program

- Can reduce the A1c level by **0.4%** - 0.6%?
  this is equal to loosing 20+ lbs.
- As of January 2018: New ADA code:
  D0411 = HbA1c in-office point of service testing



100,000,000 Americans
Pre-Diabetic and
30,000,000 Diabetic

U.S. = Overweight

- BMI* = 25 - 29.9 = Over Weight and over 30 = Obese
- How to measure BMI?
  Take your weight in lbs. X 703 and divide by your height in inches (squared)
- -10 lbs. = 5 mmHg decrease in Systolic BP

*Body Mass Index

Diabetes

- It is no longer a Cardiac Risk Factor it is now a
- Coronary Artery Disease Equavalent

- Over 60 years old = 30% of population and
- 1/3 (33%) are not treated = 10 Million

Low Blood Sugar

- Average person with Type 1 DM experiences Hypoglycemia **up to 2 times a week**
- If untreated or ignored can lead to Seizures and Coma with potential for:
- Cardiac Arrest - Death

Causes of Hypoglycemia= below 70mg/dl

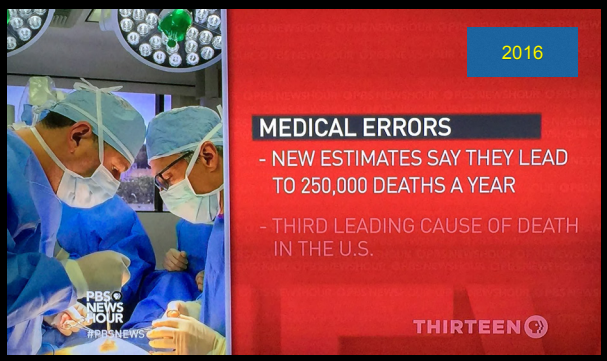
- Missed, delayed or inadequate meals
- Excess insulin or oral hypoglycemics
- Excessive exercise
- Alcohol (frequently without food)

Diabetes!

Time Magazine:
Feb. 23, 2004

Leading Causes of Death

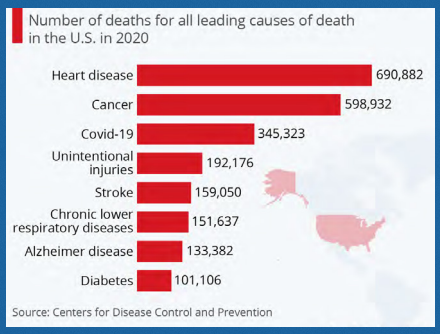
New # 3



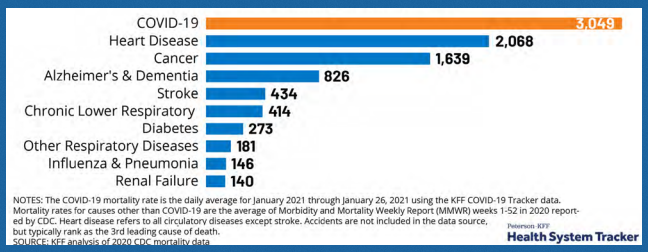
1) Heart disease (MI,CA,CHF)
2) Cancer (malignant neoplasms)
3) New Category & now COVID-19
3) Chronic respiratory disease
4) Accidents (unintentional injuries)
5) Stroke (cerebrovascular diseases)

6) Alzheimer's disease
7) Diabetes
8) Influenza and *pneumonia*
9) Kidney disease
10) Suicide

2020



2021



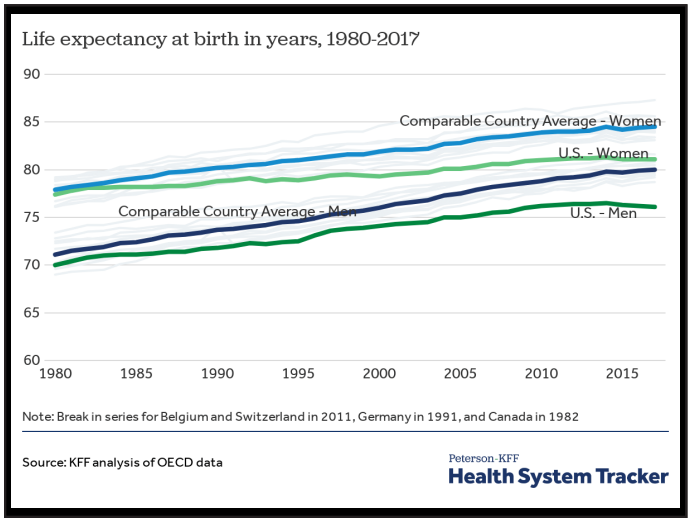
Trends in Diabetes Treatment and Control*

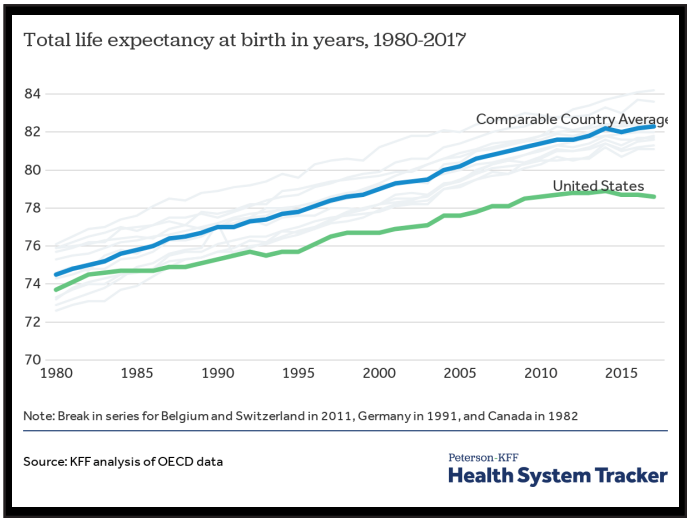
- Improvements were noted from 1999 to 2010 in lipid control, Cholesterol control, Blood Pressure
- Since 2010 Glycemic and BP controls have **declined** in adults while lipid control leveled off

NEJOM, 384;23 June 10th, 2021

This will result in the fist time

- In a lowering of the average death age for U.S. Males and Females.





"The Sugar Industry, particularly sugar-sweetened beverage companies, have worked to promote, suppress and influence research in order to shape the narrative around sugar and health. Many of the techniques were taken straight from the tobacco industry"

Cristin Kearns
Time Magazine
Special Edition
4/30/21

Focus is on Strategies

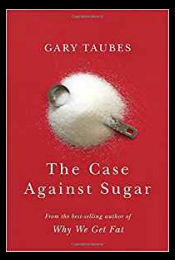
- Funding
- Doubt
- Deflection and suppression
- Noise and interference

Laura Entis
"The Deadly Game"

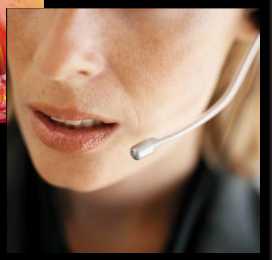
Time Magazine
Special Edition
4/30/21

Gary Taubes
The Case Against Sugar

"Sugar is the tobacco of the New Millennium"



3 Scenarios for Medical Emergencies



Inconveniences
LOC<10sec., Hyperventilation, Mild Asthma, Epi Reax

Urgencies
LOC>15sec., Mod Asthma, Insulin Shock, Angina, Petit Mal Seizure

True MedicalCrisis
LOC>20+sec., Anaphylactic, MI, CA, Severe Asthma, Angina, Status Seizure, CVA

When do most Medical Emergencies Occur?

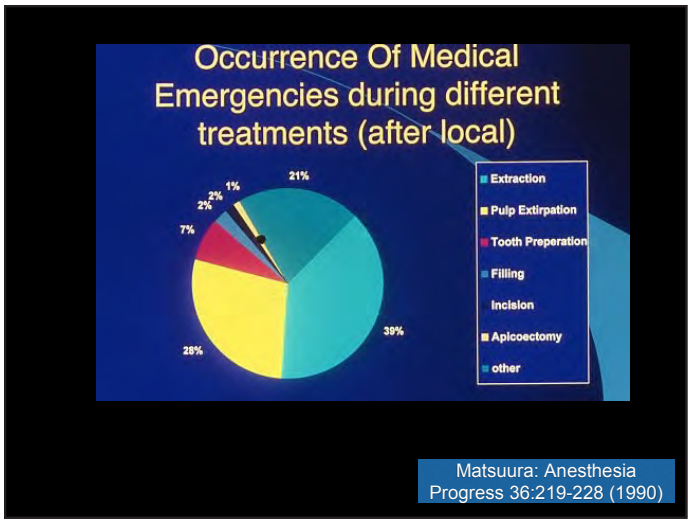
over 1/2 of all Syncope Reactions occur:

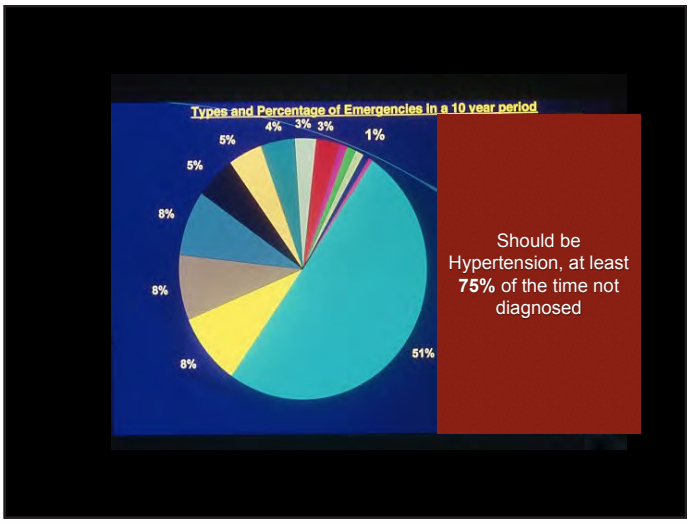
- During or just after local administration

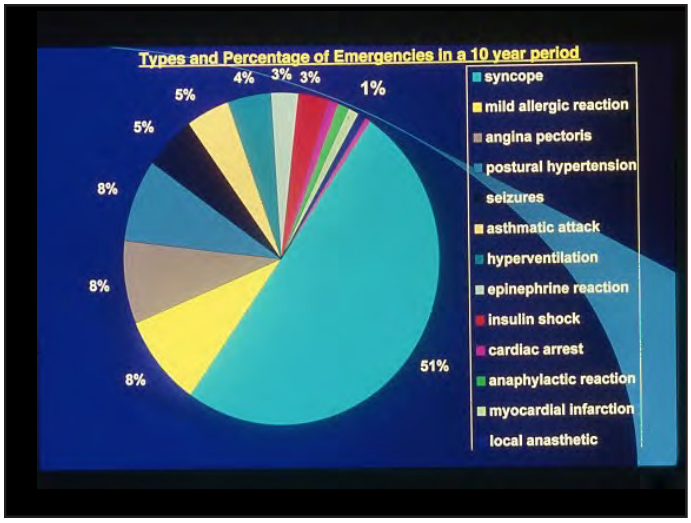
Asthma
Angina
Seizure

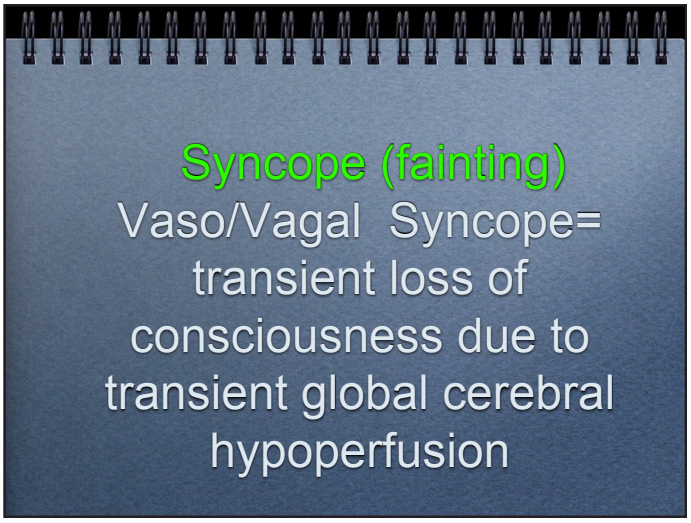
MEDICAL EMERGENCIES

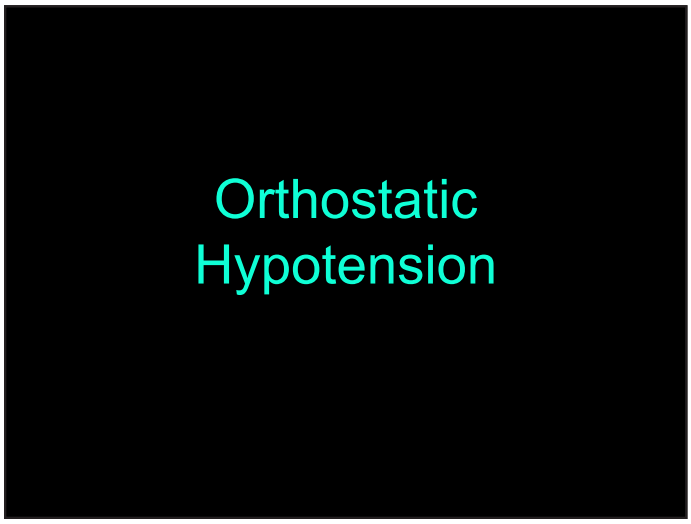
- PREVENT


Occurrence Of Medical Emergencies during different treatments (after local)
21%
1%
2%
2%
7%
28%
39%
Extraction
Pulp Extirpation
Tooth Preperation
Filling
Incision
Apicoectomy
other
Matsuura: Anesthesia Progress 36:219-228 (1990)


Types and Percentage of Emergencies in a 10 year period
4%
3%
3%
1%
5%
5%
8%
8%
8%
51%
Should be Hypertension, at least 75% of the time not diagnosed


Types and Percentage of Emergencies in a 10 year period
4%
3%
3%
1%
5%
5%
8%
8%
8%
51%
syncope
mild allergic reaction
angina pectoris
postural hypertension
seizures
asthmatic attack
hyperventilation
epinephrine reaction
insulin shock
cardiac arrest
anaphylactic reaction
myocardial infarction
local anasthetic


Syncope (fainting)
Vaso/Vagal Syncope= transient loss of consciousness due to transient global cerebral hypoperfusion


Orthostatic Hypotension


Causes:
Pregnancy: especially late term
Dehydration
Diabetes
Adrenal Insufficiency

Causes:

- Bradycardia
- Meds: B Blockers, Diuretics, ED meds: Viagra, Cialis, Levitra
- Age > 60

Follow up-for Syncope: R/O "Vaso/Vagal or Orthostatic Hypotension"

- Do not allow patient to drive
- If treatment is elective: Postpone
- Patient must be escorted by a responsible adult

Follow up-for Syncope: R/O "Vaso/Vagal or Orthostatic Hypotension"

- Complete recovery can take up to 24 hours
- **Consider medical referral**

Loss of consciousness..

- lack of response to sensory stimuli

S.O.S.

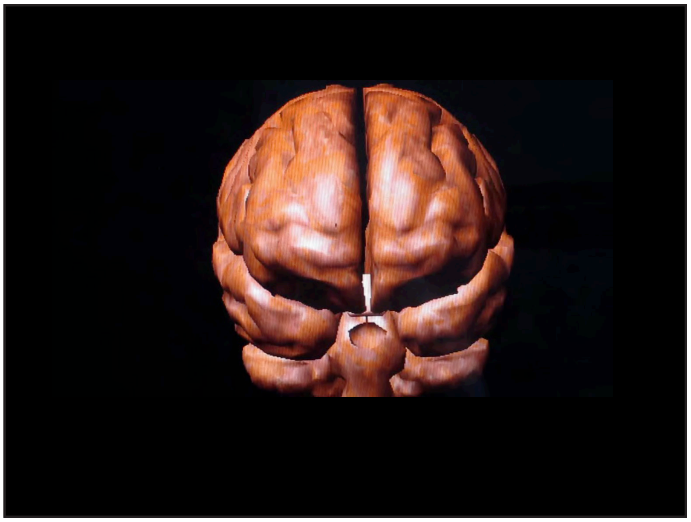
- Supine-HT/CL
- Oxygen
- Spirits of Ammonia

CAUSES OF MEDICAL EMERGENCIES

	Low O2 / Low Blood Flow	Blood Clot : (Thrombus, Emboli)
BRAIN		
HEART		
LUNGS		

CAUSES OF MEDICAL EMERGENCIES

	Low O2 / Low Blood Flow	Blood Clot : (Thrombus, Emboli)
BRAIN	Seizure/Syncope	
HEART		
LUNGS		

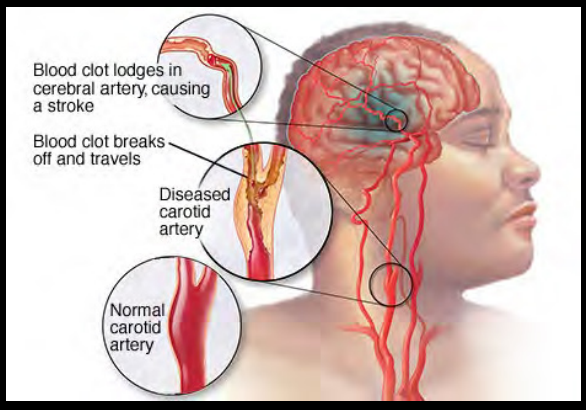


CAUSES OF MEDICAL EMERGENCIES

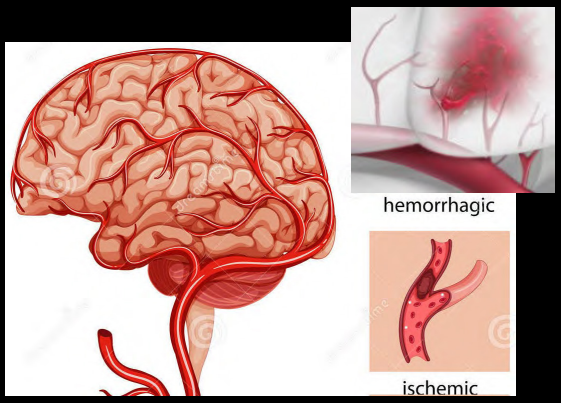
	Low O2 / Low Blood Flow	Blood Clot : (Thrombus, Emboli)
BRAIN		Stroke=80% Blood Clot
HEART		
LUNGS		

Stroke Assessment

- Cincinnati Stroke Scale...used in ER
- Simple scale for office use...(FAST)
- F) Facial Drooping
- A) Arm drift
- S) Slurred Speech
- T) Time is CRITICAL = call 911!! FAST (If one of the 3 = 72% Stroke, if all 3 present = 85% Stroke)



Types of Stroke:



CAUSES OF MEDICAL EMERGENCIES

	Low O2 / Low Blood Flow	Blood Clot : (Thrombus, Emboli)
BRAIN		Hemorrhagic Stroke=15-20%
HEART		
LUNGS		

Syncope and Stroke LOCATION is everything

- With these two medical emergencies-- POSITION is everything!

3 Rules of RE

PABCD

- P=Position,Position,Position...
- A=Airway
- B=Breathing
- C=Circulation, Compressions
- D=Definitive Treatment = Drugs, Defibrillation

Position

- This is often the only treatment necessary for complete recovery
- Syncope = Supine--Head Tilt/Chin Lift
- When not managed correctly this can be the **only reason for a fatal outcome**
- S

CAUSES OF MEDICAL EMERGENCIES

	Low O2 / Low Blood Flow	Blood Clot : (Thrombus, Emboli)
BRAIN	Syncope/Faint Tx=SUPINE!	
HEART		
LUNGS		

CAUSES OF MEDICAL EMERGENCIES

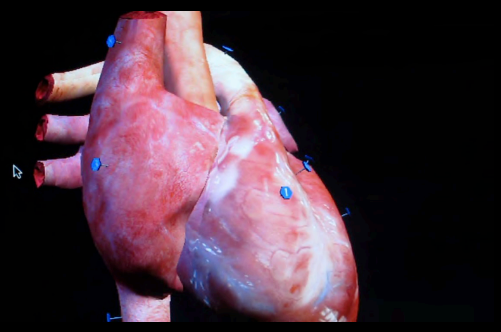
	Low O2 / Low Blood Flow	Blood Clot : (Thrombus, Emboli)
BRAIN		Stroke Tx=UPRIGHT!
HEART		
LUNGS		

Administer Aspirin – Yes or No?

- Myocardial Infarction?
- Stroke?

Yes to MI unless:

- Allergic to Aspirin
- No with Stroke

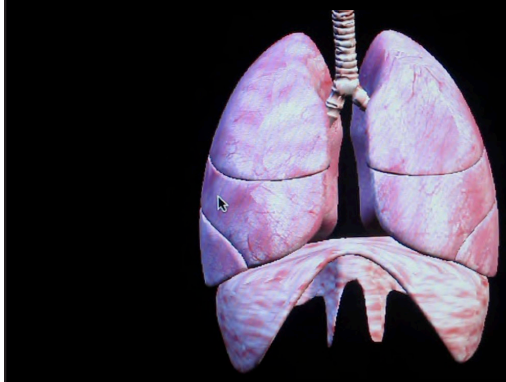


CAUSES OF MEDICAL EMERGENCIES

	Low O2 / Low Blood Flow	Blood Clot : (Thrombus, Emboli)
BRAIN		
HEART	Angina	
LUNGS		

CAUSES OF MEDICAL EMERGENCIES

	Low O2 / Low Blood Flow	Blood Clot : (Thrombus, Emboli)
BRAIN		
HEART		Myocardial Infarction
LUNGS		



CAUSES OF MEDICAL EMERGENCIES

	Low O2 / Low Blood Flow	Blood Clot : (Thrombus, Emboli)
BRAIN		
HEART		
LUNGS	COPD	

CAUSES OF MEDICAL EMERGENCIES

	Low O2 / Low Blood Flow	Blood Clot : (Thrombus, Emboli)
BRAIN		
HEART		
LUNGS		Pulmonary Embolism

Pulmonary Embolism

- Frequently seen after prolonged sitting or recovering from surgery
- Risk factors: Obesity, Smoking & ***Pregnancy***

Pulmonary Embolism

- Hyperventilating*
- Shortness of breath
- Tachycardia
- Chest pain-pain on inspiration
- *Low O_2 Saturation - usually below 90.

Pulmonary Embolism

- Signs and Symptoms:
- Cough, coughing up blood (hemoptysis)
- However.....

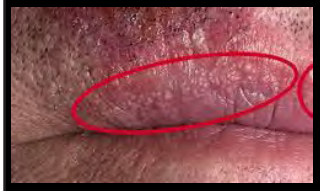
Symptoms vary greatly..

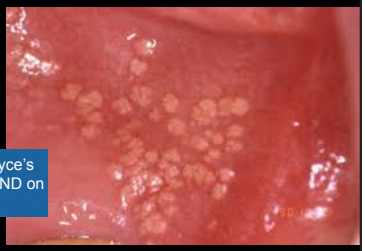
- Frequently patients who die from P.E. are seen in their doctors offices for weeks with vague chest pain, difficulty breathing and tachycardia
- The Rule/out should include P.E. but it is often overlooked
- 250,000k+ people a year die from P.E.--that's more than Breast Cancer, AIDS, and MVA combined

IOS = Index of Suspicion

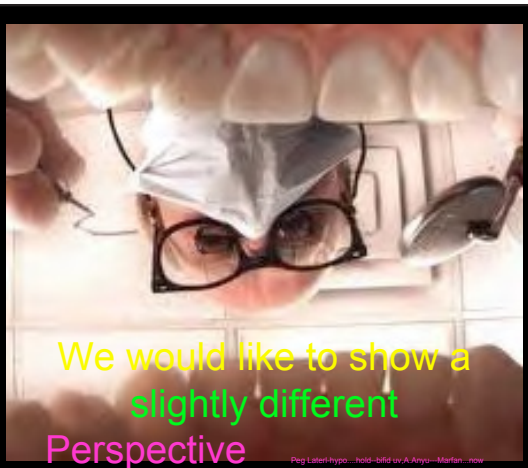
Hyperlipidemia

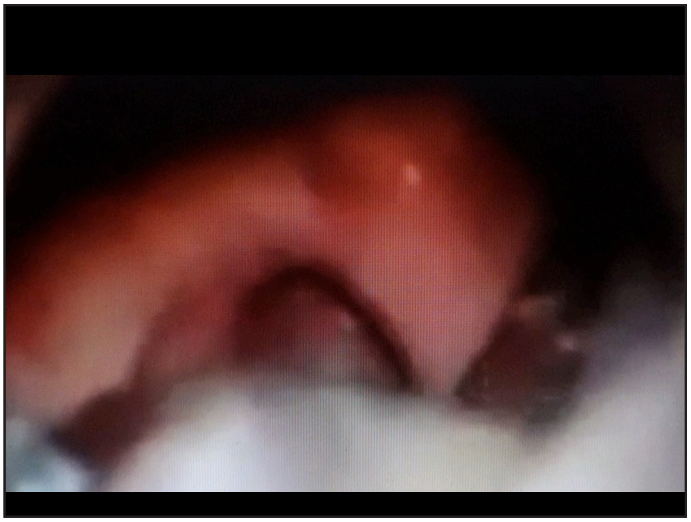
Fordyce's granules can be a marker for What?





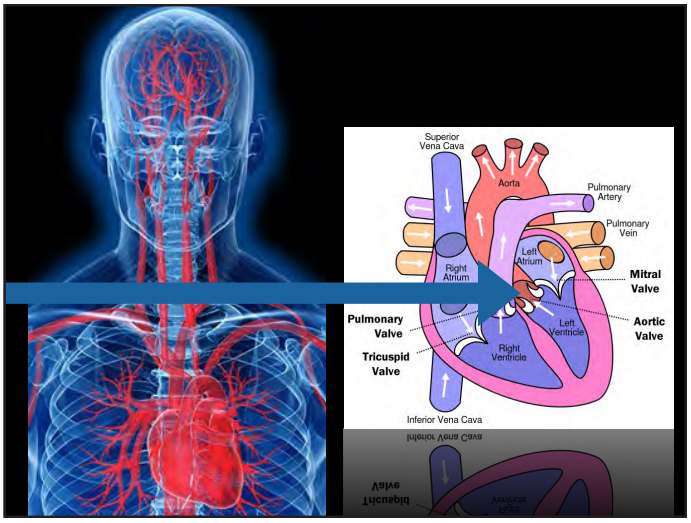
Note: Correlation is usually with Fordyce's Granules on both sides of the mouth AND on the Vermillion border of the lips.

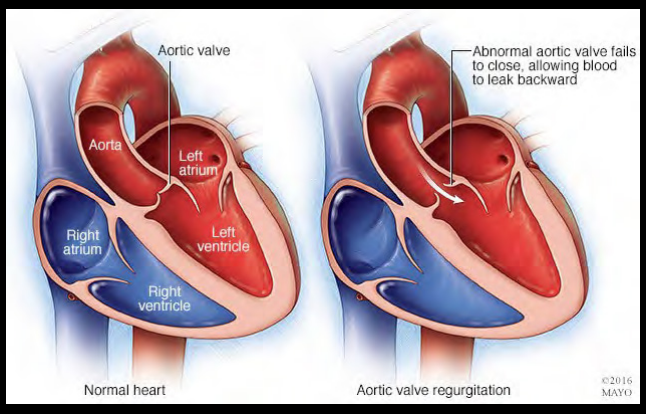




Mullers sign

- Pulsating of uvula---indicating severe Aortic Insufficiency---Aortic Regurgitation
- Occures during Systole as a result of an
- Increasing Pulse Pressure





Signs and Symptoms of Aortic Regurgitation

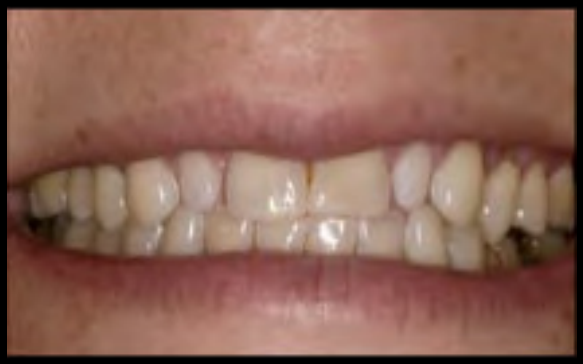
- Increase in Systolic pressure and Decrease in Diastolic Pressure:
- 180/60 (Increased Pulse Pressure = greater than 60). Resulting in…..
- Mullers Sign

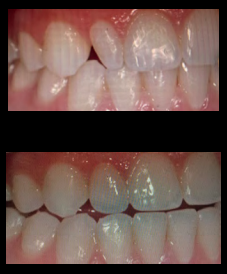
Signs and Symptoms of Aortic Regurgitation

- Shortness of Breath with exertion
- Shortness of Breath when lying down
- Fatigue
- Palpitations (uncomfortable as the L ventricle is against the chest wall)

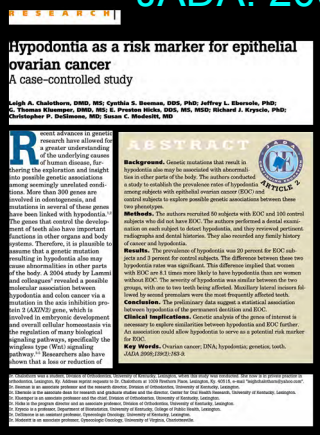
Signs and Symptoms of Aortic Regurgitation

- Chest Pain or tightness with exertion
- Swelling in Veins of the Neck
- Swelling in Legs and Abdomen
- Uncomfortable awareness of heart beat in the left lateral decubitus position





JADA: 2008;139(2):163-9



Hypodontia as a risk marker for epithelial ovarian cancer

A case-controlled study

Leigh A. Chalothorn, DMD, MS; Cynthia S. Beeman, DDS, PhD; Jeffrey L. Ebersole, PhD; G. Thomas Kluemper, DMD, MS; E. Preston Hicks, DDS, MS, MSD; Richard J. Kryscio, PhD; Christopher P. DeSimone, MD; Susan C. Modesitt, MD

ABSTRACT

Background. Genetic mutations that result in hypodontia also may be associated with abnormalities in other parts of the body. The authors conducted a study to establish the prevalence rates of hypodontia among subjects with epithelial ovarian cancer (EOC) and control subjects to explore possible genetic associations between these two phenotypes.

Methods. The authors recruited 50 subjects with EOC and 100 control subjects who did not have EOC. The authors performed a dental examination on each subject to detect hypodontia, and they reviewed pertinent radiographs and dental histories. They also recorded any family history of cancer and hypodontia.

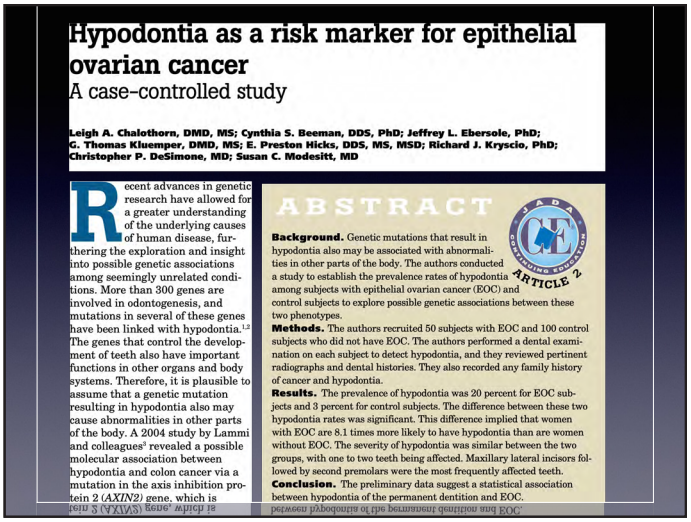
Results. The prevalence of hypodontia was 20 percent for EOC subjects and 3 percent for control subjects. The difference between these two hypodontia rates was significant. This difference implied that women with EOC are 8.1 times more likely to have hypodontia than are women without EOC. The severity of hypodontia was similar between the two groups, with one to two teeth being affected. Maxillary lateral incisors followed by second premolars were the most frequently affected teeth.

Conclusion. The preliminary data suggest a statistical association between hypodontia of the permanent dentition and EOC.

Clinical Implications. Genetic analysis of the genes of interest is necessary to explore similarities between hypodontia and EOC further. An association could allow hypodontia to serve as a potential risk marker for EOC.

Key Words. Ovarian cancer; DNA; hypodontia; genetics; tooth.

JADA 2008;139(2):163-9



Hypodontia as a risk marker for epithelial ovarian cancer

A case-controlled study

Leigh A. Chalothorn, DMD, MS; Cynthia S. Beeman, DDS, PhD; Jeffrey L. Ebersole, PhD; G. Thomas Kluemper, DMD, MS; E. Preston Hicks, DDS, MS, MSD; Richard J. Kryscio, PhD; Christopher P. DeSimone, MD; Susan C. Modesitt, MD

ABSTRACT

Background. Genetic mutations that result in hypodontia also may be associated with abnormalities in other parts of the body. The authors conducted a study to establish the prevalence rates of hypodontia among subjects with epithelial ovarian cancer (EOC) and control subjects to explore possible genetic associations between these two phenotypes.

Methods. The authors recruited 50 subjects with EOC and 100 control subjects who did not have EOC. The authors performed a dental examination on each subject to detect hypodontia, and they reviewed pertinent radiographs and dental histories. They also recorded any family history of cancer and hypodontia.

Results. The prevalence of hypodontia was 20 percent for EOC subjects and 3 percent for control subjects. The difference between these two hypodontia rates was significant. This difference implied that women with EOC are 8.1 times more likely to have hypodontia than are women without EOC. The severity of hypodontia was similar between the two groups, with one to two teeth being affected. Maxillary lateral incisors followed by second premolars were the most frequently affected teeth.

Conclusion. The preliminary data suggest a statistical association between hypodontia of the permanent dentition and EOC.

Recent advances in genetic research have allowed for a greater understanding of the underlying causes of human disease, furthering the exploration and insight into possible genetic associations among seemingly unrelated conditions. More than 300 genes are involved in odontogenesis, and mutations in several of these genes have been linked with hypodontia.[1,2] The genes that control the development of teeth also have important functions in other organs and body systems. Therefore, it is plausible to assume that a genetic mutation resulting in hypodontia also may cause abnormalities in other parts of the body. A 2004 study by Lammi and colleagues[3] revealed a possible molecular association between hypodontia and colon cancer via a mutation in the axis inhibition protein 2 (*AXIN2*) gene, which is

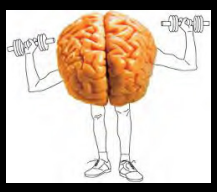
Two activities that can increase your life span:

January 2019 Edition

Advantages of Exercise

- Reduces Inflammation
- Reduces Insulin Resistance
- Reduces Steroid production
- Increases Memory
- Decreases Age Related Cognitive Decline

Scientific American, January 2019



Erickson and McCaluey
Univ of Illinois

Panzer
Duke University

- Taking an afternoon nap

- Reduced Caloric intake

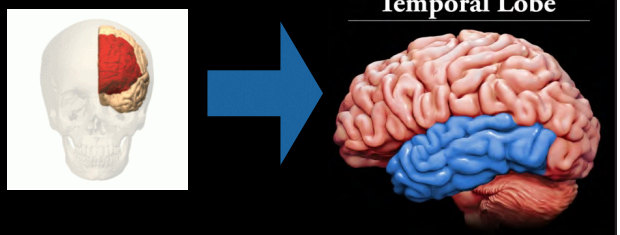
- Reduced Respiratory Rate

Adrenalin=Epinephrine

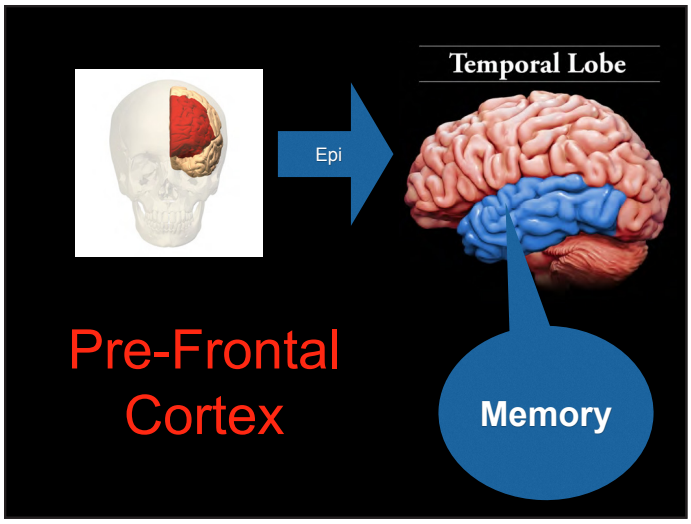
- B_1=directly increases heart rate and cardiac output..
- B_2=causes relaxation of smooth muscles in Lungs.....allowing open passages and more air exchange, and in the pupil—causes ciliary muscle relax - far vision focus and there is dilation of pupil
- A_1=causes contraction/constriction of peripheral smooth muscle in arterioles---increasing blood pressure... (memory)

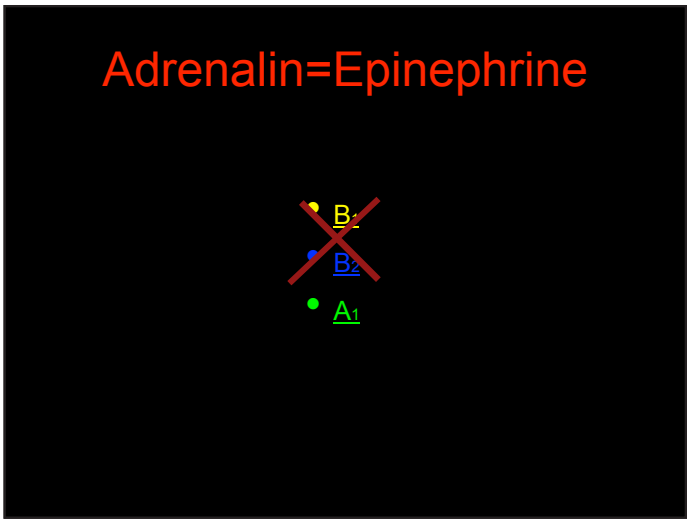
memory=EPI & sleep, PTSD, Atenolol=Tenorin (B1) = selective & Propranalol=Inderal hypertensive crisis IV w/in24 hs..<PTSD memory

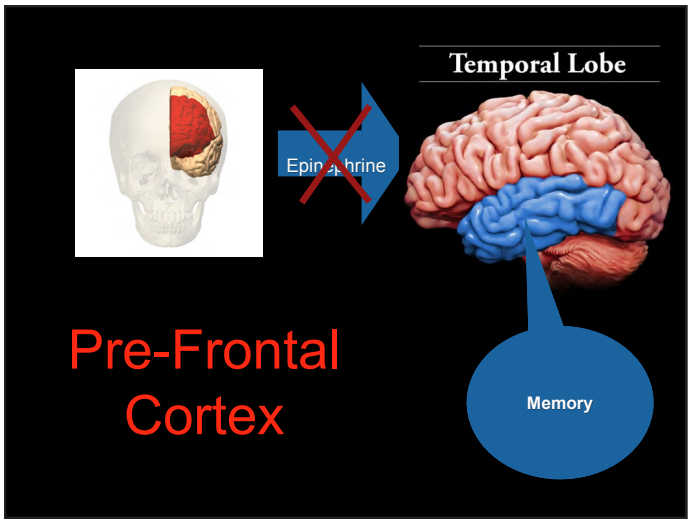
Prefrontcortex-Median templobe-(B1&2) non-selective=can cause serious

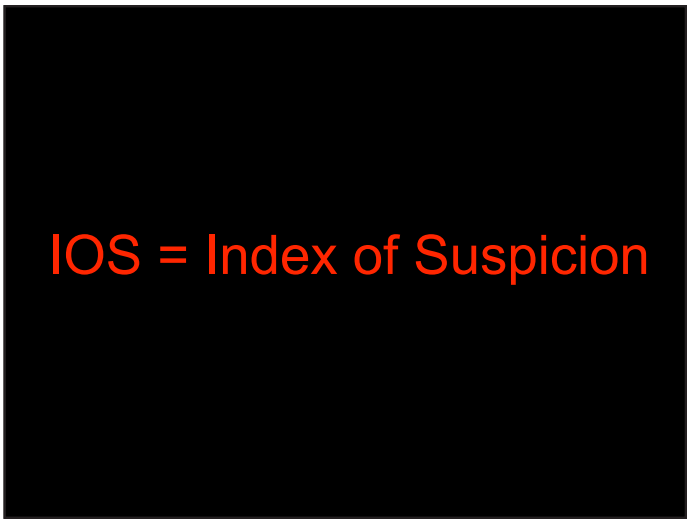


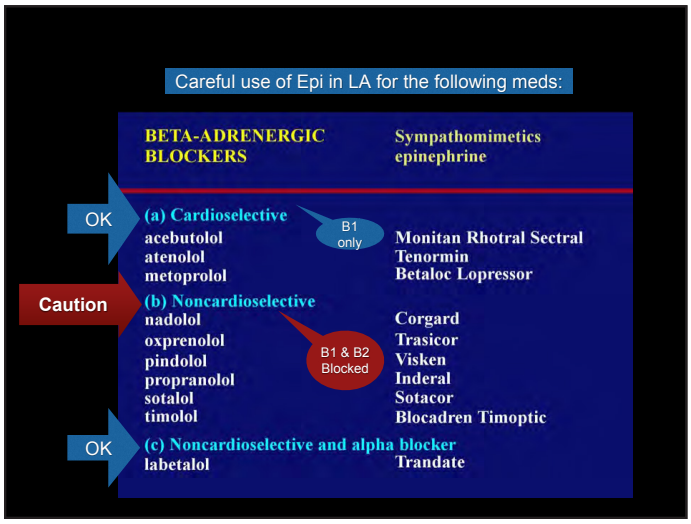
Pre-Frontal Cortex

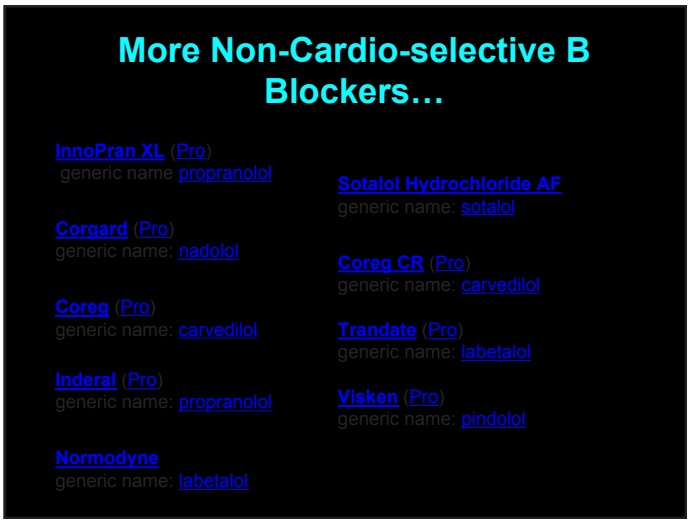

Temporal Lobe
Epi
Pre-Frontal Cortex
Memory


Adrenalin=Epinephrine
B1
B2
A1


Temporal Lobe
Epinephrine
Pre-Frontal Cortex
Memory


IOS = Index of Suspicion


Careful use of Epi in LA for the following meds:
BETA-ADRENERGIC BLOCKERS
Sympathomimetics
epinephrine
OK
(a) Cardioselective
acebutolol
atenolol
metoprolol
B1 only
Monitan Rhotral Sectral
Tenormin
Betaloc Lopressor
Caution
(b) Noncardioselective
nadolol
oxprenolol
pindolol
propranolol
sotalol
timolol
B1 & B2 Blocked
Corgard
Trasicor
Visken
Inderal
Sotacor
Blocadren Timoptic
OK
(c) Noncardioselective and alpha blocker
labetalol
Trandate


More Non-Cardio-selective B Blockers…
InnoPran XL (Pro)
generic name propranolol
Corgard (Pro)
generic name: nadolol
Coreg (Pro)
generic name: carvedilol
Inderal (Pro)
generic name: propranolol
Normodyne
generic name: labetalol
Sotalol Hydrochloride AF
generic name: sotalol
Coreg CR (Pro)
generic name: carvedilol
Trandate (Pro)
generic name: labetalol
Visken (Pro)
generic name: pindolol

More Non-Cardio-selective B Blockers…

Inderal LA (Pro)
generic name: propranolol

Betapace AF (Pro)
generic name: sotalol

Blocadren (Pro)
generic name: timolol

Hemangeol (Pro)
generic name: propranolol

Levatol (Pro)
generic name: penbutolol

Sorine (Pro)
generic name: sotalol

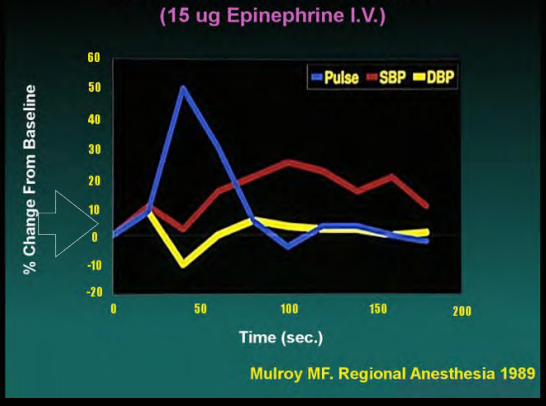
Sotylize (Pro)
generic name: sotalol

Trandate (Pro)
generic name: labetalol

Visken (Pro)
generic name: pindolol

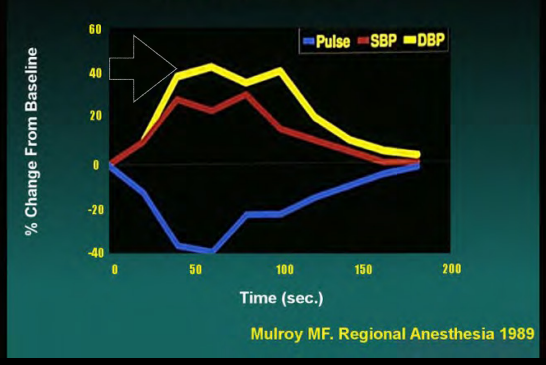
Non-Beta Blocked Patients

(15 ug Epinephrine I.V.)



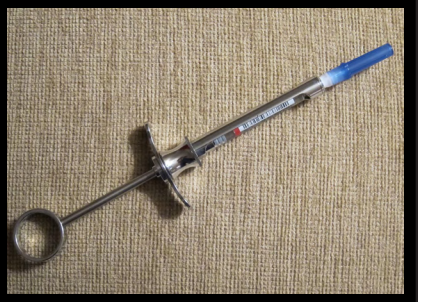
Beta Blocked Patients

(15 ug Epinephrine I.V.)



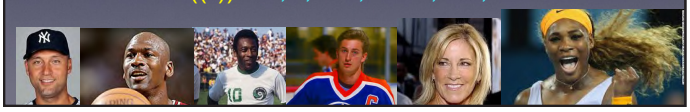
Stress related Emergencies

- Hypertension
- Hyperventilation
- Asthma
- Angina
- Anxiety Attack
- Seizures
- Syncope



"Blink"

- author: **Malcolm Gladwell** (2005)
- Great decision makers are those who have perfected the art of "Thin-Slicing"
  = filtering the very few factors that matter from an overwhelming number of variables
  Goldman Cook County
- "Don't think-BLINK"
- D.J—((*))-MJ,P,WG,CriEv,SW,

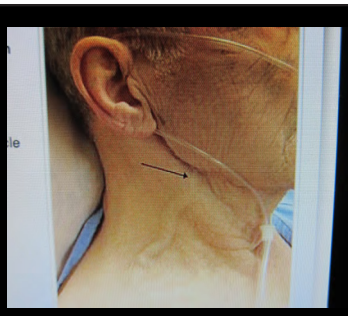


Thin Slice-PD

- Gait of pt. walking into office
- eye contact or not = tension vs. relaxed
- shake hands = *cold and dry* vs. sweating and warm…
  (*Hypothyroid* vs. Hyperthyroid)

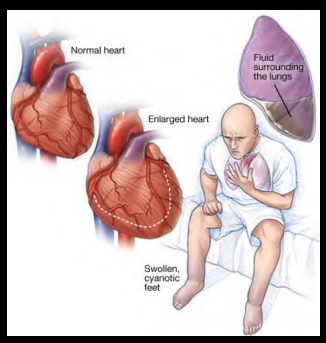
Thin Slice-PD

- face and forehead=cold, pale, sweating..pre syncope
- jugular vein distension - when upright, swollen ankles (CHF)
- breath sounds during conversation(Asthma)



With inability to walk up one flight of stairs = Oxygen

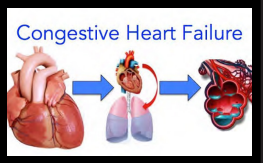
Congestive Heart Failure



Leading to Rapid Shortness of Breath

- Must ask questions……..

High risk for Shortness of Breath and Angina



- Can they finish a sentence without taking a breath?
- Is their BP Elevated?
- Can they walk up a flight of stairs?
- Do they have ankle pitting edema?
- Can they lay back?

If OK with these questions….

- Consider short appointment with patient taking breaks
- Administer 100% Oxygen

If OK with these questions….

- Pulse Oximeter (keep pulse down) - calming measures
- Limit use of Epi to two carpules of 1:100,000 = 0.036mg < 0.04mg

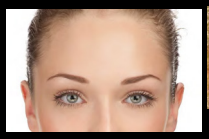
Meds frequently prescribed for CHF

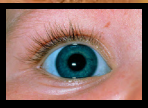
- **Beta Blockers:** Carvedilol (Coreg) Metoprolol (Lopressor, Toprol), Bisoprilol,
- **Diuretics:** Furosemide (Lasix)
- **ACE inhibitors:** (Vasotec) Lisinopril, Captopril, Ramipril (Altace)
- **Angiotensin receptor blockers:** losartan (Cozaar), Valsartan (Diovan)

Meds frequently prescribed for CHF

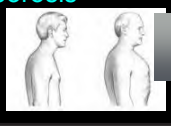
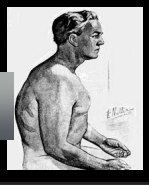
- **Combo meds:** Entresto ,Valsartan
- **Aldosterone antagonist:** spironolactone (Aldactonr), eplerenone,
- **Digoxin:** Lanoxin
- **Hydralazine and nitrates:** Apresoline, Imdur, Isordil

Exam at 20 paces…



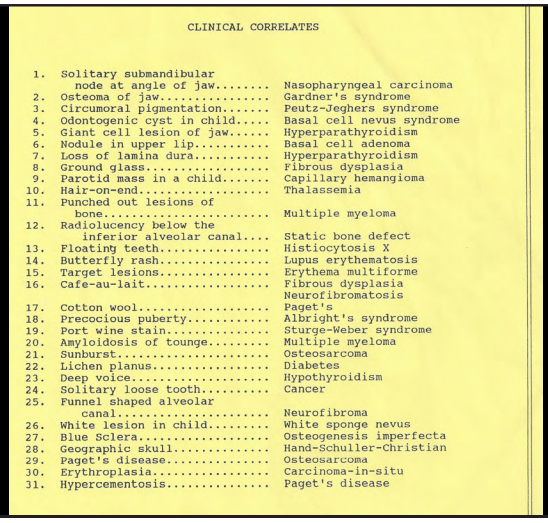
- Color of Sclera in eyes
- Barrel Chest of COPD and Osteoporosis

Blue Sclera

thinness of collagen fibers

- *Hypothyroidism*
- Osteogenesis Imperfecta (27)
- Conjunctival Melanoma



CLINICAL CORRELATES

1.	Solitary submandibular node at angle of jaw.....	Nasopharyngeal carcinoma
2.	Osteoma of jaw.....	Gardner's syndrome
3.	Circumoral pigmentation.....	Peutz-Jeghers syndrome
4.	Odontogenic cyst in child.....	Basal cell nevus syndrome
5.	Giant cell lesion of jaw.....	Hyperparathyroidism
6.	Nodule in upper lip.....	Basal cell adenoma
7.	Loss of lamina dura.....	Hyperparathyroidism
8.	Ground glass.....	Fibrous dysplasia
9.	Parotid mass in a child.....	Capillary hemangioma
10.	Hair-on-end.....	Thalassemia
11.	Punched out lesions of bone.....	Multiple myeloma
12.	Radiolucency below the inferior alveolar canal....	Static bone defect
13.	Floating teeth.....	Histiocytosis X
14.	Butterfly rash.....	Lupus erythematosis
15.	Target lesions.....	Erythema multiforme
16.	Cafe-au-lait.....	Fibrous dysplasia Neurofibromatosis
17.	Cotton wool.....	Paget's
18.	Precocious puberty.....	Albright's syndrome
19.	Port wine stain.....	Sturge-Weber syndrome
20.	Amyloidosis of tounge.....	Multiple myeloma
21.	Sunburst.....	Osteosarcoma
22.	Lichen planus.....	Diabetes
23.	Deep voice.....	Hypothyroidism
24.	Solitary loose tooth.....	Cancer
25.	Funnel shaped alveolar canal.....	Neurofibroma
26.	White lesion in child.....	White sponge nevus
27.	Blue Sclera.....	Osteogenesis imperfecta
28.	Geographic skull.....	Hand-Schuller-Christian
29.	Paget's disease.....	Osteosarcoma
30.	Erythroplasia.....	Carcinoma-in-situ
31.	Hypercementosis.....	Paget's disease

3 Signs associated with Hypothyroidism

- Cold and Dry handshake
- Peripheral Numbness
- Blue Sclera

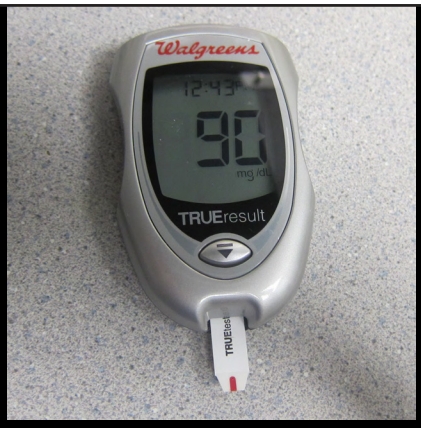
Hypothyroid

- Increased risk for hemorrhage*
- Cardiac pathology

*There may be an increased risk of hemorrhage due to platelet adhesion abnormalities, von Willebrand factor abnormalities, factors VIII and IX deficiencies, and increased capillary fragility

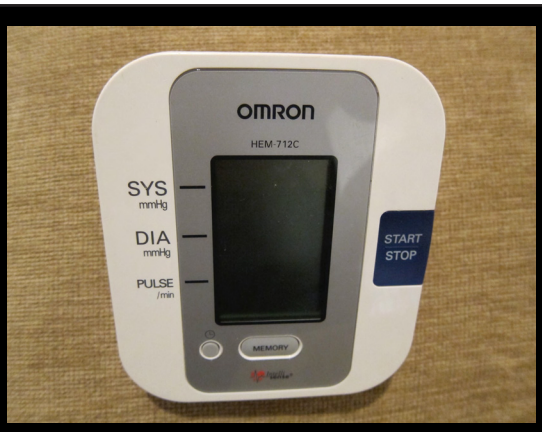
3 Suggested Products

To help screen and prevent Medical Emergencies



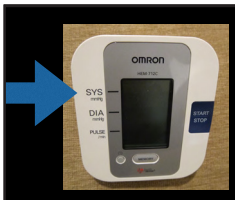
Glucometer

CVS, Rite-Aid and Walgreens



Auto-BP

Pulse Oximeter



X

- (Systolic BP) X (Pulse) : =

Rate Pressure Product (RPP)

Rate Pressure Product

- (Systolic BP) X (Pulse) :
- If over 13,000-15,000 suggests compromised ability of coronary arteries to supply oxygen to myocardium*

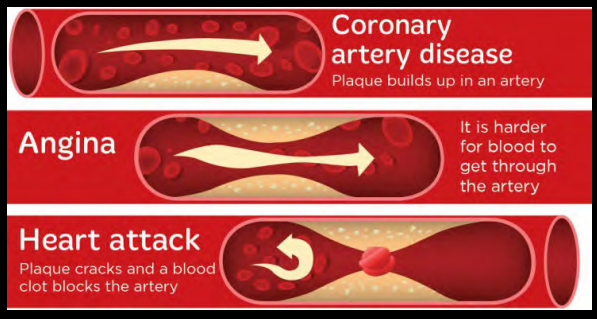
The association of Rate Pressure Product and Myocardial perfusion imaging.
Perfusion, 2012 May;27(3) 207-13 Ansari M Javardi H
10.1177/0267659112436631 EPub 2012 Feb 2

A comparative analysis of rate pressure product between prehypertensives and normotensives and its correlation with body mass index
Soundariya
Indian Journal of Clinical Anatomy and Physiology, October-December 2016;3(4):452-455

CHD (Coronary Heart Disease)

- Tends to develop when Cholesterol builds up on the artery walls - creating plaques.
- It also develops as a result of injury or damage to the inner layer (Tunica Intima) of a coronary vessel. This damage causes fatty deposits of plaque to build up at the injury site.

CAD, ANGINA, MI



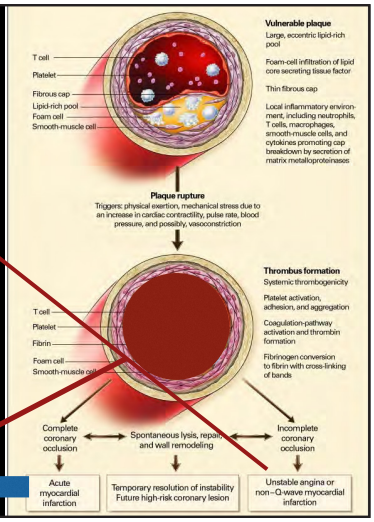
High Risk: Unstable Angina*

- Chest Pain at rest that is prolonged (> 20 minutes)
- Chest Pain that is increasing in frequency and requires more nitro to stablize
- New onset of chest pain

*Is Clinically Unstable and often leads to Myocardial Infarction, Arrhythmias or Sudden Death

Unstable Angina

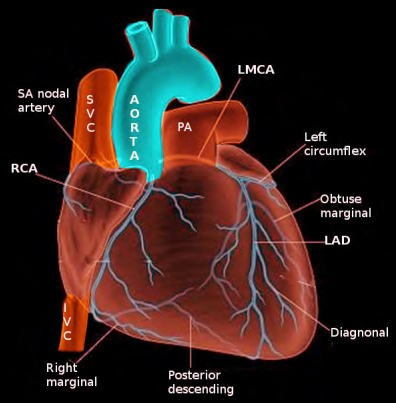
Accounts for over 1,000,000 hospital admissions/yr in the U.S.



HEART MUSCLE

- RBC's give up 30% of their Oxygen to peripheral muscle tissue but the heart muscle takes out
- 60% of the oxygen so it needs more and is more susceptible to less Oxygen than other areas

Coronary Vessels



Coronary Artery Disease (CAD)

- Is the most common cause of heart disease in the U.S.
- Accounts for over 400,000 deaths/yr in the U.S.
- This is more than 50% of all Heart Disease deaths/year*

*690,000

MEDICAL EMERGENCIES

- PREVENT

Oxygen as Premedication

- Any Patient with Angina - especially if using Nitroglycerin activly
- If the RPP is over 13,000 -15,000
- Oxygen Saturation is below 93%

Oxygen as Premedication

- History of CHF + JVD + Exertional Dyspnea
- Asthma treated with B agonists plus Steroids* and Anticholinergic meds: *Atrovent, Spiriva, and Incruse*
- Patients with a history of seizures not responsive to meds
- Macho Man 16-30 years old - first visit for an extraction

Steroids used for asthma include:

- -Medrol, Methylpred,
- -Solu-Medrol (methylprednisolone)
- -***Deltasone (prednisone)**
- -Prelone, Pediapred, Orapred, (prednisolone)
- -Decadron(dexamethasone)

Oxygen as Premedication

- History of an MI in the past 6 months
- RPP over 13,000 and BMI over 30
- Third Trimester of Pregnancy if having respiratory difficulty

IOS = Index of Suspicion

Four on the Floor

- Diabetes
- Epilepsy
- Asthma
- Angina

1) Taking a good history is the key to avoiding over 75% of all medical emergencies

2) Recording basic vital signs (BP, Pulse, Weight)

Important questions to prevent Emergencies:
Conversational History

- Do you drive? Diabetic or Epileptic patients who are not well controlled do not drive (assuming they knew how to), also Alcoholic patients may have their license revoked.
- Can you walk up a flight of stairs or walk one block without stopping? Do you need multiple pillows below your head to sleep?

- For Diabetic patients:
  Type I or Type 1I?
  Did you take you meds today?
  Did you eat?
  Ever been in the hospital for problems?
- Epileptic patients:
  what type? (Grand Mal or Petit Mal)
  what is your aura?
  how often and when was your last attack?
  Ever been in the hospital for problems?

Four on the Floor

- Diabetes
- Epilepsy
- Asthma
- Angina

- For Asthmatic patients:
  what type-allergic, environmental, emotional, Do you have your inhaler? Ever been in the hospital for problems?For
- For Angina patients:
  what are your signs and symptoms? how often do you get them? what do you do? how often do you use nitro?
- Ever been in the hospital for any problems?

D_A_S_H_ the ABC'S
must ask questions every time

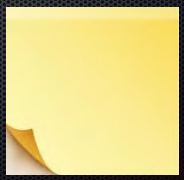
D_A_S_H_ the ABC'S
must ask questions **every time**

- Any New Drugs
- Any Allergies
- Any Surgeries
- Any Hospitalizations

DASH the ABC'S
must ask questions every time

- Any New Drugs
- Any Allergies
- Any Surgeries
- Any Hospitalizations
- Aspirin regimen or sensitive to it
- Any Bleeding disorders or history
- Chest Pain - any history of
- Shortness of Breath

Post it 911 internal code
eg: "126" ---55 y/o female severe chest pain
ang,asth,...AGE, Sex, CC

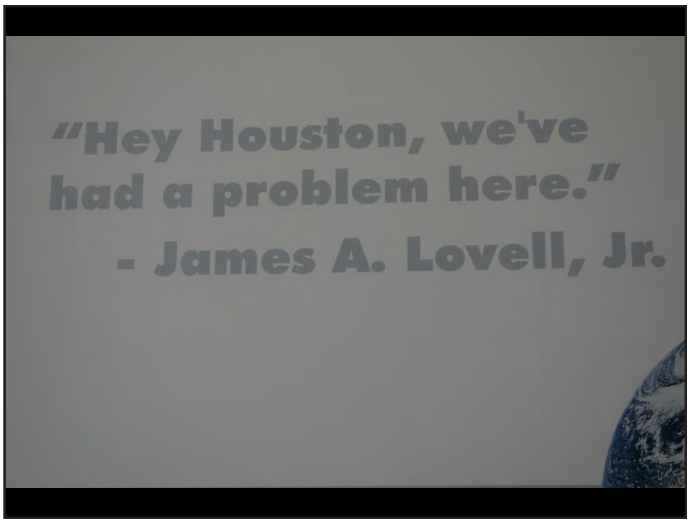


Practice Drills*

& use the

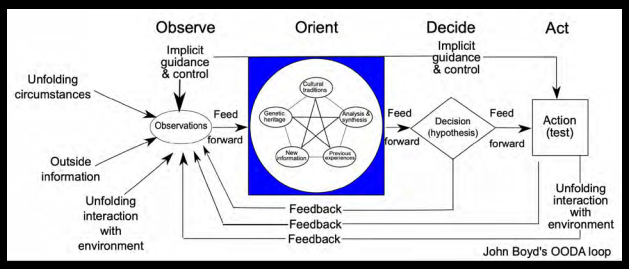
Color Coded Cards

*Cancellation!



O O D A

The OODA Loop



OODA

NOW Ativan (Lorazepam) can be used IV/IN/and IM in the Buccal Tissue

4 mg IV @ 2 mg/min

US Air Force Colonel John Boyd's OODA Loop

01 Observe
Data collection phase from multiple sources

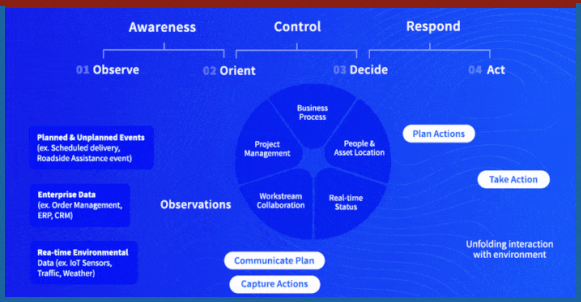
02 Orient
Filter, analyze, and, enrich, information

03 Decide
Actionable insights enable best available response

04 Act
Execute decision, determine if action was correct.

Capture action and feedback.
Repeat a faster more accurate OODA loop.

OODA Loop in Business



O.O.D.A.

~Observation
~Orientation
~Decide
~ACTION=MANAGEMENT

Surviving Seven

"OODA" & "Thin Slice PD"

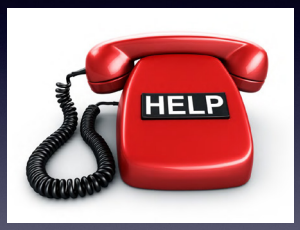
Conversational History with "4 on the Floor"

"Post it 911"

"The Three Un's"
DASH the ABC's

OODA

Do not hesitate to call 911



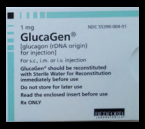
Just Do It!
male vs. female

Note: placing the drugs where you want them with color coding, is in itself, a practice drill for the actual emergency

Routes to administer a drug:

- ET
- IV
- *IN (Atomizer)
- IO
- *Inhale
- IM Auto-Injectors (2)
- SC
- *SL
- ~~Topical~~
- *PO

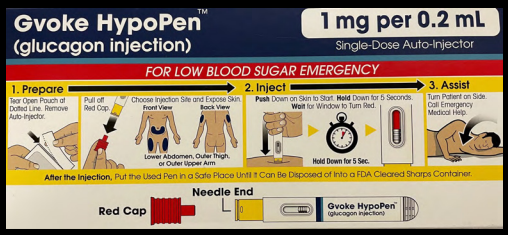
Drugs included in the "Top 10 List": how delivered



- IV: 15 to 30 seconds NONE!
- IN: Equal to IV or up to 5 minutes - 4 drugs in kit: (Midazolam, Glucogon, Narcan)

- PUMP AEROSOL: Albuterol and Nitroglycerin 3-4 minutes

Newest Additions:



- IM Glugogon: HypoPen
- IN Nayzilam (Midazolam)

Flip side..1mg.

This is presently the only Glucogon available as a nasal powder*

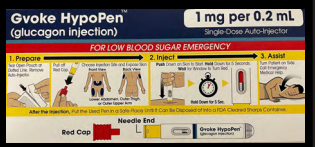
Not for Children under the age of 4

Major Improvements for Unconscious Hypoglycemic

Today we have IN Glucogon

&

Auto-Injector IM Glucogon



More info on Nayzilam

Nayzilam

-INDICATIONS AND USAGE-

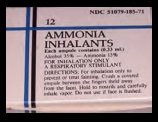
NAYZILAM is a benzodiazepine indicated for the acute treatment of intermittent, stereotypic episodes of frequent seizure activity (i.e., seizure clusters, acute repetitive seizures) that are distinct from a patient's usual seizure pattern in patients with epilepsy 12 years of age and older.

-DOSAGE AND ADMINISTRATION-

Administer NAYZILAM by the nasal route only.
Initial Dose: Administer one spray (5 mg dose) into one nostril.
Second Dose: One additional spray (5 mg dose) into the opposite nostril may be administered after 10 minutes if the patient has not responded to the initial dose.

Maximum Dosage and Treatment Frequency: Do not use more than 2 doses of NAYZILAM to treat a seizure cluster.

Drugs included in the "Top 10 List"



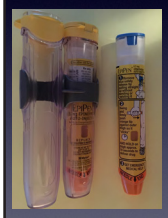
- INHALE: O_2, Nitrous, Spirits of Ammonia, Albuterol in Nebulizer

- IM: 5-10 minutes - Epi and Benadryl and now Glucogon (HypoPen)

- MUCOSAL ABSORPTION: Sub Lingual = Nitroglycerin

- PO: up to an hour: Aspirin = Chewed first, Benadryl Elixir = less time

Basic (10) Emergency Kit



- *Oxygen Tank as an: **"E" Cylinder"** with AMBU Bag

- 1) **Epi:** as **Epi Pen 2-Pak** (**0.3mg** of 1:1,000) and Epi solution for IM use (1:1,000) = has 0.3mg in 0.3cc or 0.3ml of solution—and also **Epi Pen Junior** = **.15mg** = the dose.

33 lbs to 66 lbs or 15 kg to 30 kg

200 lb = 91 kg

Anaphylaxis

- Up to 2% of the population will have this occur and it's getting more common.
- If the allergen enters via blood - it takes 5-30 minutes for a reaction
- If the allergen enters orally symptoms appear within 2 hours

Anaphylaxis…..

- Hives
- Itchiness
- Flushing (red face or skin)
- Swollen lips
- Runny nose
- Swelling of the mucous membranes of the eyelids
- Angioedema (swelling) of the skin - feel like skin is burning

Anaphylaxis

- **Respiratory:** Shortness of breath (cause of death)*, Bronchospasm, Hoarseness, Pain when swallowing, Cough
- Wheezing
- Stridor
- **Cardiovascular:** If cells in the heart release histamine - MI or Coronary Spasm - Arrhythmia also — DECREASED BP!! - major issue leading to LOC to *Cardiogenic Shock = (cause of death)**

*Between 1.0% - 20% of people who have this will die

Anaphylaxis

- Heightened Index of Suspicion: IOS:
- **Children with Asthma:** 90% of Children who die from an Anaphylactic Reaction have Asthma!

Anaphylaxis

- You loose 1/3 to 1/2 the volume of your body to edema and therefore a severe lowering of BP
- The effect of placing supine is equal to a 2 liter infusion of fluids!

Treatment for Anaphylaxis

- If Respiratory distress-position upright
- If Cardiovascular distress (low BP) (LOC) - Position supine = 2 liters of fluid
- 100% Oxygen to start
- Epi 0.3mg of 1:1000 adult (up to 0.5mg)
- Note: dose is 0.01mg/kg up to 0.5mg. (221 lb = 100 Kg = 1.0 mg)

To differentiate from Severe Allergic Reaction

Criterion 1*

- Skin and/or Mucous Membranes
- Respiratory
- BP

To differentiate from Severe Allergic Reaction

Criterion 2*

- Skin and/or Mucous Membranes
- Respiratory
- BP
- GI

To differentiate from Severe Allergic Reaction

- BP below 90 mm Hg Systolic (pt will go from AC to LOC) - engage in conversation = will stop talking or responding.
- Respiratory Compromise: Dyspnea, Bronchospasm
- Stridor = high pitched wheeze

To differentiate from Severe Allergic Reaction

- Persistent Abdominal Pain: Cramps and Vomiting
- Incontinence

To differentiate from Severe Allergic Reaction

Criterion 3*

- In Children and Infants = > 30% reduction in Systolic BP
- Adults = SBP < 90 mm Hg. or > than 30% decrease from base line

Anaphylaxis Differential Dx:

Asthma, Fainting due to lack of oxygen, Panic Attacks, Anaphylaxis

- Asthma attacks do not have itching, swelling, pain in stomach or abdomen.
- With fainting, skin is pale not flushed and breath sounds are normal vs. wheezing or stridor
- Panic attack does not have hives or swelling or itching, breath is normal, BP will not be low.

- EpiPen 2-PAK has 2 doses and a Trainer

Case A

- .3 of 1/1000 OK for 150 lb
- .5 of 1/1000 if **over 200 lb = 91 Kg** but

How to make it?

Exhibit A

Epi pen + Epi Jr.

- .3 + .15 = .45 (close enough)

Case B

- Time issue - run out of Epi Pens *used 2 (.3) Pens (Q5-7 minutes) and no response from EMS and now need another dose*

How to make it?

Exhibit B

Epi Jr. + Epi Jr.

- If at 10-14 minutes and used both Epi Pens and no EMS response and need a 3rd dose

Case C

Asthmatic not responding to Albuterol Pump or Nebulizer

- Elderly, frail (80 -100 lb) and on multiple
- Cardiac meds

How to make it?

Exhibit C

Epi Jr. 1st followed by another Epi Jr.

- If 1st dose is not effective

Case D

- Unconscious Diabetic from Hypoglycemia
- No EMS nearby
- No Glucogon in any form
- Get a blood sugar reading
- Consider Epi Pen or Epi Pen Jr or neither

Exhibit D

or

Depending on Signs and Symptoms
If approaching 40dl/ml to consider Epi Pen if over 60dl/ml and LOC consider Epi Jr. and test again*

*Note: This will now reverse hypoglycemia to consciousness but will raise Blood Sugar from dangerously low

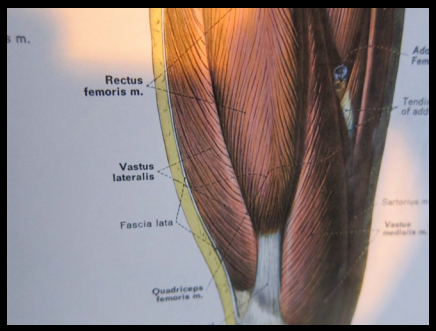
*NEJOM

- New England Journal of Medicine 377;12 NEJM.org Sept. 21, 2017
- Stacie Jones, MD & Wesley Burks, MD
- U. of N. Carolina, Chapel Hill, NC

The diagnosis and management of anaphylaxis practice parameter: 2010 Update
Lieberman P, Nicklas RA, Oppenheimer J.
Allerg Clin Immunol 126:477-480, 2010

- "The more quickly anaphylaxis develops, the more likely the reaction is to be severe and potentially life-threatening"
- There is no absolute contraindication to epinephrine administration in anaphylaxis

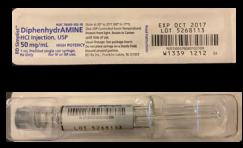
YOU MUST BE ASSERTIVE!
in an ANAPHYLACTIC REACTION
If you use Epi - the patient may die, *However*
If you don't use Epi the patient
WILL DIE !



Vastus lateralis muscle

Meds to use

1) **Epinephrine** 0.3 mg to 0.5mg of 1:1,000 solution IM (Q5-7 min)
2) Albuterol Inhaler/Nebulizer
3) Diphenhydramine 50 mg IV/IM
4) to be continued….Glucogon has another use!!



Allergic to Latex

- Avoid: Avocados, Bananas, Potatoes ~~~~~~~~~~~~~~~~~~~~
- **If allergic to bees, wasps, hornets, yellow jackets and fire ants stings..Hymenoptera venom**
- Up to 90% for adults, and up to 98% for children can be desensitized!

Basic (10) Emergency Kit

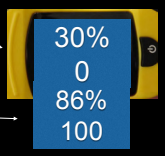
- 2) ***Spirits of ammonia** (crush and wave 8”- 10”s under nose)
- 3) **Benadryl Elixir** and Benadryl 50mg/cc for IM injection and 50mg. tablets
- 4) **Nitroglycerin pills** or (pump) sublingual = dissolve under tongue
- 5) **Aspirin** (4 baby, 81mg. each) to be chewed then swallowed- after Nitro in “MONA” for MI

When? Case Scenario

Pulse Oximeter!

R/O's for LOC

- Low Blood Sugar (Hypoglycemia)
- Bradycardia/Hypotension
- Anemia
- Dehydration
- SAH, PE, AAA
- Seizure
- Stroke - Pulse?
- Cardiac Arrest - Pulse?



No Response but :Yes Pulse

No Response **and** No Pulse

Stroke Assessment

- Cincinnati Stroke Scale...used in ER
- Simple scale for office use...(FAST)
- F) Facial Drooping
- A) Arm drift
- S) Slurred Speech
- T) Time is CRITICAL = call 911!! FAST

(If one of the 3 = 72% Stroke, if all 3 present = 85% Stroke)

What we hear we forget..

What we see we remember....

WHAT WE DO WE KNOW.....

Mild - Moderte Allergic Reaction

Benadryl Elixir will work work faster than pills or tablets

- Children's section:

Nitroglycerine

SL administration = vasodilation & results in a reduced venous return, with preload reduction, lowering myocardial O_2 consumption

Blocks - Phosphodiesterase =vasodilation

+ Nitroglycerine dilates the coronary vessels of the heart by 28%

Nitro…

- **With signs of angina pectoris, one tablet or spray (0.3 or 0.4 mg) should be administered sublingually.**
- **Relief of pain should occur within minutes. If necessary, this dose can be repeated twice more in 5-minute intervals.**

BUT….

Nitro…

- **Systolic blood pressures below 90 mmHg will contraindicate the use of this drug as well as use of ED meds:**
- **Viagra and Levitra** = within 24-48 hrs.
- **Cialis** = within 72 hrs.

Nitro may also be used for:

- Hypertensive crisis in a BSS
- Pulmonary Edema secondary to CHF in a BSS

Aspirin Thrombolytic

- **Aspirin: reduces mortality from acute MI @162 mg. Few contraindications. These would include known hypersensitivity to aspirin, severe asthma or history of significant gastric bleeding**

MONA (for MI)

- M = Morphine
- O = Oxygen
- N = Nitroglycerin
- A = Aspirin

- Nitrous/Oxide as alternative to Morphine at: 4L/4L flow
- Nitroglycerin then followed by:
- Aspirin (4 baby non-enteric coated, chewed)

Women only…

- EXTREME FATIGUE -you cannot get up in the morning after a good nights sleep
- Belching - Nausea - Indigestion
- Pain between the shoulder blades usually on the left side

Heart Attack Warning Signs in Women

-Upper Back Pain - between shoulder blades

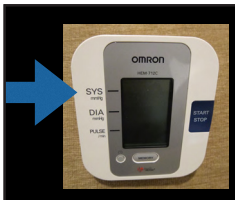
-Heartburn

Women only…

- Shortness of Breath - Mild - Moderate
- 50% of the time - Silent MI - seen on an EKG as an "*inverted Q wave*"* *marker of a previous MI

What is the Rate Pressure Product?

How do you determine it?



X

- (Systolic BP) X (Pulse) : =

Rate Pressure Product (RPP)

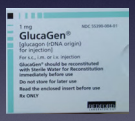
Rate Pressure Product

- (Systolic BP) X (Pulse) :
- If over 13,000-15,000 suggests compromised ability of coronary arteries to supply oxygen to myocardium*

The association of Rate Pressure Product and Myocardial perfusion imaging.
Perfusion, 2012 May;27(3) 207-13 Ansari M Javardi H
10.1177/0267659112436631 EPub 2012 Feb 2

A comparative analysis of rate pressure product between prehypertensives and normotensives and its correlation with body mass index
Soundariya
Indian Journal of Clinical Anatomy and Physiology, October-December 2016;3(4):452-455

Basic (10) Emergency Kit


- 6) **Albuterol** (ventolin or proventil), presently Pro-Air and/or **Nebulizer with Albuteral packets**
- 7) **Glucose** (insta-glucose) Glutose*, Packets of sugar, soft drinks, and GlucaGen which is **Glucogon for IM/IN use—1.0mg/cc**
- 8)* **Midazolam (Versed) IM/IN use** - 5.0mg/ml for a BSS Condition - NYC -since 1978 - 20 Snow Blizzards

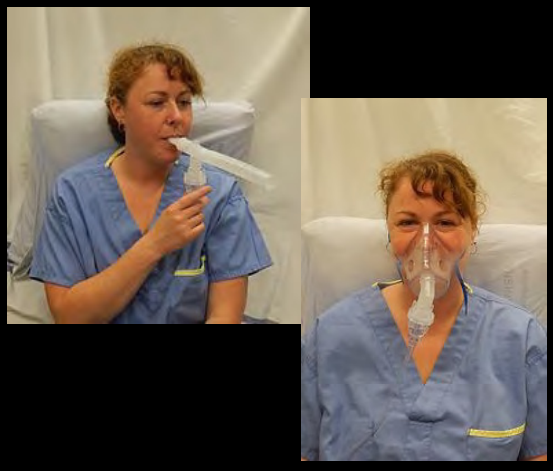


Nayzliam

Pre-filled syringe(s): (PFS)

- Gvoke (Glucogon)
- Benadryl

Asthma



Treatment of Bronchospasm(Asthma)

- 1) Comfortable position-usually sitting up
- 2) 100% Oxygen
- 3) Use of inhaler (bronchodilator)-2X and consider use of a nebulizer 5 minutes of continuous albuterol flow

Treatment of Bronchospasm(Asthma)

- 4) Call EMS if 2 doses does not relieve spasm or if there is no prior history of asthma--R/O possible Anaphylactic reaction..
- 5) If condition worsens EMS-Epi 0.3mg of 1/1000*

Consider Epi Jr. if Elderly, Frail and Cardiac Hx

Diabetes

- DM is the **6th** leading cause of death in the U.S.
- Average loss of **13** years of life
- Leading cause of death with DM is MI and Stroke

Diabetes

- DM is the leading cause of new blindness
- DM is the leading cause of End Stage Renal Disease
- Cost of treatment for complications of DM = 200+ Billion Dollars/yr

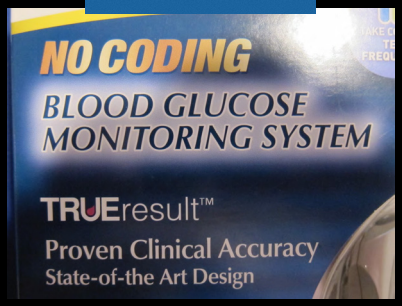
Type I Diabetes

- Predisposition if your father or grandfather has DM 1

Type II Diabetes

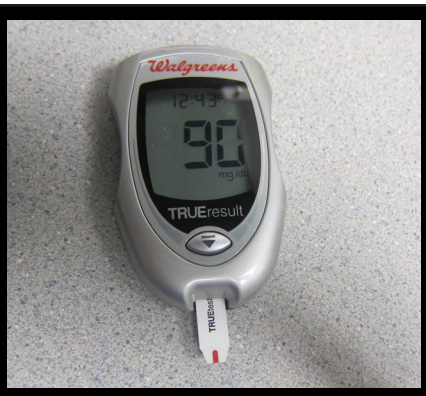
- Genetic predisposition with Mother having Type II DM
- Of all women with Type II DM - 11% have a child with DM Type II
- Of all men with Type II DM - 4% have a child with DM Type II.

Diabetes



Glucometer

Diabetes is the most frequently occurring Metabolic Endocrine Disorder facing the U.S. and the World Today



Not Hypoglycemic

Multiple Uses of a Glucometer:

1) Can be used to determine if Blood Sugar is too low prior to the procedure in Diabetic patients and if so, then make necessary changes prior to initiation of a procedure

2) Can be used post op to see if patient needs sugar before leaving the office if long or possible long trip home

Pre and Post Op

Multiple Uses of a Glucometer:

3) Intra-Op check point

4) Can be used in a seizure to determine if Seizure is being caused by a low Blood Sugar, or not = will determine best course of action

Intra Op and Emergency

Hypoglycemia

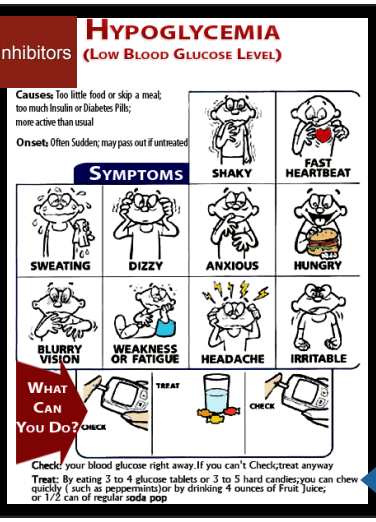
- MILD <65 mg/dL: forehead sweating, light headed, cold, clammy wet skin, nausea, tachycardia, trembling, numbness
- MODERATE <50 mg/dL: confusion to irritability to anger (altered consciousness), dizziness, slurred speech, blurred vision,
- SEVERE <30 mg/dL: (LOC)= loss of consciousness, seizures, hypothermia, coma

Insulin shock-continued…what happens one hour later...

- 1) If driving- possible accident (possibly going the wrong way on a highway)

To be continued…….

Alpha Glucosidase Inhibitors



No

Signs and Symptoms of Hypoglycemia:

sweating
shaking-tremor
confusion-disorientation
cold moist skin
cannot reason with patient
bizarre behavior to
deer in the headlights
numbness of lips, fingertips
tremors
headache
Lack of or poor coordination

Treatment for Hypoglycemia

- Sugar drinks...O.J. (usually first choice), then soft drinks (not diet), fruit juices, and candy* except when on:
- You may have to force the patient to drink this-but only while conscious!
- If patient is going to altered consciousness: do not use cake frosting in a tube or Insta-Glucose
- Can be aspirated into lungs

Precose and Glyset

- If fully recovered from hypoglycemia--continue with treatment if you AND the patient are comfortable.
- Patient can go home, if they are fully recovered from hypoglycemia*
  * How does this compare to Syncope?
- If in doubt.....?

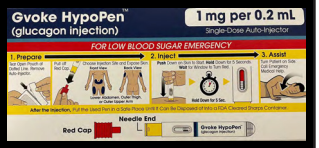
Glucogon

- Glucagon is available as 1 mg formulation, which requires reconstitution with its diluent immediately prior to use
- One dose of Glucogon can raise your blood sugar by as much as 250mg/dl, depending on how much glycogen was stored in the liver.

Today we have IN Glucogon

&

Auto-Injector IM Glucogon



This is presently the only Glucogon available as a nasal powder*

Not for Children under the age of 4

Glucogon is a:

B Agonist!

Glucogon

- **The dose for an adult (Glucogon) is 1 mg - IM or IN* If the patient is less than 20 kg, (44 lbs) the recommended dose is 0.5 mg**
- **One dose of Glucogon can raise your blood sugar by as much as 250mg/dl, depending on how much glycogen was stored in the liver.**

*Note: Baqsami is 3 mg as it is not a liquid but a powder

Other Med's to use in a Anaphylactic Reaction

1) **Epinephrine** 0.3 mg to 0.5mg of a 1:1,000 solution IM(Q5-7 min)
2) **Albuterol** Inhaler/Nebulizer
3) **Diphenhydramine** 50 mg IV/IM

Very Rare but:

If B Blocked

?

Adrenalin=Epinephrine

- ~~B_1~~=directly increases heart rate and cardiac output..
- ~~B_2~~=causes relaxation of smooth muscles in Lungs.....allowing open passages and more air exchange, and in the pupil—causes ciliary muscle relax - far vision focus and there is dilation of pupil
- A_1=causes contraction/constriction of peripheral smooth muscle in arterioles---increasing blood pressure...

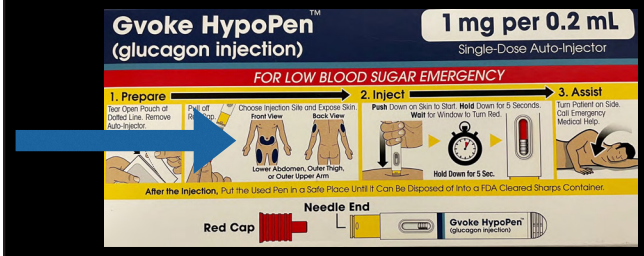
Glucogon is a:

B Agonist!

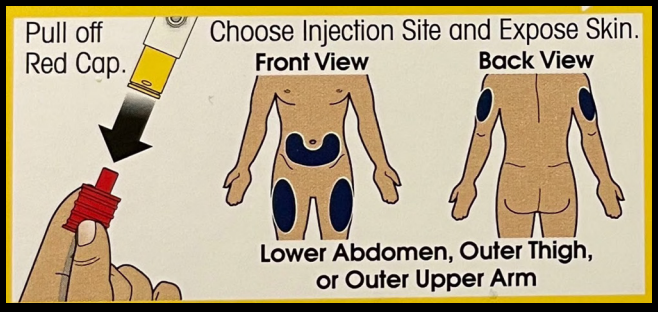
Other Meds to use in an Anaphylactic Reaction

1) **Epinephrine** 0.3 mg to 0.5mg of a 1:1,000 solution IM (Q5-7 min)
2) **Albuterol** Inhaler/Nebulizer
3) **Diphenhydramine** 50 mg IV/IM (available in a PFS)
4) **If B blocked** (Inderal-Propranolol) **and not responding** then consider use of **Glucogon (now Auto-Injector)**

Will probably need both Hypo Pens



- 1 mg plus 1 mg



8 Classes of Oral Meds for Diabetes

- **Alpha-glucosidase inhibitors:** blocks the action of alpha-glucosidase which breaks down carbs like starches and Sucrose to Glucose. *Acarbose* (***Precose***) and *Miglitol* (***Glyset***). This slows down digestion and so glucose passes into the bloodstream slowly and blood glucose levels stay lower after a meal. Side effect is abdominal discomfort from the undigested carbs. Often combined with other meds that can cause hypoglycemia ***Do not give sucrose (table sugar or candy) - will have little effect. So give Glucose (Dextrose) as tablets or a gel..***

Precose and Glyset

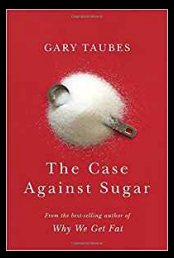
Precose and Glyset

Cardiac events…

- **Average age for a Male with first Cardiac Event is 66**
- **For a Woman it is now 72, except if Diabetes is a risk factor, as this increases the chances of a cardiac event 4x's, to below the age of 60.**

Gary Taubes
The Case Against Sugar

"Sugar is the tobacco of the New Millennium"



Doris Kerns Goodwin
Tony Curtis
Jack Welch

Availability of Processed Sugar

- Since Sugar has been available commercially to the public the incidence of Chronic Disease has been increasing at the same proportional rate.
- Alarming rate of increase in Type II Diabetes

Average Child in the U.S. has 50 lbs of Sugar/ year from the ages of 4 to 8.

REALLY!

Sugary drink consumption and risk of Cancer

BMJ 2019; 366 https//doi.org/10.1136/bmj.l2408(Published July 10, 2019)
BMJ 2019;366:12308

WHITE or YELLOW

- Syncope *Altered consciousness

Hypoglycemia: LOC- can result in *Seizures*

- Call 911--then
- Position patient - Head/Tilt & Chin/Lift
- Oxygen
- If BSS or S & S worsening--IntraNasal or Auto-Injector HypoPen =Glucogon B.S.S.
- Once EMS arrives they will administer Glucogon 1 mg. (IM/IN/IV) and/or IV 20% Dextrose bolus then a 5-10% Glucose infusion

Hyperglycemia:

- This is ***very infrequent*** as it occurs over a period of days and not hours.
- Ketoacidosis-can lead to Diabetic coma
- Can be seen in patients who are not compliant and do not take their insulin or
- In a compliant diabetic patient who has recently gone through significant physical and or emotional stress.

Hyperglycemia:

- Lethargic and fatigue-(not agitated and shaking like in hypo state) secondary to dehydration
- Nausea
- Acetone breath (fruity odor)
- Ketones in urine-ketoacidosis-body is in a state of metabolic acidosis...body will now go into:
- Prolonged, rapid and deep breathing - known as KUSSMAUL BREATHING--The body's attempt to reverse the acidosis.

Dentists Role

- Identify patients who are at risk for Diabetes and Pre-Diabetes: Family history, Overweight, Hypertension, Ethnic background, Sedentary lifestyle.
- A1c testing in-office with ADA code: and the appropriate Medical Referral for these patients.
- Assist those who have Diabetes to control their A1c with ideal Periodontal Treatment and Maintenance.

Dentists Role

- As of January 2018: New ADA code: D0411
- American Diabetes Association recommendation is to have all over 45 tested for A1c levels

Questions to ask all Diabetic Patients

- Do you Drive?
- First diagnosed when?
- Latest A1c levels? and what are the levels?
- How often do you check your Blood Sugar?
- Did you eat and take your medications today?
- Any Exercise and/or Alcohol use today?

Questions to ask all Diabetic Patients

- Do you get infections frequently?
- When did you last experience Low Blood Sugar (Hypoglycemia)?
- How many episodes of hypoglycemia have you had in the last Week? Month?
- Have you ever lost consciousness while experiencing hypoglycemia?

Seizures=Convulsions

Seizures and Convulsions=Generalized skeletal muscle contractions

Many people have a predisposition to seizures, it depends on their seizure threshold....On December 16,1997 during a single broadcast (in Japan) of the Pokemon series (Denno Snshi Porgyon) also known as Electric Soldier Porygon...685 people were taken to local hospitals and over 10,000 viewers became sick. Some of these people were hospitalized for up to 2 weeks.

If low seizure threshold do not look!

Warning…

Causes of Seizures

- ☐*Epilepsy
- ☐*Hypoglycemia (Diabetes)
- ☐*Cerebral Hypoxia
- ☐*Local Overdose
- ☐*Drugs/alcohol
- ☐*Stroke
- ☐Renal failure
- ☐Hyperthyroidism
- ☐Head injuries
- ☐High Temperature
- ☐Meningitis
- ☐Brain tumor
- ☐Electrolyte imbalance
- ☐Toxins

* More likely causes in our offices

S & S's of Seizures

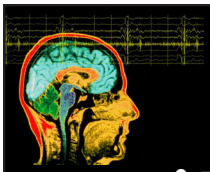
- ☐Aura - where seizure starts
- ☐Stiffness/muscle rigidity
- ☐LOC
- ☐Loss of bladder control
- ☐Confused and fall asleep after LOC-must support airway HT/CL

Focal Onset Seizures*

(maintain consciousness)

- Focal Aware Seizure **Simple** - changes in sensation or motor activity
- Focal impaired awareness Seizure **Complex** - loss of awareness but conscious - can easily be confused with drug or alcohol abuse

***Old name was Partial Onset Seizures**



Generalized Onset Seizures=(LOC)*

- **Tonic-Clonic** (GTCS)* = Grand Mal
- **Absence Seizure** = Petit Mal Seizures - can blink, pucker, stare
- **Atonic Seizures** = Drop Attacks - go limb - head may nod or you fall - short

*These start on both sides of the brain vs Focal (one side)

* The Seizure is usually only 2-3 minutes and rarely life threatening - it's the surrounding environment that can can pose a serious threat to health

AutoImmune Seizures AED* Resistant Seizures

- Inidividuals with Autoimmune Diseases: ie: Lupus, DM Type I, Celiac Disease, RA, MS, Psoriasis
- Are more susceptible to Epileptic Seizures and often
- Do NOT respond to traditional seizure meds and treatment

Anti Epileptic Drug

AutoImmune Seizures AED* Resistant Seizures

- Several studies now show the presence of autoantibodies in autoimmune epilepsy patients. These AutoAntibodies against foreign substances (Viral, Bacterial) are mistakenly turned against healthy brain neuronal tissue.

Anti Epileptic Drug

AutoImmune Seizures AED* Resistant Seizures

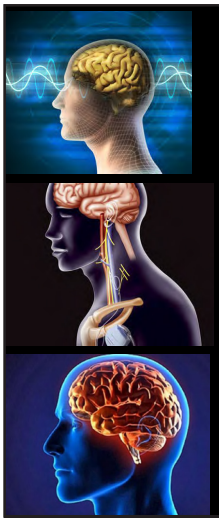
- Best new finding is that when and if an autoimmune etiology is discovered
- Then treatment with Immunotherapies can and does dramatically impact recovery
- 81% of these treated patients can then have significant improvement and….

Anti Epileptic Drug

AutoImmune Seizures AED* Resistant Seizures

- 81% of these treated patients can then have significant improvement and….
- **67% of these treated patients have SEIZURE FREEDOM most of which were AED Resistant!!**

Anti Epileptic Drug



- **STATUS EPILEPTICUS=** a continuous seizure over **5 minutes** or recurrence of any type of seizure without recovery phase between attacks...CALL 911!!
- EMS....will give anticonvulsant meds..IV benzodiazepines…**Midazalam** IM or IN (intra-nasal)* **Now Nayzilam IN**
- while waiting..(give 0_2)

The drugs to use for a seizure are:

- Oxygen 100%--after the seizure ends
- This will raise the threshold for a second seizure
- Take a Blood Glucose measurement = use the Glucometerl! - most frequent cause of the seizure (other than Epilepsy) is hypoglycemia - treat with **Glucogon** if continuing-1 cc Intra Nasal or HypoPen IM

The drugs to use for a seizure are:

- Valium (Diazepam) (prefer IV)- Today= **Versed (Midazolam) (IN) or IV** may be used especially if this is not hypoglycemia and patient is in Status Epilepticus - In the ER: **Lorazepam (Ativan)**
- Now we have IN (premixed) **Nayzilam**

More info on Nayzilam

GTCS

- Prepare the patient: remain in the dental chair
- Loosen any tight clothing
- Place something soft under the head

- Protect against involuntary movements that may cause self-induced injury
- Maintain airway: After the seizure, as there will be CNS, Respiratory and CV depression

- Do not attempt to ventilate during the seizure
- Turn patient to the side to protect airway against vomiting and aspiration

- Have someone time the seizure
- After seizure is over:
- 1) Suction and maintain airway, give Oxygen and be supportive **and**
- 2) **Check pulse!** - as Seizures can be a precursor to Cardiac Arrest (use a pulse oximeter)

+

- 3) Check the blood sugar with a Glucometer to R/O Hypoglycemia as the cause of the seizure

Use Meds only if:

- Seizure is over 5 minutes or
- Another Seizure occurs after the first is over

Causes of Seizures

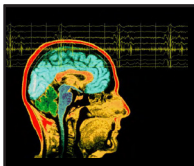
not from Epilepsy...In office:

- Hypoglycemia-if untreated - Glucogon-BSS
- Cerebral Hypoxia - can be iatrogenic - secondary to syncope and not placing patient correctly

Causes of Seizures

not from Epilepsy...In office:

- Local Anesthetic Hypersensitivity-shaking after local administration this is Mild vs.
- Stroke
- Extremely High Blood Pressure
- High Temperature



Causes of Seizures:

In Epileptic patients….

- Missing medications
- Alcohol Abuse
- Drug Abuse: Cocaine or Ecstasy
- Lack of sleep

Causes of Seizures:

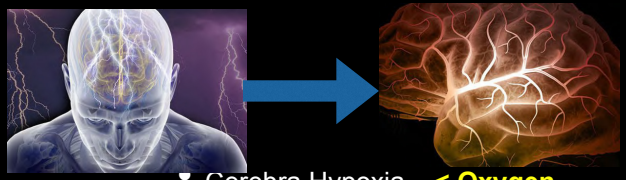
In Epileptic patients….

- Stress - Epileptic history, low seizure threshold (new environment, new people)
- Hunger
- Flashing lights……

More info on Nayzilam

3 Causes of Seizures

(not from Epilepsy)



- Cerebra Hypoxia **< Oxygen**
- Hypoglycemia **< Glucose**
- Local Anesthesia Hypersensitivity

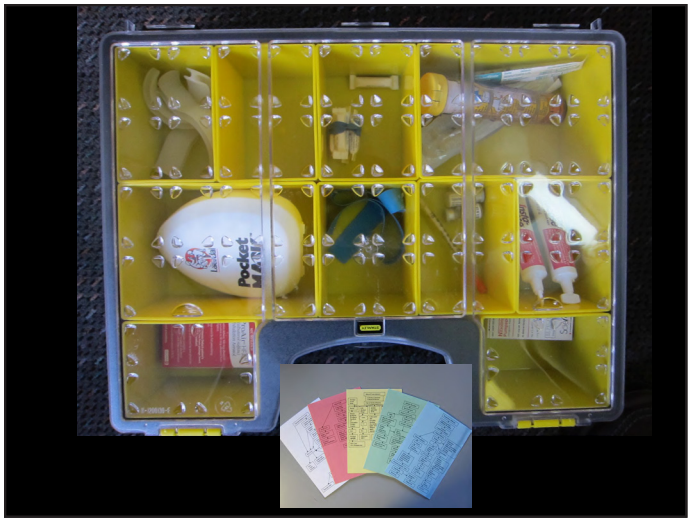
If administering Oral Sedation

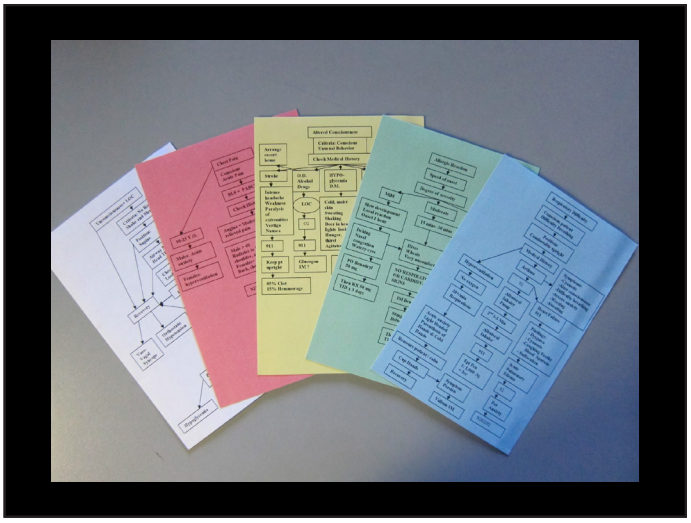
- Flumazenil (Romazicon) (up to 1.0 mg - IN)
- 0.1mg/cc each side X 2 = .2 mg can be given up to 5 times = 1.0 mg. total

-Pulse Oxygenation low
-Unable to arouse
-Respiratory depression

Basic (10) Emergency Kit

- 9)* **Narcan:** also IN use
- 10)* **Nitrous Oxide** 4l/4l = pain relief of 10mg Morphine without Respiratory Depression





#11 - Hands: Yours and your Patients

- What is the one drug you do not administer for Hyperventilation?
- Oxygen

"Off label" uses for multiple drugs

- **Glucogon** for B Blocked patient in an Anaphylactic Reaction
- **Nitroglycerin** for a acute Hypertensive Crisis and Acute Pulmonary Edema secondary to CHF
- **Nayzilam** for an acute anxiety reaction

Off label use of Midazolam (Nayzilam)

Acute Anxiety Reaction where patient is uncontrollable and causing danger to others

Multi uses for other meds:

- E tank Cylinder: for a "Person" in the waiting room needing Oxygen and to use with a Nebulizer
- Epi Pen and Epi Pen Jr. - multi uses other than just for Anaphylaxis, ie: elderly frail patient for Asthma

Multi uses for other meds:

- **Epi Pen Jr.**
- Elderly frail patient for Asthma
- If run out of Epi Pen can use both Epi Pen Jr's
- To add to an Epi Pen if patient is over 200-250 lbs.

Multi uses for other meds:

- **Epi Pen Jr.**
- Can be used as a second dose after Epi Pen if patent BP is going down slowly.
- Can be used for Unconscious Hypoglycemia when Glycogen is not available and help is not near-this will not reverse Hypoglycemia to awake - but will raise the BS to prevent seizures coma and death untill help arrives

Multi uses for other meds:

- Benadryl: for a Mild Allergic Reaction and for use in an
- Anaphylactic Reaction only **AFTER** Albuterol and Epi are administered!

Multi uses for other meds:

- EXCEPTION: Aspirin can ONLY be used for MI and only if the patient is not Allergic…
- Aspirin CANNOT be used for fever of a Hyperthyroid Crisis or for the headache of a Stroke or for any type of Stroke.

Multi uses for other meds:

- Albuterol: for use in an **Pump aerosol (Pro Air)** and also for use in a packet to place in a
- **Nebulizer** and also for use in a
- Anaphylactic reaction only after the use of Epi - then Inhaler and set up Nebulizer (If time)

Multi uses for other meds:

- Nitrous Oxide: for Analgasia as well as for use in an
- MI for patient comfort and Oxygen

Top 10 List:

- 1) **Epi Pen and Epi Jr**
- 2) **Spirits of Ammonia (to R/O cause with LOC: Differential Dx)**
- 3) **Benadryl (IM, PO-Elixir, PFS)**
- 4) **Albuterol (Inhaler and Nebulizer note: to be used with with E tank or a compressor)**

Top 10 List:

- 5) **Aspirin (baby aspirin 81mg)**
- 6) **Nitroglycerine (Pills* or Spray)**
- 7) **Glucose / Glucogon (IN, PFS, Now Autoinjector=HypoPen, and Nasal Powder**

Top 10 List:

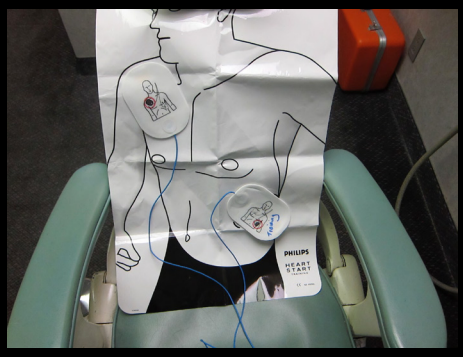
- 8) **Midazolam IN/IM & (Nayzilam) IN**
- 9) **Narcan**
- 10) **Nitrous Oxide / Oxygen**

436

Never list

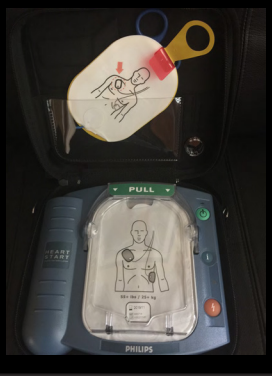
- never give Oxygen to a patient who is hyperventilating.
- never hesitate to give Epi to a patients in a Anaphylactic Reaction.
- Never give nitro if Systolic BP is < 90.
- Never give nitro to a patient who took Viagra within the last 48 hours.

- Do not schedule a cardiac patient as the first patient on a *Monday Morning*



Keep old pads….

Do not discard old pads!

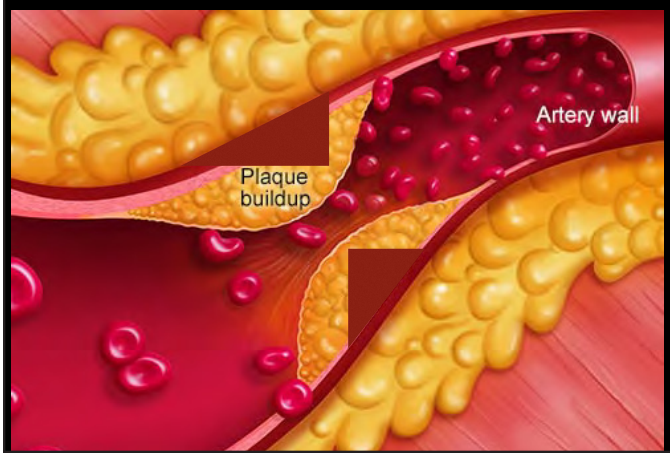


Update on Myocardial Infarction (2021)

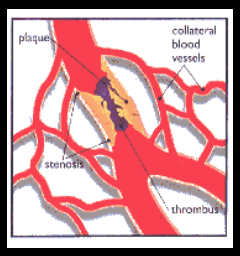
- Three major factors: 1) Hypertension 2) LDL type, **3) Inflammation**
- 1) HTN - "Silent killer"-over time weakens elasticity of arterial vessels--developing TIGHT JUNCTIONS--areas to embed material like plaque, platelets, fibrin
- 2) LDL - BAD cholesterol--pattern A and B
- Pattern A is large and buoyant = AOK Pattern B is small and dense = BAD - test is NMR

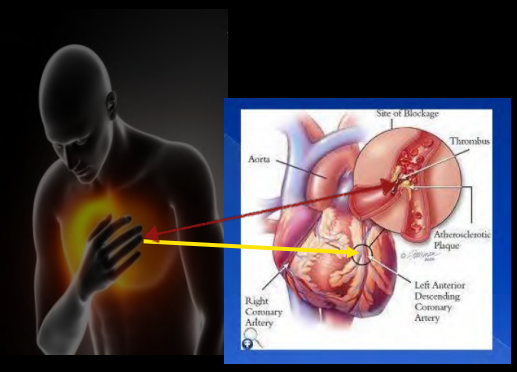
- 3) INFLAMMATION measured by (C-Reactive Protein) This is the final insult...
- 1 + 2 + 3 is the Disease(HTN),---Location(TIGHT JUNCTIONS),---Material (Recent Plaque, RBC's, Pattern B LDL) = Response (Walling off and sealing area with more RBC's and INFLAMMATORY mediators)--the result is fresh blood clots layered on the underlying plaque and inflammation .....

Other factors:
High Emotional Stress —
Coronary Spasm



Occlusion of the vessel

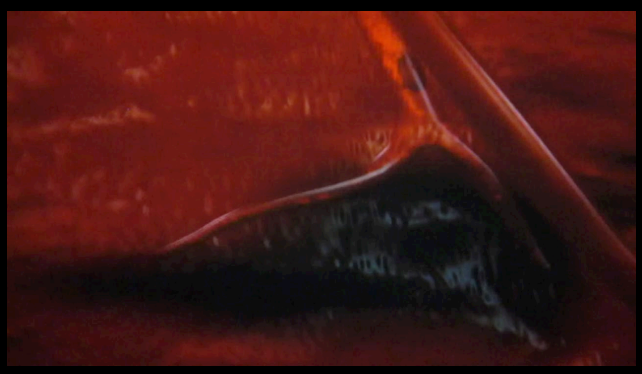




Time is critical

- "Time is Muscle"

- Unless an artery (including coronary arteries) is narrowed by at least 75%, the blood flow remains mostly unaffected!---Therefore--At 74%, you're OK and Asymptomatic
- It's the new Plaque and fresh fibrin clot that's the problem.**



80+% Blockage

- THESE BLOOD CLOTS CAN AND DO RUPTURE CAUSING MOST MI's and STROKES!!!!
- It's a "123 Punch!"-must check BP, LDL, Lipo Pr a ,CRP, and Homocystine.

Blood tests..

- **C Reactive Protein -** direct indicator of inflammation in Arterial Walls - women with high CRP are 2X more likely to die of Cardiac disease vs. women with high Cholesterol. Aspirin and Statins lowers CRP.

- If your AM pulse (when you wake up) is over 90 you have a 3X higher risk of a Myocardial Infarction and heart disease,
- If your AM pulse is under 60 you are unlikely to have cardiac disease.

Working harder (Physical Exercise) over the long term can increase vascularization

1 to do to change your life!!

The one hour daily walk - Just do it!

- First half hour - improves heart function
- Second half hour - develops collateral circulation*

*As long as you have GF produced and circulating

Treadmill workout

- During aerobic exercise - this happens after the first 10 minutes ***warm fuzzy feeling***
- Bruce Protocol: 4.2 mph (6.75 km/h) at a 17degree incline = set at 5-6 on incline - for 10 minutes

- DPompaOMS@gmail.com

ADVANCED PRACTICE SEMINARS
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Oral and Maxillofacial Surgeon
www.APS4DDS.com

SELF EVALUATION

Medical Emergencies in the Dental Office: Parts 1 - 4

1. T/F - Closed Loop Communication is essential in a Medical Emergency.

2. T/F - The Green Card is used for a Syncope reaction.

3. T/F - A Nebulizer can be used after a albuterol pump for an Asthma Attack. If the Nebulizer is not effective then an Epi Pen can be used for an Asthma Attack not responding either to the Albuterol Pump or the Nebulizer.

4. T/F - If a routine Blood Pressure were taken for every patient in the dental office, we as Dentists can and will save lives.

5. T/F - If a person looses consciousness in the office you should not treat them if it's an elective procedure.

6. T/F - The presence of Fordyce's granules bilaterally in the Buccal Mucosa may be an indication of Asthma?

7. T/F - The correct position for a person in Syncope and Stroke can save the persons life and the wrong position may lead to a fatal outcome.

8. T/F - Epinephrine is the most important drug in the Emergency Kit.

9. T/F - People with Hypothyroidism can have excessive bleeding due to platelet abnormalities.

10. T/F - All offices should have a Glucometer, BP Monitor and Pulse Oximeter.

11. List medical conditions where Oxygen given pre-op can be helpful in preventing an emergency.

a. Angina
b. CHF
c. Oxygen saturation below 93
d. Asthma treated with Steroids
e. All of the above

Answer Key: 1. T, 2. F, 3. T, 4. T, 5. T, 6. F, 7. T, 8. T, 9. T, 10. T, 11. E

Michael J. Howell, MD, FAAN, FAASM

Michael J. Howell, MD, FAAN, FAASM, of Minneapolis, Minnesota, is an associate professor of Neurology at University of Minnesota where he is the Vice-Chair for Education. He is board certified in both neurology and sleep medicine and is a fellow of the American Academies of both specialties. Dr. Howell is a frequent international speaker to both dentist and physician audiences, a co-investigator of numerous research projects, widely published and co-founder and president of Sleep Performance Institute. He is the co-creator of the SPI Sleep Journey App available in the Apple App Store.

You may contact Dr. Howell with your questions and comments at remwalkers@gmail.com.

Why We Sleep and Common Sleeping Disorders

Michael Howell MD-Disclosure

- Co-Creator of the SPI Sleep Journey App
- Off-Label Use
  - I will mention off-label use of dopaminergic agonists (pramipexole, ropinirole) and methadone (for RLS) as well as melatonin and clonazepam for REM sleep Behavior Disorder.

Contents

- Recent insights on the functions of sleep
- Sleep Disorders
  - Their Burden and Impact
  - Can't Fall (or stay) Asleep
  - Too Sleepy
  - "Something Weird is Happening" Sleepwalking and related disorders

Why do we sleep?

Functions of Sleep

Adaptive Inactivity
Memory Consolidation
Synaptic Homeostasis
Replenish CNS ATP
Toxic Clearance

Functions of Sleep

Adaptive Inactivity
Memory Consolidation
Synaptic Homeostasis
Replenish CNS ATP
Toxic Clearance

Wikimedia Commons

(Seigel JM, Nat Rev Neurosci 2009)

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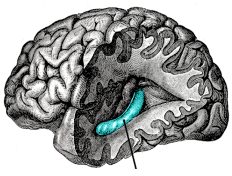

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(Walker MP, Prog Brain Res 2010)

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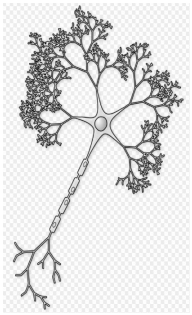

(Tononi G, Cirelli C, Eur J Neurosci 2020)

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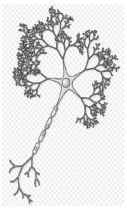
Synaptic Homeostasis

- Human Brain:
  - Most complicated system in the known universe
    - 100 trillion synaptic connections
  - During the day synapses are constantly growing but space is limited.
  - Synapses are pruned during deep NREM sleep leading to increased signal and decreased noise.

(Tononi G, Cirelli C, Eur J Neurosci 2020)



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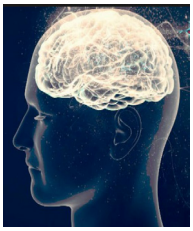

(Huang, Curr Top Med Chem 2011)

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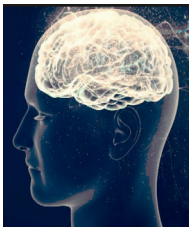

(Nedergaard M, Goldman SA, Science 2020)

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Sleep and Dementia

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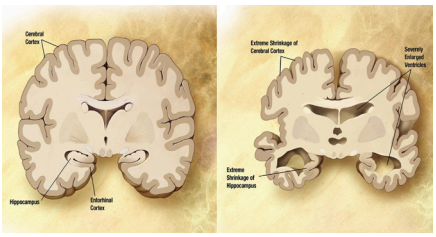

(Nedergaard M, Goldman SA, Science 2020)

Sleep Disorders

Sleep Disorders

- **Their Burden and Impact**
- Can't Fall (or stay) Asleep Disorders
- Too Sleepy Disorders
- "Something Weird is Happening" disorders

The Burden of Sleep Disorders

- Inadequate and poor-quality sleep is ubiquitous
  - Modern life has been structured so that sleep is dispensable
  - Exogenous light exposure is disrupting to natural circadian rhythms.
  - Caffeine is the most commonly consumed drug on the planet.
- Consequences…

Poor Sleep leads to… Sleepiness

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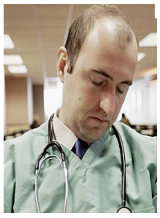

(AASM ICSD-3, 2015; Schneider, Continuum 2020)

Poor Sleep leads to… Inattention

- Loss of vigilance

(AASM ICSD-3, 2015;
Schneider, Continuum 2020)

Wikimedia Commons

Consequences of Sleepiness and Inattention

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(AASM ICSD-3, 2015; Schneider, Continuum 2020)

The prevalence and costs of sleep disorders

- 1 out of every 30 drivers admit to have falling asleep in the last month while driving.
- 20% of adolescent's have chronic excessive daytime sleepiness.

(Wickwire et al, Sleep Med Review 2016; McKinsey, Harvard Medical School 2010;
National Sleep Foundation, Sleep in America Pole, 2014)

Sleep Deprivation leads to… impulsiveness

- Poor food choices

(AASM ICSD-3, 2015; Schneider, Continuum 2020)

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Sleep Deprivation leads to… impulsiveness

- Risk taking behaviors

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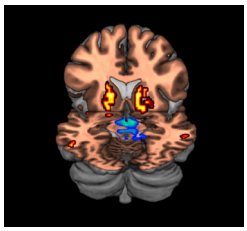

(AASM ICSD-3, 2015; Schneider, Continuum 2020)

Poor Sleep leads to… Depressed Mood

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(AASM ICSD-3, 2015; Schneider, Continuum 2020)

The Prevalence and costs of sleep disorders

- Sleep deprivation
  - 50-70 million Americans
- Insomnia
  - 30% of American adults have intermittent insomnia
  - 15% have chronic insomnia
  - Direct health care costs-$3 billion
  - Indirect costs US Economy-$32 billion

(Wickwire et al, Sleep Med Review 2016; McKinsey, Harvard Medical School 2010; National Sleep Foundation, Sleep in America Pole, 2014)

The Prevalence and costs of sleep disorders

- Obstructive Sleep Apnea as diagnosed by sleep study
  - 34% of adult men
  - 17% of adult women
- Obstructive Sleep Apnea Syndrome
  - 14% of adult men
  - 5% of adult women
  - Direct health care costs-$6 billion
  - Indirect costs US Economy-84 billion
    - Indirect health care costs $60 billion
    - OSA related motor vehicle accidents-$14 billion
    - Absenteeism $10 billion

(Wickwire et al, Sleep Med Review 2016; McKinsey, Harvard Medical School 2010;
National Sleep Foundation, Sleep in America Pole, 2014)

The Prevalence and costs of sleep disorders

- Restless Legs Syndrome
  - 5% general population
- REM sleep Behavior Disorder-dream enactment
  - 1% General Population
  - 5% Elderly

(AASM ICSD-3 2015)

Sleep Disorders

- Their Burden and Impact
- **Can't Fall (or stay) Asleep Disorders**
- Too Sleepy Disorders
- "Something Weird is Happening" disorders

Can't Fall (or Stay Asleep)

- Troubles Falling Asleep
  - Hypervigilance-Psychophysiological Insomnia
  - Motor Restlessness (AKA Restless Legs Syndrome)
  - Delayed Circadian Rhythm
- Troubles Staying Asleep
  - Hypervigilance-Psychophysiological Insomnia
  - Advanced Circadian Rhythm

(AASM ICSD-3 2015)

Troubles Falling Asleep

- Hypervigilance-Psychophysiological Insomnia
- Motor Restlessness (AKA Restless Legs Syndrome)
- Delayed Circadian Rhythm

(AASM ICSD-3 2015)

CNS Hypervigilance-Psychophysiological Insomnia

- Difficulty falling asleep (often with trouble staying asleep as well)
  - At any time of the clock
  - 24 hour hypervigilance

(AASM ICSD-3 2015)

Wikimedia Commons

Hypervigilance: more then a nighttime problem

- Insomnia Trap
  - Impaired mood caused by a poor night of sleep.
  - Growing anxiety over the course of a day regarding impending inability to fall asleep at night.
  - Nighttime hypervigilance makes it more difficult to fall asleep.

(AASM ICSD-3 2015)

Wikimedia Commons

Bedroom Hypervigilance-A Conditioned Response

Wikimedia Commons

Bedroom Hypervigilance-A Conditioned Response Requires

- Treatment requires positive conditioning of the bedroom environment
- Cognitive Behavioral Therapy for Insomnia

(Sutton, Ann Intern Med 2021)

Wikimedia Commons

Two Cardinal Rules of Cognitive Behavioral Therapy for Insomnia

- Don't go to bed unless you are sleepy
- Don't sleep outside of the bedroom

Wikimedia Commons

Restlessness

- Common manifestation of atypical insomnia
- Often the only complaint is:
  "I can't fall asleep…"

(AASM ICSD-3 2015)

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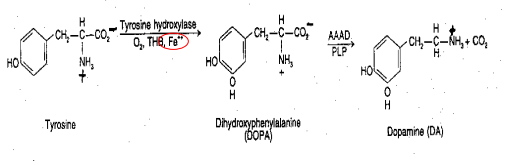
Restlessness

- Commonly due to iron deficiency



(AASM ICSD-3 2015)

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Restlessness

- **Iron Replacement**
  - Target Serum Ferritin to at least 75 micrograms/L
- Vitamin D is Synergistic

Wikimedia Commons

(Tutuncu M, Sleep Breath 2020; Silber MH, Mayo Clin Proc 2021;)

Restlessness

- **More severe cases may need Rx**
  - **gabapentin, pregabalin**
  - pramipexole, ropinerole (dopamine agonists)
  - Severe cases: methadone

(Silber MH, Mayo Clin Proc 2021)

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Delayed Circadian Rhythm

- Common modern problem
  - May be the most common reason people have trouble falling asleep
- Trouble falling asleep at night and sleepy in the AM
- Living in the wrong time zone
- Delay in bodies 24 hour clock.

Galileo Spacecraft-NASA

(AASM ICSD-3 2015)

Delayed Circadian Rhythm

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- Trouble falling asleep at night and sleepy in the AM
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Galileo Spacecraft-NASA

(AASM ICSD-3 2015)

Delayed Circadian Rhythm-Treatment

- Bright light (sunlight or 10,000 lux light box light) for 30-60 minutes in the AM.
- Melatonin small doses (0.5-1.0mg) several hours before bedtime.

Galileo Spacecraft-NASA

Zee PC and Abbott SM, Continuum 2020

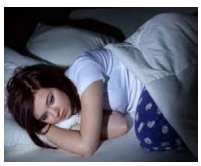
Troubles Staying Asleep

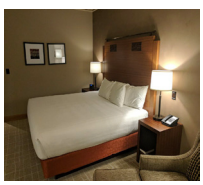
- Hypervigilance-Psychophysiological Insomnia
- Advanced circadian rhythm
- Insights from ultradian rhythms

(AASM ICSD-3 2015)

Can't Stay Asleep-Hypervigilance

- Unable to Stay Asleep
  - Often combined with difficulty falling asleep
- Also, a conditioned hypervigilance
  - Cognitive Behavioral Insomnia





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(AASM ICSD-3 2015)

Advanced Circadian Rhythm

- Common problem particularly middle aged and elderly
- Trouble staying asleep but also sleepy and tired in the evening.
- Living in the wrong time zone
- Advance in bodies 24-hour clock.

Galileo Spacecraft-NASA

(AASM ICSD-3 2015)

Advanced Circadian Rhythm

- Common problem particularly middle aged and elderly
- Trouble staying asleep but <u>also sleepy and tired in the evening</u>.
- Living in the wrong time zone
- Advance in bodies 24-hour clock.

Galileo Spacecraft-NASA

(AASM ICSD-3 2015)

Advanced Circadian Rhythm-Treatment

- Bright light (sunlight or 10,000 lux light box light) for 30-60 minutes in the evening.
- Stop evening melatonin

Galileo Spacecraft-NASA

(Zee PC and Abbott SM, Continuum 2020)

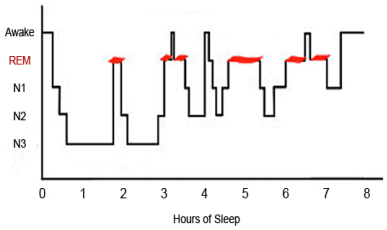
Advanced Circadian Rhythm-Treatment

- Bright light (sunlight or 10,000 lux light box light) for 30-60 minutes in the evening.
- Melatonin small doses (0.5-1.0mg) during a middle of the night awakening.
  - Do not take before bedtime as this will make an advanced rhythm worse!

Galileo Spacecraft-NASA

(Zee PC and Abbott SM, Continuum 2020)

Ultradian Rhythms-Normal Sleep Cycles



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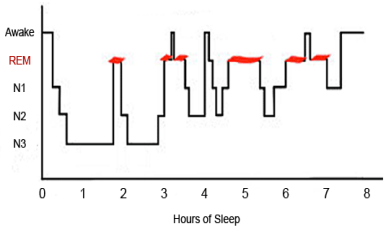
Ultradian Rhythms-Normal Sleep Cycles



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- A brief awakening every 90 minutes or so does not, by itself, indicate pathology.

Sleep Disorders

- Their Burden and Impact
- Can't Fall (or stay) Asleep Disorders
- **<u>Too Sleepy Disorders</u>**
- "Something Weird is Happening" disorders

Too Sleepy

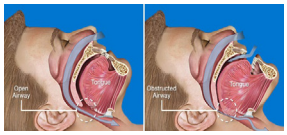
- Most Common Reason of excessive sleepiness
  - Sleep Deprivation
- Obstructive Sleep Apnea
- Narcolepsy and Related Disorders

(AASM ICSD-3 2015)

Snoring and obstructive sleep apnea (OSA)

- Collapse of the upper airway
- OSA is a common condition
  - Relative to a pliable upper airway evolved for vocalization
  - Higher risk: men, weight gain, family history, increased neck circumference.

(AASM ICSD-3 2015)



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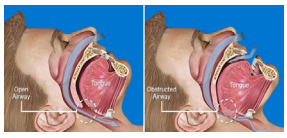
OSA-spectrum of disease

- Apnea-Hypopnea Index (AHI): number of times an individual stops breathing or nearly stops breathing per hour.
- Polysomnogram (sleep study) thresholds for diagnosis and severity (consensus based)
  - Ideal for adults: AHI < 5/hr
  - Mild: AHI 5-15/hr
  - Moderate: AHI 15-30/hr
  - Severe: AHI > 30/hr

(AASM ICSD-3 2015)



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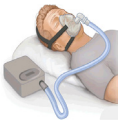
OSA Treatment Based upon Severity

- Mild
  - **Oral Appliance**
  - PAP
  - Positional Therapy
- Moderate
  - **Oral Appliance**, PAP, Upper Airway Surgery
- Severe
  - **Recommend PAP**
  - Oral Appliance and Upper Airway Surgery for Salvage or Combination Therapy

(Kirsch DB, Continuum 2020)



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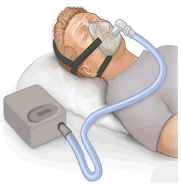
OSA-mechanical problem in need of a mechanical solution

- Positive Airway Pressure (PAP) Therapy
  - Seals over the nose or mouth/nose.
  - Acts as a pneumatic splint to the upper airway.
- Adherence challenges
  - Works very well about 50% of the time.
  - Numerous reasons for poor adherence
    - Mask discomfort
    - Claustrophobia
    - Untreated co-morbid sleep problems
    - Nasal obstruction

(Kirsch DB, Continuum 2020)



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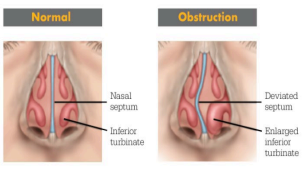
OSA-what to do when Oral Appliance or PAP is not working

- Evaluate for possible nasal obstruction
  - Nasal endoscopy
- Relieve nasal obstruction-three benefits
  - Directly decreases AHI
  - Improve PAP and oral appliance treatment
  - Improved nasal breathing during the day

(Kirsch DB, Continuum 2020)



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- **"Something Weird is Happening" Disorders**

Sleepwalking and dream enactment: Common parasomnias and what to know about them

Parasomnias-abnormal nocturnal behaviors

- Sleepwalking and dream enactment are underreported
  - Embarrassment
  - No bedpartner to witness behaviors
  - Mild behaviors-especially in childhood
  - Misattribution to mental illness
  - Cultural taboos regarding disclosure of bedroom activities
  - Assign supernatural or religious explanation to these behaviors

(AASM ICSD-3 2015, Howell, Continuum 2020)

Sleepwalking

- Disorder of arousal emanating from deep NREM sleep
  - Minimal to no dream enactment
  - Difficult to awaken, often amnestic for behaviors
  - Occur in the first half of the night
- Nearly universal to some degree in childhood.
  - Can occasionally result in significant injury.
- Etiology-Failure to transition from sleep to wakefulness
  - Predisposed by underlying sleep disorders such as restless legs syndrome
  - Primed by processes that increase sleep drive: sleep deprivation, sedating medications
  - Precipitated by sleep fragmenting conditions such as OSA or noise

(AASM ICSD-3 2015)

Sleep Related Eating-A Sleepwalking disorder with dental consequences

- Sleep Related Eating Disorder
  - Amnestic Nocturnal Eating During Sleepwalking Episode
  - Often nightly binge eating.
  - Patients may lay in bed with oral bolus of food at night.
    - Combined with the decrease in salivary flow leads to dental caries.

(AASM ICSD-3 2015)

Sleepwalking Treatment

- Address underlying sleep conditions nearly universally takes care of sleepwalking.
  - Optimize the duration and timing of sleep.
    - Address sleep deprivation
    - Align circadian rhythm
  - Treat sleep disorders such as restless legs syndrome and OSA
  - Minimize sedating medications.

(Irfan, Continuum 2020)

Parasomnias-Dream Enactment

- Dream enactment-dream enactment occurring during REM sleep
- REM sleep Behavior Disorder (RBD)
  - Results in dream enactment, often vigorous, violent and potentially injurious to patients and bed partners.
    - 1% of the general population
    - 5% of elderly
  - Easy to awaken, clearly recall dream and behaviors
  - Occurs in the second half of the night
- Etiology-loss of normal REM motor paralysis

(AASM ICSD-3 2015, Howell, Continuum 2020)

REM sleep Behavior Disorder-treatment

- Bedroom safety
  - Discuss sleeping separately from bed partners
- Melatonin in high doses 6-18mg at bedtime
- Clonazepam in low doses 0.25-1.0mg at bedtime
  - Morning sedation, balance difficulties, depression

(Howell, Continuum 2020)

RBD-Prodromal syndrome

- RBD is a prodromal syndrome for Parkinson's disease (PD) and related neurodegenerative disorders.
  - Dementia with Lewy Bodies
  - Multiple System Atrophy
- Etiology-progressive alpha synuclein pathology.
  - 75% of surviving RBD patients convert in 12 years.

(Charcot 1879)

(AASM ICSD-3 2015, Howell, Continuum 2020)

REM sleep Behavior Disorder-Hope for a cure

- Important to meet with a physician to have often extended conversation to help understand their risks.
  - Loss of smell and constipation places an individual at higher risk for conversion within 5 years.
- RBD provides a unique opportunity for the development of disease modifying therapies-neuroprotection
- NAPS (North American Prodromal Synucleinopathy) Consortium
  - NIH funded investigation
  - https://www.naps-rbd.org/

SELF EVALUATION

Why We Sleep and Common Sleeping Disorders

True/False

1.___ Sleep serves several important purposes including, memory consolidation and synaptic downscaling?

2.___ Sleep disorders are rare?

3.___ Individuals with psychophysiological insomnia have trouble falling asleep and trouble staying asleep?

4.___ Restless Legs Syndrome is commonly caused by a copper deficiency?

5.___ Oral appliance therapy provides patients an effective option for treating mild or moderate obstructive sleep apnea?

6.___ Dream enactment emerges out of NREM sleep?

Answer Key: 1. T, 2. F, 3. T, 4. F, 5. T, 6. F

Glenn Maron, DDS, FACS

Glenn Maron, DDS, FACS, of Atlanta, Georgia, is in private practice and is assistant clinical professor in the Division of Oral & Maxillofacial Surgery of Emory University School of Medicine. He is president of the Georgia Board of Dentistry, immediate past president of the Georgia Society of Oral & Maxillofacial Surgery, and a member of the examination committee for the American Board of Oral and Maxillofacial Surgery. Dr. Moran was the official oral & maxillofacial surgeon for the 1996 Olympic games in Atlanta, is currently team physician for the Atlanta Braves baseball team and previously served in the same capacity for the Atlanta Falcons as well as several other professional sports franchises and was recently named maxilla-facial consultant for the NHL. He has also done significant research, publishing and speaking in his field.

You may contact Dr. Maron with your questions and comments at GlennM@jawsoms.com, or by phone at (404) 441-1864.

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Candidate, American Board of Oral and Maxillofacial Surgery

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Dentistry Medical Update: Parts 1-4

Glenn Maron, DDS, FACS

Objectives

- Understand the concept of medical co- morbidity
- Understand the concept of risk stratification
- Manage dental patients with medical diseases

About Baby Boomers:

Born between the years 1946 to 1964.

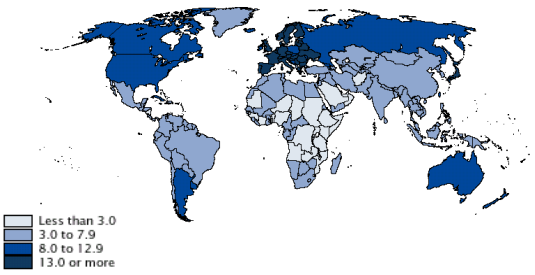
Over 77 million baby boomers alive today

Females making up a slightly larger percentage of the population than men (50.8 percent and 49.2 percent respectively).

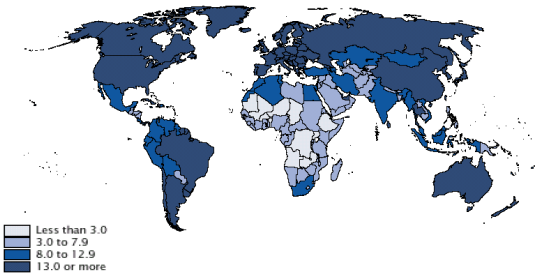
In 2006 the U.S. Census Bureau estimates that baby boomers will turn 60 at the rate of over 7,900 every day and 330 every hour.

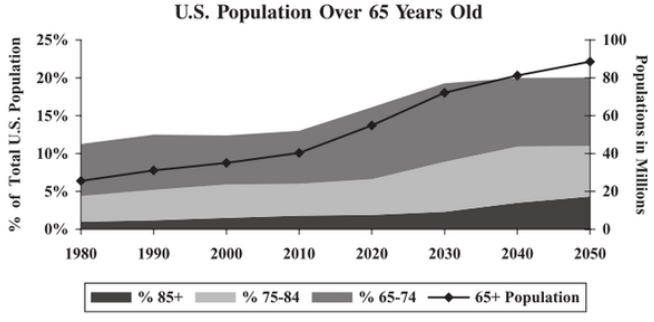
In 2030 there is projected to be over 57 million baby boomers between the ages of 66 to 84.

Percent Aged 65 and Over: 2000



Percent Aged 65 and Over: 2030





Risk Stratification

Medical Management is Risk Management

- Basic understanding of medical issues
- Understanding of risks associated with medical problems
- Risk stratification
- Keeping current is important…new
  - Diseases/diagnoses
  - Treatment strategies
  - Pharmacology

Risk Stratification

- What are the risks?
- What pre-operative tests?
- Office or OR?
- What is the peri-operative plan?
- Does the patient need pre-operative medical consultation?

Risk Stratification

- Risk = Medical disease/s x stress of surgical procedure
  - Dental
    - Low
  - Oral and maxillofacial surgery
    - Major – intermediate
    - Minor - low

Risk Stratification

- Medical diseases
  - Functional status
    - History
  - Systems involved
    - Which systems?
    - How many?
  - Pre-operative tests
  - Consultation

Classification Systems

American Society of Anesthesiology

American Heart Association/American college of cardiology

A 64-year-old type II diabetic managed with oral metformin and a recent Hgb A1c of 5.5 and predictable mild exertional angina presents for dental treatment. What is his ASA classification?

A. II
B. III
C. IV
D. V

A 64-year-old type II diabetic managed with oral metformin and a recent Hgb A1c of 5.5 and predictable mild exertional angina presents for dental treatment. What is his ASA classification?

A. II
B. III
C. IV
D. V

American Society Anesthesiology

- **Class I Healthy**
- **Class II Mild Syst. Dz.**
  - **No Functional limitations**
- **Class III Severe Syst. Dz.**
  - **Functional limitations**
- Class IV Severe Syst. Dz.
  - Threat to Life
- Class V Moribund
- Class VI Brain dead

American Society Anesthesiology

- **General guidelines**
  - CBC
    - Females childbearing age
    - Medically indicated
  - Chemistries
    - Age 60
    - Medically indicated

American Society Anesthesiology

- Coags
  - Medically indicated
- CXR
  - Age 60
  - Medically indicated
- ECG
  - Males age 40
  - Females age 50
  - Medically indicated

AHA/ACC Perioperative Cardiac Risk

- History
- Physical examination
- 12 lead ECG
- Oral surgery
  - Head and neck intermediate risk (1-5%)
  - Ambulatory Sx low risk (1%)

AHA/ACC Perioperative Cardiac Risk

- **History**
  - Medical diseases
  - Prior surgeries and anesthesia
  - Tobacco, alcohol and illicit drugs
  - *Functional status*

AHA/ACC Perioperative Cardiac Risk

- **History**
  - Active disease
    - MI less than 1 month
    - Decompensated CHF
    - Acute coronary syndromes
    - HTN urgency/emergency
    - Severe valvular disease
    - Severe arrhythmia

NO Treatment

AHA/ACC Perioperative Cardiac Risk

- **History**
  - Non-active disease
    - MI after 1 month (normal stress test)
    - CHF (compensated)
    - Mild valvular disease
    - Stable angina
    - HTN
    - Mild arrhythmia

Treatment Possible

METS

- The **Metabolic Equivalent of Task (MET)**, or simply **metabolic equivalent**,
- is a physiological measure expressing the energy cost of physical activities
- the ratio of metabolic rate (and therefore the rate of energy consumption) during a specific physical activity to a reference metabolic rate

AHA/ACC Perioperative Cardiac Risk

Functional Capacity

- Goal of 4 METS and no symptoms
  - Brisk walk
  - Moderate housework
- Less than 4 METS (or 4 METS & symptoms)
  - Stress test (ECG or echo)
  - Nuclear perfusion imaging

Medical Care for the Elderly Population in the U.S.

- Medical needs

➢75% of adults over age 65 have at least one chronic condition needing care

➢20% of Medicare patients have 5 or more chronic conditions

Surgery in the Elderly (Lancet 2011)

Comprehensive examination of operations performed on Medicare recipients in the final year of life (2008)

- 1 in 3 had surgery in the last year of life
- 1 in 5 had surgery in the last month of life
- 1 in 10 had surgery in the last week of life

Considerations in the Elderly

- Comorbidities-multiple medical conditions
- Polypharmacy and altered drug metabolism
- Functional status
- Nutritional status
- Communication and comprehension issues
- Frailty
- Social needs

Frailty

- Syndrome of decreased physiologic reserve

Frailty

- Syndrome of decreased physiologic reserve
- Distinct from comorbidities/ disability
- Independently associated with poorer postop outcomes
- Pre-frail patients also have increased risk of worse postop outcomes and are more likely to become frail within 3 years
- Several sets of criteria for assessment

Frailty Score

-Shrinkage unintentional Wt loss>10 lb.
-Weakness decreased grip strength
-Exhaustion poor endurance (self report)
-Low physical activity
-Slowness slow walking

4 to 5 = frail
2 to 3 = intermediate frail (pre-frail)

Frailty and Activities of Daily Living (ADL)

- Inability to perform ADLs as a result of frailty places a burden on the elderly, care providers, and societal care system
- Frailty factors most related to impaired ADL include:
  - Weight loss --Balance
  - Gait speed --Lower extremity function
  - Grip strength

Factors Associated with Poor Surgical Outcomes in the Elderly

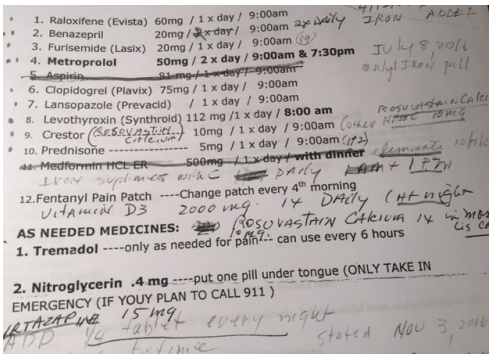
Outcome	Condition
Mortality	Cognitive Impairment Functional Dependence Frailty
Delirium	Cognitive Impairment Frailty
Discharge to a care facility	Cognitive Impairment Frailty Coming from a care facility
Functional decline	Cognitive Impairment Preop functional status

Medication Use by Elderly

Survey Data:

- 81% of adults (>60 years) used at least 1 prescription drug
- For age >75 y, 36% used 5 or more drugs
- 46% took at least one OTC medication

Consult



Herbal Medicines

- 75% of adults (>75years) took at least 1 prescription drug and 1 supplement
- Most patients don't tell health care provider that they are taking herbal medicines
- Possibility of drug interactions
  - Potentiation (ginkgo with coumadin)
  - Adverse events (St. John's wort and serotonin syndrome with SRI's)

Polypharmacy

- Among older adults with cancer, 43% received 10 or more prescription drugs
- 50% of Medicare patients receive 5 or more prescription drugs
- Increased risk for adverse drug event and hospital admission

Polypharmacy

- For an older female patient with COPD, type 2 diabetes, osteoporosis, hypertension, and osteoarthritis, best practice from clinical guidelines would recommend that they take 12 different medications
- "Prescribing cascade"—a new drug is prescribed to treat symptoms from an unrecognized adverse drug event related to an existing therapy

Drug Effects

Pharmacokinetics

- absorption
- distribution
- metabolism
- excretion

Pharmacodynamics

- physiologic effects of the d

The Aging Process

Physical Changes of Aging

Heart	~ Pumping effectiveness decreases
Muscles	~ Muscle mass decreases
Brain	~ Some loss of cell structure and function
Skin	~ Dryness, slower healing
Kidney	~ Less efficient
Vision	~ Decreases in depth perception, color perception, and peripheral vision
Hearing	~ Decreased acuity, esp. higher pitch
Bones	~ Mineral loss faster than replacement
Taste	~ Decreased taste buds, saliva production

Altered Pharmacokinetics with Physiologic Changes in Aging

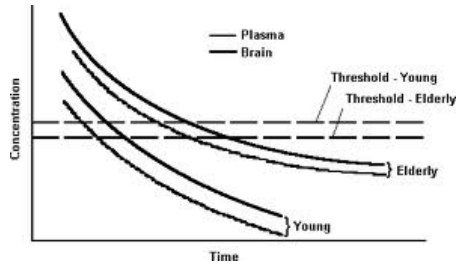
Distribution: Increased volume of distribution
- Decreased total body mass
- Increased fat %
- Decreased total body water
- Decreased plasma albumin

Metabolism
- Reduced liver mass and blood flow
- Reduced hepatic metabolic capacity

Excretion
- Reduced renal blood flow and filtration

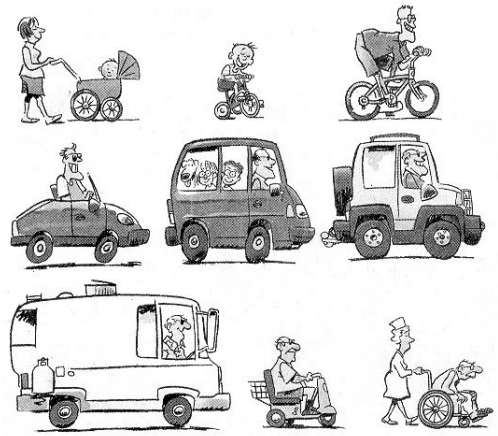
Tissue sensitivity
- Changes in receptor number and affinity (loss of 50,000 neurons a day in brain)
- Changes in cellular response

Drug Concentration after Drug Dose



Increased blood level in elderly due to changes in volume of distribution and slow metabolism
Brain is more sensitive
Increased length of time drug is active in elderly patients
Recommendation for drug administration "Go low and slow"

The Wheels of Life



Case #1-Atlanta

- 65-year-old male well known to dentist
- Broken crown #3
- History-
  - Positive for CASD and CHF
- Meds-
  - HCTZ
  - Lasix

Begins treatment

- Patient immediately feels lightheaded
- Difficulty breathing
- Diaphoretic
- Becomes unresponsive

Call 911

- We arrive and immediately start assessment
- Breathing but severe wheezing-gurgling
- Start O2
- Start IV
- Give inhaler
- Secondary survey
  - Severe Pitting edema
  - Did not take Lasix that day

Impression

- Pt. was in severe CHF with pulmonary edema
- Went to ER admitted and immediately treated
- IV lasix, O2, vasodilator--------
- Patient survived

- Dentist should never had started treatment!!!
- Dentist bought new underwear

Cardiac Issues

- CASHD (coronary atherosclerotic heart disease)
- MVP (mitral valve prolapse)
- Other valvular heart diseases
- Prior heart surgery
- CHF and Cardiomyopathies

CASHD

- Coronary artery disease is the most common type of heart disease. Also known as coronary heart disease, it affects about 13 million Americans.
- The cause of coronary artery disease is atherosclerosis — the gradual buildup of plaques in blood vessels that feed your heart (your coronary arteries).

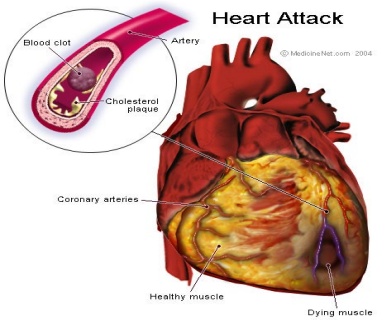
CAD

- The atherosclerotic process causes significant narrowing in one or more coronary arteries.
- When coronary arteries narrow more than 50 to 70%, the blood supply beyond the plaque becomes inadequate to meet the increased oxygen demand during exercise.
- The heart muscle in the territory of these arteries becomes starved of oxygen (ischemic).

CAD

- Patients often experience chest pain (angina) when the blood oxygen supply cannot keep up with demand.
- But, up to 25% of patients experience no chest pain at all despite documented lack of adequate blood and oxygen supply.
- These patients have "silent" angina and have the same risk of heart attack as those with angina.

CAD

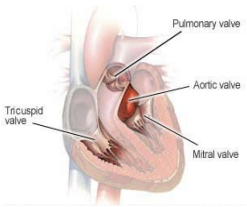


CAD

- What you want to know
  - Do they have Chest Pain?
  - When was most recent episode of pain?
  - Do they take nitroglycerin?
  - Most recent cardiac evaluation?
- Don't hesitate to request cardiac consult prior to any treatment

Valvular Heart Disease

- Congenital or acquired disease which affects the function of the heart valves from closing completely



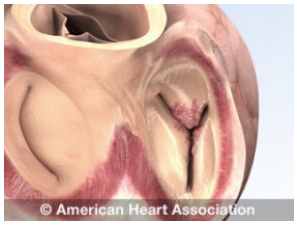
Valvular Heart Disease

- The valves affected most commonly by the disease are aortic and mitral valves.
- The pulmonary and tricuspid valves are affected less often.
- The cause of damage to the heart valves may be improper development before birth (congenital) or acquired later after birth.
- The acquired form of heart valve disease is due to damage caused by various forms of infections and deposits of certain substances in the valve leaflets such as calcium during old age.

Valvular Heart Disease

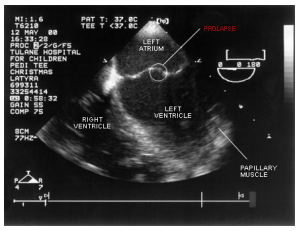
- The disease can affect the valve and derange its function in two ways:
- **Stenosis**- Reduction in the orifice of the valve which limits the forward blood flow.
- **Regurgitation**- Backward leak of blood due to inefficient closing of the valve.

Endocarditis



Valvular Heart Disease

- What you need to know
  - Who diagnosed valve disease?
  - Do they have a murmur?
  - Have they had an echo?
    - If not, they may need a workup!



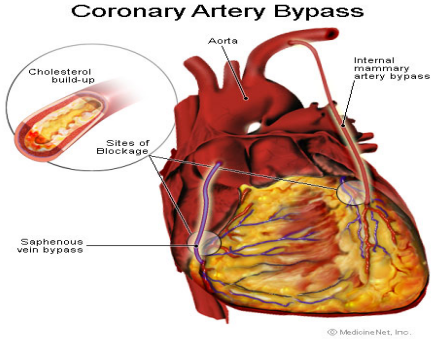
Prior Heart Surgery

- CABG
- Angioplasty and Stents
- Valve surgery

CABG

- Coronary artery bypass graft (CABG) surgery
  - performed about 350,000 times annually in the United States.
  - CABG surgery is advised for selected groups of patients with significant narrowing and blockages of the heart arteries (coronary artery disease).
  - CABG surgery creates new routes around narrowed and blocked arteries, allowing sufficient blood flow to deliver oxygen and nutrients to the heart muscles.

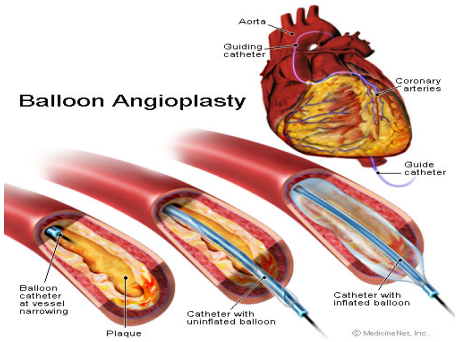
CABG



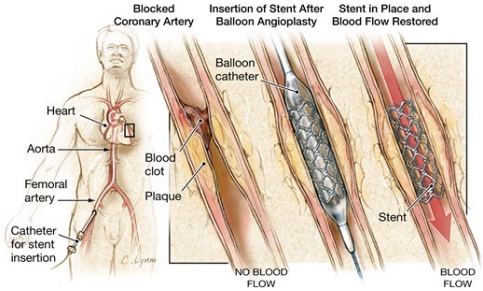
Angioplasty and Stents

- Balloon angioplasty of the coronary artery, or percutaneous transluminal coronary angioplasty (PTCA) introduced in the late 1970's.
- PTCA is a non-surgical procedure that relieves narrowing and obstruction of the arteries to the muscle of the heart (coronary arteries).
- Allows more blood and oxygen to be delivered to the heart muscle.
- PTCA is accomplished with a small balloon catheter inserted into an artery in the groin or arm, and advanced to the narrowing in the coronary artery. The balloon is then inflated to enlarge the narrowing in the artery.

Angioplasty



Percutaneous Coronary Intervention (PCI) Coronary Artery Angioplasty and Stent



Bare Metal Stent (BMS)
Drug Eluting Stent (DES)

Valve Replacement Surgery

- If severe damage it is not possible to repair.
- The artificial valves are of three types:
  - a mechanical (metallic) valve
  - a valve made from animal tissue
  - a human valve removed from human cadaver
- The mechanical valve is the most durable, but it has the disadvantage of the risk of blood clot formation.
- Requires long-term use of medication to keep the blood thin.

Prior Cardiac Surgery

- What you want to know
  - Do they have Chest Pain?
  - Most recent cardiac evaluation?
- Must get cardiac consult prior to any treatment
- Pre-op Antibiotics as indicated

Thomas P. Hinman Dental Meeting

Congestive Heart Failure

- Congestive heart failure (CHF) is a condition in which the heart's function as a pump is inadequate to meet the body's needs.
- The blood "backs up" (becomes congested) behind the heart.
- This congestion can lead to fluid accumulation in the lungs and body tissues.
- CHF is a grouping of clinical findings rather than a specific diagnosis or a single disease.
- CHF can be considered a symptom of impairment of the pumping action of the heart that is caused by an underlying disease.

CHF

- Weakened heart muscle becomes less efficient in pumping the blood circulation.
- As the heart fails, other organs are affected.
  - Importantly, the kidneys begin to lose their normal ability to excrete salt (sodium) and water.
  - As a result, the kidneys may begin to fail.
- The lungs may become congested with fluid (pulmonary edema) and the person's ability to exercise is decreased.
- Over time, untreated CHF will affect virtually every organ in the body.

CHF

- The symptoms of CHF vary, but can include fatigue, diminished exercise capacity, shortness of breath, and swelling.
- The treatment of CHF can include lifestyle modifications, addressing potentially reversible factors, medications, heart transplant, and mechanical therapies.
- The course of CHF in any given patient is extremely variable.

What you need to know -CHF patients-

- Do they have shortness of breath?
- Is there pitting edema of lower extremities?
- What meds are they taking?
- Any blood thinners?

Case #2

- Pt. 74-year-old female new to practice and needs periodontal deep cleaning.
- PMH-
  - Hypertension
  - Heart Murmur
  - H/O CASHD
    - Pt had a cardiac stent placed 8 months ago

Call Internist

- Internist states this is a new patient to his practice and has only seen her once for a medicine check.
- Tells you to give her antibiotic SBE prophylaxis
- Is this Correct??

SBE Prophylaxis

- Who needs it and who doesn't!
  - Not all pts. With heart murmurs or Cardiac issues
  - Guidelines have become much clearer

Cardiac Conditions Associated With Endocarditis

- **High-risk category:**
  - **Prosthetic cardiac valves, including bioprosthetic and homograft valves**
  - **Previous bacterial endocarditis**
  - **Complex cyanotic congenital heart disease (e.g., single ventricle states, transposition of the great arteries, tetralogy of Fallot)**
  - **Surgically constructed systemic pulmonary shunts or conduits**
  - **Drug eluting stent– for 6 months after placement**

Moderate risk?

- Antibiotic prophylaxis is NOW **NOT** generally recommended for people with moderate risk conditions.
  - People with the following conditions are considered to be at moderate risk of developing IE.
- *This is an important change from prior recommendations.

Moderate risk

- Valve repair without prosthetic material
- Hypertrophic cardiomyopathy
- Mitral valve prolapse with valvular regurgitation and/or valvular thickening

Moderate Risk

- Unrepaired ventricular septal defect, unrepaired patent ductus arteriosus
- Acquired valvular dysfunction (eg, mitral or aortic regurgitation or stenosis)
- Atrial septal defect, ventricular septal defect, or patent ductus arteriosus that was successfully closed within the past six months

Low Risk- Prophylaxis Not Recommended

- **Low risk** — People with the following conditions are thought to have a low risk of IE.
  - Antibiotics have never been recommended for people with these conditions:
- Physiologic, functional, or innocent heart murmurs
- Mitral valve prolapse without regurgitation or valvular leaflet thickening
- Mild tricuspid regurgitation

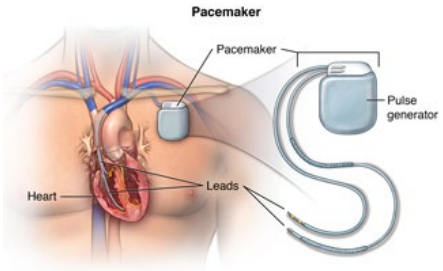
Prophylaxis Not Recommended

- Coronary artery disease (including previous coronary artery bypass graft surgery)
- Simple atrial septal defect
- Atrial septal defect, ventricular septal defect, or patent ductus arteriosus that was successfully closed (either surgically or with a catheter-based procedure) more than six months previously

Prophylaxis Not Recommended

- Previous rheumatic fever or Kawasaki disease without valvular dysfunction
- People with pacemakers or defibrillators

New Wrinkle



6 months!!??????????????

Current AHA Guidelines

- **Dental procedures for which endocarditis prophylaxis is recommended**
  - Dental extractions
  - Periodontal procedures including surgery, scaling, and root planning, probing, and recall maintenance
  - Endodontic (root canal) instrumentation or surgery only beyond the apex
  - Sub gingival placement of antibiotic fibers or strips

Current AHA Guidelines

- Initial placement of orthodontic bands but not brackets
- Intraligamentary local anesthetic injections
- Prophylactic cleaning of teeth or implants where bleeding is anticipated

***Prophylaxis is recommended for patients with high-risk cardiac conditions

Current AHA Guidelines

- **Prophylactic Regimens for Dental, Oral, Respiratory Tract, or Esophageal Procedures. (Follow-up dose no longer recommended.) Total children's dose should not exceed adult dose.**

➢I. Standard general prophylaxis for patients at risk: Amoxicillin: Adults, 2.0 g (children, 50 mg/kg) given orally one hour before procedure.

➢II. Unable to take oral medications: Ampicillin: Adults, 2.0 g (children 50 mg/kg) given IM or IV within 30 minutes before procedure.

Current AHA Guidelines

- IV. Amoxicillin/ampicillin/penicillin allergic patients unable to take oral medications: Clindamycin: Adults, 600 mg (children 20 mg/kg) IV within 30 minutes before procedure. -OR- Cefazolin*: Adults, 1.0 g (children 25 mg/kg) IM or IV within 30 minutes before procedure.
  - *Cephalosporins should not be used in patients with immediate-type hypersensitivity reaction to penicillin's
- DO NOT USE E-MYCIN

Prosthetic Joint Replacements???

Prevention of Infections in Prosthetic Joints

- 1997: Advisory statement of ADA & AAOS: JADA, Jul;128(7):1004-8
  - 1997-Antibiotic prophylaxis is not routinely indicated
- 2003: AAOS-ADA Advisory statement update
  - All patients for all high-risk dental procedures for the first 2 years
    dental extractions, periodontal procedures, dental implant placement and replantation of avulsed teeth, endodontic instrumentation or surgery only beyond the apex, initial placement of orthodontic bands, prophylactic cleaning of teeth or implants where bleeding is anticipated
  - After 2 years - high risk patients for high-risk procedures
    (inflammatory arthropathies such as rheumatoid arthritis, systemic lupus erythematosus, drug- or radiation-induced immunosuppression, previous prosthetic joint infections, malnourishment, hemophilia, HIV infection, insulin-dependent type 1 diabetes)

Prevention of Infections in Prosthetic Joints

- 2009: Given the potential adverse outcomes and cost of treating an infected joint replacement, the AAOS recommends that clinicians consider antibiotic prophylaxis for all total joint replacement patients prior to any invasive procedure that may cause bacteremia."
- 2010: The new AAOS statement should not replace the 2003 joint consensus statement. (

Prevention of Infections in Prosthetic Joints

- 2012: Evidence insufficient to recommend routine antibiotics for joint replacement patients who undergo dental procedures (AAOS 12/2012)
- AAOS-ADA Evidence Based Clinical Practice Guideline
  - might consider discontinuing routine prophylactic antibiotics for patients with hip and knee prosthetic joint implants undergoing dental procedures (limited)
  - unable to recommend for or against topical oral antimicrobials in patients with prosthetic joints prior to dental procedures (inconclusive)
  - patients with prosthetic joint implants or other orthopaedic implants should maintain appropriate oral hygiene (consensus)

2015: The Use of Prophylactic Antibiotics Prior to Dental Procedures in Patients with Prosthetic Joints

- Evidence-based clinical practice guideline for dental practitioners—a report of the American Dental Association Council on Scientific Affairs

  JADA: January 2015 Volume 146, Issue 1, Pages 11–16

Results

- The 2014 Panel judged that the current best evidence *failed* to demonstrate an association between dental procedures and prosthetic joint infection (PJI).
- The 2014 Panel also presented information about antibiotic resistance, adverse drug reactions, and costs associated with prescribing antibiotics for PJI prophylaxis.

However……

- ”The practitioner and patient should consider possible clinical circumstances that may suggest the presence of a significant medical risk in providing dental care without antibiotic prophylaxis, as well as the known risks of frequent or widespread antibiotic use. ”

- “As part of the evidence-based approach to care, this clinical recommendation should be integrated with the practitioner’s professional judgment and the patient’s needs and preferences.”
- Discuss the individual case with pt. And Orthopedic surgeon

What does this all mean??

- Discuss *each* individual case with pt. and Orthopedic surgeon.
  - Diabetics
  - Prior Joint infection
  - Immunocompromised

Suggested Medications

- 2.0 gms- Cephalexin, Cephradine or Amoxicillin 1 hour prior
- 600 mg Clindamycin 1 hour prior

Case #3

- 80-year-old male with h/o stroke 8 month ago.
- Now presents with pain from an abscessed lower left 2nd molar
- Pt has been on ASA and Xarelto for 6 months
  - Do we stop ASA or Xarelto?
  - Do we proceed with extraction?

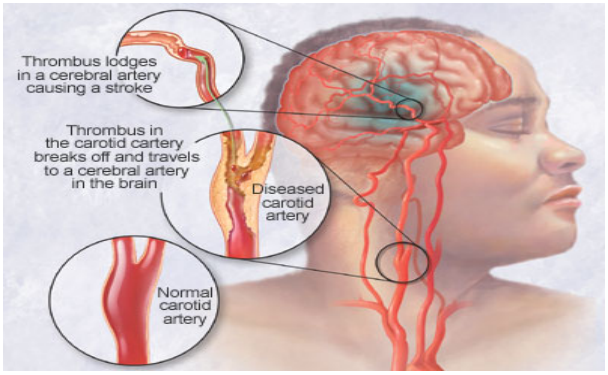
Stroke/CVA

- A stroke, or brain attack, occurs when the blood supply to your brain is interrupted and brain tissue is deprived of oxygen and nutrients.
- Within minutes, brain cells begin to die.
- In the United States, stroke is the third leading cause of death and the leading cause of adult disability; only cardiovascular disease and cancer cause more deaths annually.

Stroke/CVA

- Ischemic-About 80 percent of strokes are ischemic, occurring when the blood flow in an artery leading to your brain is somehow blocked.
- Hemorrhagic-This type of stroke occurs when a blood vessel in your brain leaks or ruptures. In an intracerebral hemorrhage, blood from the hemorrhage spills into the surrounding brain tissue and damages cells. Brain cells beyond the leak or rupture are deprived of blood and are also damaged.

Stroke/CVA



Stroke/CVA

- The most common cause of an intracerebral hemorrhage is uncontrolled high blood pressure (hypertension).
- Hypertension can cause small arteries inside your brain to become brittle and susceptible to cracking and rupture.

Stroke/CVA

- Medications-
  - Anticoagulants
  - Antiplatelet medications

Blood Thinners-Anticoagulants

- Coumadin
- Lovenox
- Xarelto
- Eliquis

Antiplatelet Medications

- Antiplatelet agents are medications that block the formation of blood clots by preventing the clumping of platelets.
- Aspirin
- Plavix
- Ticlid
- Pradaxa

Coumadin

- Coumadin-(Warfarin)
- Used to prevent and treat harmful blood clots.
- Keeps blood flowing smoothly by decreasing the amount of clotting proteins in the blood.
- Is sometimes commonly referred to as a "blood thinner," but its more correct term is "anticoagulant."

Coumadin

- Blood clots can occur in the atria of the heart during atrial fibrillation and around artificial heart valves.
- One of these clots can break off and obstruct a blood vessel in the brain, causing an embolic stroke with paralysis.
- Coumadin prevents the formation of these blood clots.

Lovenox

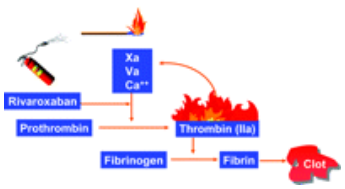
- Lovenox- (Enoxaparin) is a low molecular weight heparin.
- Like heparin, lovenox prevents blood clots from forming.
- It works by blocking the action of two of the 12 proteins in blood (factors X and II) whose action is necessary in order for blood to clot.

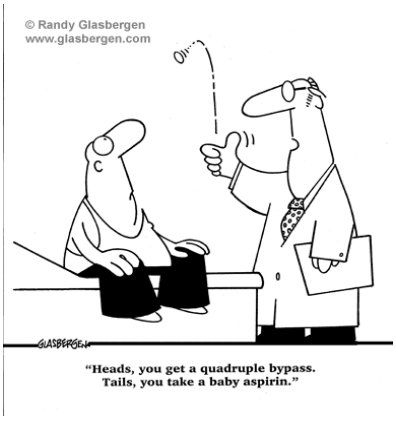
Lovenox

- Advantages-
  - Very fast onset
  - very short acting
- Disadvantage
  - Requires SQ injection

Apixaban (Eliquis)
Rivaroxaban (Xarelto)

- block clotting factor Xa from working, and this prevents the clot from forming.





Aspirin

- Aspirin -acetyl salicylic acid (ASA)
- Aspirin has an important inhibitory effect on platelets in the blood.
- This antiplatelet effect is used to prevent the platelets from initiating the formation of blood clots inside arteries
- Particularly helpful in individuals who have atherosclerosis or are otherwise prone to develop blood clots in their arteries.

Thienopyridines

- Plavix and Ticlid
  - Platelets produce adenosine diphosphate (ADP).
  - When ADP attaches to receptors on the surface of platelets, the platelets clump.
  - Ticlopidine(Ticlid) and clopidogrel (Plavix), block the ADP receptor.
  - Blocking the ADP receptor prevents ADP from attaching to the receptor and the platelets from clumping

How quickly do antiplatelet agents work?

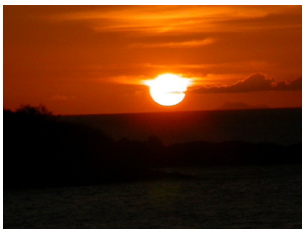
- When aspirin is given in low doses (75 mg/day), complete inhibition of the COX-1 enzyme and maximal antiplatelet effect may take several days.
- At a dose of 160-325 mg/day, the maximal antiplatelet effect of aspirin occurs within 30 minutes.
  - Thus, aspirin at low doses (75-150 mg/day) is used for the long-term prevention of heart attacks and strokes.
  - Moderate doses (160-325 mg/day) of aspirin are used in situations where an immediate antiplatelet effect is needed
    - acute heart attacks
    - unstable angina

How quickly do antiplatelet agents work?

- The onset of action of clopidogrel (Plavix) is dose-related.
  - Maximal antiplatelet effects occur several days after initiation of clopidogrel (75 mg/day)
  - Can occur within hours after larger doses of 300 or 600 mg.
- Therefore, the larger doses of plavix are used as initial treatment when immediate antiplatelet action is needed while the lower doses are used for long-term therapy.

Dabigatran (Pradaxa)

- is a potent, orally active, direct inhibitor of free thrombin, fibrin-bound thrombin and thrombin-induced platelet aggregation.



INR

- INR (international normalized ratio) stands for a way of standardizing the results of prothrombin time tests, no matter the testing method.
- So, your doctor can understand results in the same way even when they come from different labs and different test methods.
- Using the INR system, treatment with (anticoagulant therapy) will be the same.

INR

- An INR of 1.0 means that the patient PT is normal.
- An INR greater than 1.0 means the clotting time is elevated.
- INR of greater than 5 or 5.5 = unacceptable high risk of bleeding,whereas if the INR=0.5 then there is a high chance of having a clot.
- Normal range for a healthy person is 0.9–1.3, and for people on warfarin therapy, 2.0–3.0, although the target INR may be higher in particular situations, such as for those with a mechanical heart valve.

Cessation Prior To Dental Treatment

- Many procedures in dentistry can produce bleeding.
- Most of the time this bleeding is not difficult to control even in patients who are taking anticoagulation and antiplatelet medications.

Cessation Prior To Dental Treatment

- However, both the effect of these medicines on clotting and the potential for bleeding associated with particular dental procedures is variable.
- Consequently, it is essential that for each procedure that the risk of bleeding be weighed against the risk of altering the dose or discontinuing the medication.

Cessation Prior To Dental Treatment

- Risks associated with stopping antiplatelet med.
  - Several studies have now shown increased risk of thrombo-embolic event far out ways the risk of oral bleeding.

BJOM-2004
JAMA-2007
NEJM-2011
JADA -2013

Cessation Prior To Dental Treatment

- Always discuss with MD
- For ASA, Plavix, Ticlid, Xarelto, Eliquis
  - Low dose- Do not stop or alter prior to dental surgical procedure
  - High dose- Combined Therapy
    - Discontinue use of One of the drugs- usually continue the ASA 5 days prior to major invasive dental treatment

Cessation Prior To Dental Treatment

- Coumadin
  - Do not discontinue if INR is <2.5
  - Modify dose 4 days prior to treatment if >2.5
- Lovenox
  - Can proceed with treatment in 24 hours

Balance of Risk/Reward

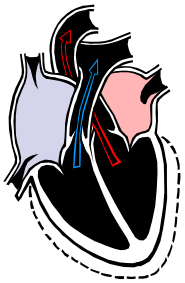
- Bleeding complications do not carry same risks as thromboembolic complications
- Greater risk of permanent disability or death if they stop antiplatelet med prior to surgery
- Therefore, meds should not be stopped prior to routine dental procedures!
- Surgical procedures ie. Multiple extractions –
  - Assess the risk

Other practical advice for anticoagulated dental patients

- Schedule dental procedures early in the day and early in the week to allow more time to deal with bleeding if it occurs.
- If anticoagulation is only temporary (e.g. VTE prophylaxis post-hip or knee replacement), consider postponing elective dental procedures until anticoagulation is no longer needed

Bottom Line

- When in doubt- discuss with internist or cardiologist
- Document recommendations



Case #4

- 60-year-old African American male presents for implant surgery in the maxilla.
- h/o hypertension
  - Assistant takes bp-180/100 left arm
    190/105 right arm

TREAT or CANCEL????

Case Question

- What goal BP is most appropriate for this patient?
  1. <150/90 mmHg
  2. <130/80 mmHg
  3. <140/90 mmHg
  4. <140/80 mmHg
  5. <140/85 mmHg

Case Question

- What goal BP is most appropriate for this patient?
  1. <150/90 mmHg
  2. <130/80 mmHg
  3. <140/90 mmHg
  4. <140/80 mmHg
  5. <140/85 mmHg

Hypertension

- High blood pressure (hypertension) is often called the silent killer because you can have it for years without knowing it.
- In fact, right now about 50 million Americans have high blood pressure, but about one-third (15 million) don't know it.

"What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?"

Hypertension

- uncontrolled high blood pressure can increase your risk of stroke, heart attack, heart failure and kidney failure.

BP goal in the elderly

Hypertension

- 2014 Evidence-Based Guidelines for the Management of High Blood Pressure in Adults
  - JAMA. 2014;311(5):507-520
  - December 18, 2013

Classification of BP

Category	Systolic (mmHg)		Diastolic (mmHg)
Normal	< 120	and	< 80
Pre-HTN	120-139	or	80-89
Hypertension			
Stage I	140-159	or	90-99
Stage II	≥ 160	or	≥ 100

new guidelines 2018

- Normal: Less than 120/80 mm Hg;
- Pre-Hypertension: Systolic between 120-129 *and* diastolic less than 80;
- Stage 1: Systolic between 130-139 *or* diastolic between 80-89;
- Stage 2: Systolic at least 140 *or* diastolic at least 90 mm Hg;
- Hypertensive crisis: Systolic over 180 and/or diastolic over 120

Case #5

- A 54-year-old female
- MHx
  - Type I DM
- Meds
  - Lantus 40 u qhs
  - lispro 32 u before meals
- Exam
  - Caries #2, 17 and 18
  - Overall periodontal disease

Diabetes Mellitus

- **Diagnosis**
  - Random BG ≥200mg/dl or fasting≥126 mg/dl
  - Fasting BG between 100-125mg/dl considered pre-diabetic
  - If inconclusive glucose tolerance test
    - 8 hrs. fast then 75 gms glucose
    - 2hr post prandial BSL
      - 140-199mg/dl impaired glucose tolerance
      - > 200mg/dl diagnostic of DM

Risk Stratification

- **Questions?**
  - Usual BGL range
  - Hb A1c
  - End organ damage
    - Coronary artery disease
    - Renal
    - ECG, UA with microscopy, CBC, Electrolytes

Risk Stratification

IF……..

- ↑ BGL>200mg/dL
- Hb A1C> 7%

- Would want to delay any non-urgent treatment

Diabetes Mellitus

- **End Organ Damage**
  - CAD
  - CVA
  - PVD
  - Retinopathy
  - Nephropathy
  - Neuropathy

Diabetes Mellitus

- Non ketotic hyperosmolar coma
- Diabetic ketoacidosis
- Altered mental status
- Electrolyte abnormalities

Management of Type I Diabetes

- Exogenous insulin
- Two approaches
  - **Continuous subcutaneous infusion (pump)**
    - Problems: Cost, hypoglycemic episodes (short acting insulin with pump failure), "tethered" to pump
  - **Intermittent (frequent) subcutaneous injections**
    - Problems: Cost, hypoglycemic episodes, compliance

Insulin Pump

- Only short-acting (regular insulin) or rapid- acting (lispro, aspart, glulisine)
- Different rates for overnight, daytime, activity, post-prandial, and "dawntime"
- Programmable
- Lead time before change in metabolic state (sub-q absorption time)
- In development: Reliable self-regulating pump system

Management of Type II Diabetes

- Diet modification, exercise, weight reduction
- Initial drug therapy: Monotherapy
  - Buguanide (↓hepatic glucose production)
    - Metformin (Glucophage)
  - Sulfonylureas (↑insulin release)
    - 1st generation: Chloropropamide (Diabenese), Tolbutamide (Orinase)
    - 2nd generation: Glipizide (Glucotrol), Glyburide (Diabeta), Glimepiride (Amaryl)

Management

- **Goals**
  - Avoid excessive hyperglycemia (blood glucose >180 mg/dL) or hypoglycemia (blood glucose < 80 mg/dl).

Management

<u>Local anesthesia</u>

- No change in oral hypoglycemics or insulin either sc or pump
- Should be well controlled
- Measure BSL pre-procedure

Oral Hypoglycemics

Sedation/general anesthesia

- -Pre and post operative BSL
- -Well controlled DM (<180 mg/dL)
- -Hold all agents am
- -Cover with short acting (SSI)
  - Reg, lispro, aspart, glulisine

Insulin Dependent

Sedation/general anesthesia

- - Pre and post operative BSL
- - Well controlled DM (<180 mg/dL)
- - Maintain long acting (ie lantus)
- - Half intermediate acting am (ie NPH)
- - No AM short acting (ie reg, lispro)
- - Cover with short acting (SSI) Post Op
  - Reg, lispro, aspart, glulisine

Insulin Pump

- **Sedation/general anesthesia**
  - - Maintain basal rate of insulin by pump
  - - Measure BS and administer SC insulin per sliding scale as needed
  - always discuss with internist or endocrinologist before procedure

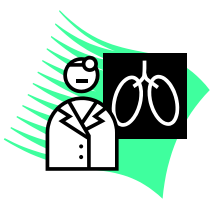
Case #6

- 68-year-old female – 50py h/o smoking has chronic emphysema.
- Appt. today for replacement of 3-unit bridge on lower right.
- Arrives at appt. and informs your assistant that she is now on antibiotics and inhaler for Bronchitis.

Treat or Cancel???

Pulmonary

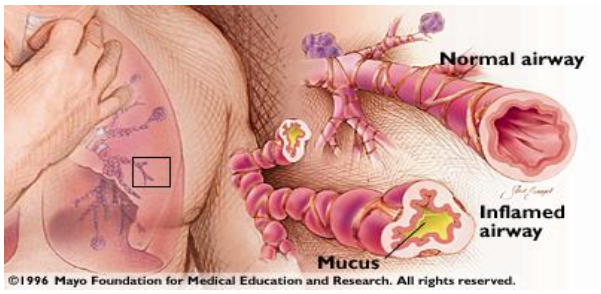
- Asthma
- Bronchitis
- COPD



Asthma

- A condition characterized by the inflammation and narrowing of the bronchial tubes as well as the production of excess mucus. These disturbances cause wheezing, coughing and difficulty breathing
- nearly 500,000 Americans are hospitalized annually and more than 5,000 die annually of asthma.

Asthma



Asthma

- When was last attack?
- Is there recurrent wheezing?
- Have they ever been hospitalized?
- What meds do they take?

Asthma

- Have patient bring inhaler to each appointment
- Always try to keep patient in semi-supine position if possible

Chronic Obstructive Pulmonary Disease(COPD)

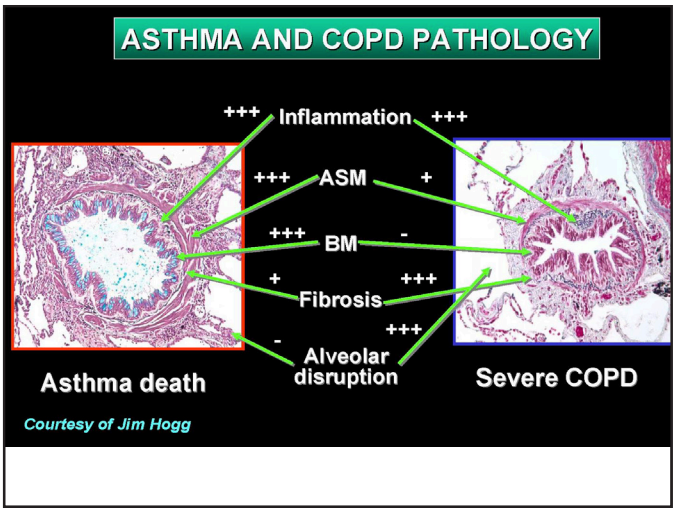
- Chronic obstructive pulmonary disease (COPD) is a general term for a group of diseases that cause progressive damage to your lungs.
- These diseases include chronic bronchitis, chronic obstructive bronchitis and emphysema.
- Of the more than 16 million Americans with COPD, about 2 million have emphysema.
- COPD is a serious disease, and the lung damage it causes can't be reversed.

Really Two Conditions

- **Emphysema**
  - Progressive destruction of alveoli
  - Alpha1 antitrypsin deficiency
  - Smoking or congenital
- **Chronic bronchitis**
  - Chronic inflammation
  - Increased mucous cells
  - Impaired immune function

Differential Diagnosis: COPD and Asthma

COPD	ASTHMA
• Onset in mid-life	• Onset early in life (often childhood)
• Symptoms slowly progressive	• Symptoms vary from day to day
• Long smoking history	• Symptoms worse at night/early morning
	• Allergy, rhinitis, and/or eczema also present
	• Family history of asthma



COPD

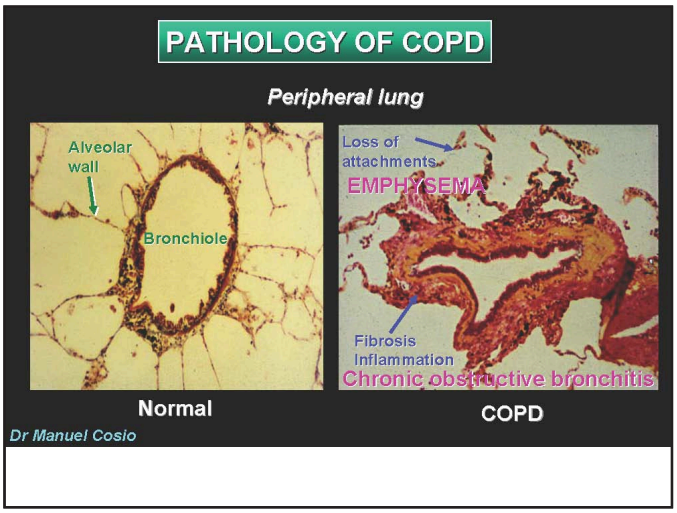
Small Airways Disease

- Airway inflammation
- Airway fibrosis, luminal plugs
- Increased airway resistance

Parenchymal Destruction

- Loss of alveolar attachments
- Decrease of elastic recoil

AIRFLOW LIMITATION



COPD

- COPD is a leading cause of morbidity and mortality worldwide.
- The burden of COPD is projected to increase in coming decades due to continued exposure to COPD risk factors and the aging of the world's population.
- COPD is associated with significant economic burden.

Diagnosis of COPD

SYMPTOMS
shortness of breath
chronic cough
sputum

EXPOSURE TO RISK FACTORS
tobacco
occupation
indoor/outdoor pollution

SPIROMETRY: Required to establish diagnosis

Assessment of COPD

- Assess symptoms
- Assess degree of airflow limitation
- Assess risk of exacerbations
- Assess comorbidities

Therapeutic Options: Bronchodilators

- Long-acting inhaled bronchodilators are convenient and more effective for symptom relief than short-acting bronchodilators.

Therapeutic Options: Other Treatments

Oxygen Therapy: The long-term administration of oxygen (> 15 hours per day) to patients with chronic respiratory failure has been shown to increase survival in patients with severe, resting hypoxemia.

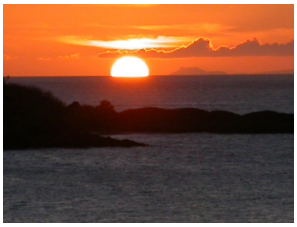
COPD Exacerbations: Key Points

Bronchitis

- a condition that occurs when the inner walls that line the main air passageways of your lungs (bronchial tubes) become inflamed.
- Usually follows a URI

Bronchitis

- Airway hyper reactivity may last 4 weeks after symptoms resolve
- Delay elective treatment when feasible



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- Appt. today for replacement of 3-unit bridge on lower right.
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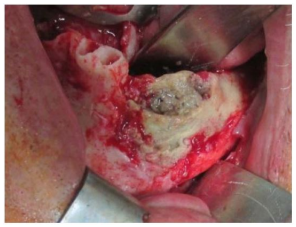
Cancel!!!

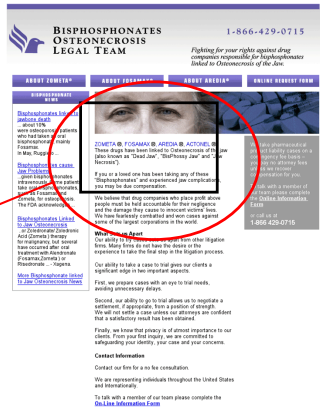
ONJ



ONJ?????

- OsteoNecrosis of Jaw
  - Was called BRONJ
    - Bisphosphonate Related Necrosis of Jaw
  - Now MRONJ
    - Medication Related Necrosis of Jaw

- Fear
- Confusion
- Uncertainty
- Risk
- Panic
- Warning
- Litigation



Background

- Over past 18 years, increasing incidence and recognition of non-healing wounds with refractory osteomyelitis of the jaws
- Similar clinical presentation to *O*steo*R*adio-*N*ecrosis in patients never exposed to radiotherapy
- Underlying common factor is the use of bisphosphonates
- Increased use of bisphosphonates by oncologists and internists seems to correlate with this increasingly more common phenomenon of *osteonecrosis of the jaws*

Recognition of the Problem

- Rosenberg, TJ and Ruggiero, SL. presented abstract at AAOMS national meeting. JOMS, Aug 2003 supplement.
  - **Osteonecrosis** of the jaws associated with the use of **bisphosphonates.**
  - Reported **26 cases.**
- Marx, RE. issues warning in the JOMS letters to the editor regarding this growing problem.
  - **Pamidronate** (Aredia) and **Zoledronate** (Zometa) induced **avascular necrosis** of the jaws: A growing **epidemic**. JOMS, Sept 2003.
  - Reported **36 cases.**
- Wang, J. et al. reported 3 cases of osteonecrosis initially attributed to chemotherapeutics.
  - **Osteonecrosis** of the jaws associated with cancer chemotherapy. JOMS, Sept 2003.
  - Later, authors **attribute** this problem to **bisphosphonates**, in light of recent publications.

Recognition of the Problem

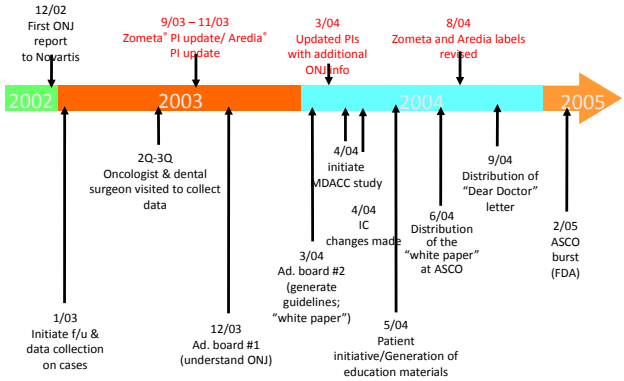
- **Osteonecrosis** of the **jaws** related to **bisphosphonate** therapy becomes a **widely recognized** problem as other surgeons share their experiences.
  - Schwartz, HC. Osteonecrosis and bisphosphonates: correlation versus causation. JOMS, June 2004.
    - Adds **15 more cases** to the literature.
  - Melo, M. Bisphosphonates and avascular necrosis of the jaws: a pathophysiologic paradox? JOMS, Aug 2004 supplement.
    - reports **7 cases** at the AAOMS national meeting poster session.

Recognition of the Problem

- **Novartis** appoints **Osteonecrosis Advisory Board.**
  - Headed by Dr. Tarassoff, co-author of Oct 2003 letter.

(NS21-5)

Novartis Timeline

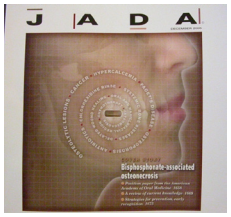


Recommended Management of ONJ Advisory Panel – March 24, 2004

- Diagnosis
  - Typical symptoms: pain, soft-tissue swelling and infection, loose teeth, and exposed bone
  - Imaging (eg, panoramic and tomographic), biopsy, and cultures may be helpful
- Treatment
  - Nonsurgical approach preferred: minimal debridement, cover exposed bone, protective stint
  - Antibiotics, antifungal and antiviral agents, oral rinses
  - Close follow-up, and cessation of BP therapy may be considered.

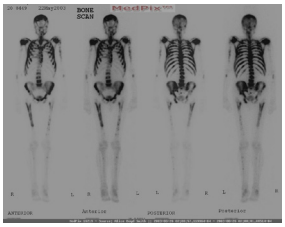
Recognition of the Problem

- FDA and Novartis issue warning on all Bisphosphonate drugs
- JADA-Cover story 12/2005
  - 3 review articles on the significance of this issue



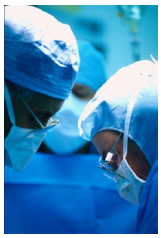
Recognition of the Problem

- Marx – November 2006
  - 121 cases-IV induced
  - 32 cases-Oral induced



Recognition of the Problem

- AAOMS- 2007
- Position paper on Bisphosphonate-related Osteonecrosis of the Jaws
- Establishes 1st guidelines for practitioners dealing with BRONJ



Recognition of the Problem

- Now many cases reported worldwide!
- Hundreds of papers written on subject
- But there is still ongoing controversy

MRONJ-2014

- AAOMS issues position paper expanding the scope of Medication Related Osteonecrosis of the Jaw (MRONJ)

  -reflect the antiresorptive (denosumab) and antiangiogenic therapies that have recently been associated with the condition.

Patients may be considered to have MRONJ if all of the following characteristics are present:

- 1. Current or previous treatment with antiresorptive or antiangiogenic agents
- 2. Exposed bone or bone that can be probed through an intraoral or extraoral fistula(e) in the maxillofacial region that has persisted for more than eight weeks
- 3. No history of radiation therapy to the jaws or obvious metastatic disease to the jaws.

Recognition of the Problem

- Use of Steroids increased risk of ONJ
- RA
- HIV
- Chemotherapy

Implications?

- Thousands of patients on IV Bisphosphonates
- 23 Million women in U.S. currently taking oral Bisphosphonates
- Goal is to educate and provide information for these patients about this disease process

What Are Bisphosphonates?

- Class of drugs that have a high affinity for calcium
  - Binds to bone surfaces
- Prevent bone resorption and remodeling
- IV and oral formulations

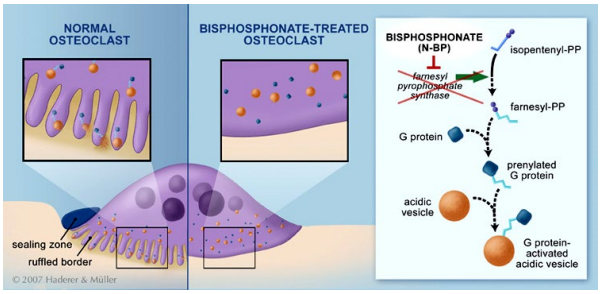
What Are Bisphosphonates?

- Bisphosphonates are non-metabolized analogues of pyrophosphate
  - Localizes to bone and inhibits **osteoclasts**
- Affects **bone turnover**
  - Tissue level
    - Inhibit bone resorption and decreases turnover
  - Cellular level
    - Target and **inhibit osteoclasts**
      - Inhibit osteoclast recruitment
      - Decreases osteoclast life span
      - Inhibits osteoclastic activity at bone surface
      - Osteoclast death

Why are IV Bisphosphonates Used?

- Cancers can not destroy bone
- They recruit osteoclasts and the osteoclasts destroy the bone
- Bisphosphonates prevent this destruction and therefore prevent the spread of cancer

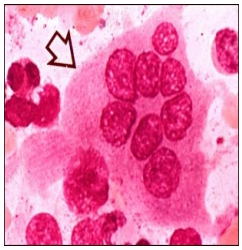
Bisphosphonates Inhibit Bone Resorption by Preventing Formation of the Ruffled Border



Normal Bone Turnover

- Osteoclast-Osteoblast Interplay
  - Essential for normal bone turnover
  - Osteoclasts release BMP, ILG1, ILG2
  - Recruit stem cells and promote new osteoblasts to generate new bone
  - Without turnover after 150 days (life-span of osteocyte) osteon becomes non-vital

Normal Osteoclast

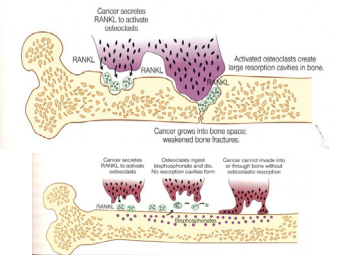


Mechanism of Action of Bisphosphonates

- Strong Benefits
  - Inhibition of osteoclastic activity inhibits this process
  - Osteoclast death- No recruitment of Tumor growth factors
  - Tumor can not grow
- However…..
  - No ability to heal, if bone injured!

Medical Indications for IV BPs

- Bone metastasis, hypercalcemia
  - RANKL-mediated osteoclastic resorption
    - Multiple myeloma, breast CA, prostate CA
    - *Paracrine-like* effect
  - PTH-like peptide osteoclastic resorption
    - Small cell carcinoma, oropharyngeal cancers
    - *Endocrine-like* effect

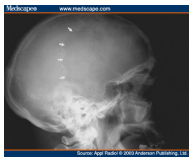


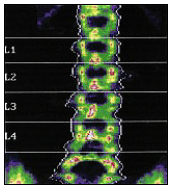
Intravenous Bisphosphonates

- **Pamidronate (Aredia®)**
  - First generation bisphosphonate
  - 90 mg administered every 3-4 weeks, over 2 hrs
- **Zolendronic acid (Zometa®)**
  - Next generation bisphosphonate
  - Most potent bisphosphonate
  - More effective in controlling:
    - Hypercalcemia of malignancy
    - Reducing skeletal-related events
  - 5 mg administered monthly over 15 minutes

Medical Indications for Oral BPs

- Paget's Disease of bone
  - Accelerated bone turnover
    - Reduced compressive strength, increased vascularity
    - Bone pain
    - Elevated AP levels
- Osteoporosis
  - Effects of estrogen loss:
    - Decreased bone turnover/renewal
      - Adipocyte differentiation > osteoblastic differentiation
      - increased fibrofatty marrow
      - Progressively porotic bone
  - DEXA scan for BMD values





Oral Bisphosphonates

- **Alendronate (Fosamax®)**
- **Risedronate (Actonel®)**
- **Ibandronate (Boniva)**

- Not used for malignant osteolytic disease

Oral Bisphosphonates

- Despite what some think, they are also associated with osteo**necrosis** of the jaws!
  - To a **lesser** extent compared to its intravenous counterparts
  - 3-4% (JADA 2008)

Why The Jaws?

- Continuous bone remodeling
- Teeth and Dental diseases
- Thin overlying mucosa
- Remodeling rate and osteoclastic activity 10x greater than long bones
  - Even higher with periodontal disease
- Remodeling in the alveolus 2-3 times faster than the rest of the mandible

Why The Jaws?

- Bisphosphonate localizes to area where osteoclasts are remodeling bone 8 times more than normal bone
- ie 240 times more bisphosphonate in area of periodontal disease (crest of ridge, lamina dura, areas above the IAN)

Time of Use

- IV bisphosphonate – > 1 year is significant
- Oral bisphosphonate- > 3 years

Time of Use

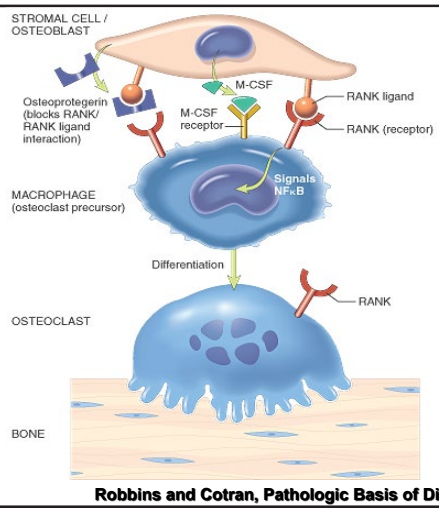
- Accumulates in bone long term
  Half life is 10 years

Anti-Resorptive-Denosumab

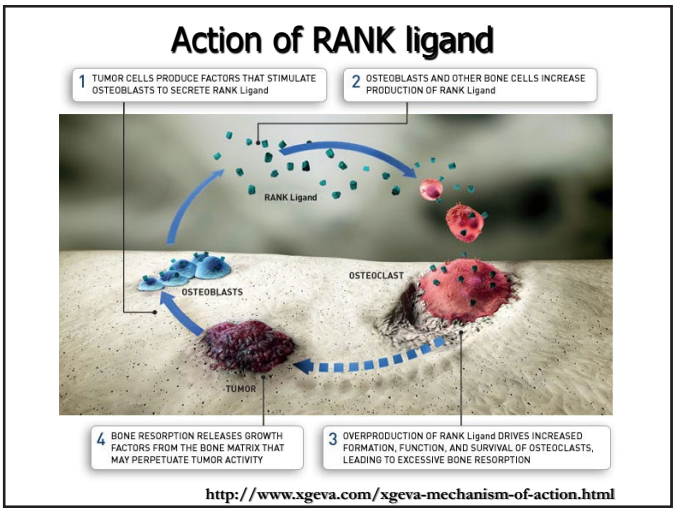
- Has been shown to cause Osteonecrosis as well!!
  - Xgeva
  - Prolia
- Denosumab reduces bone resorption by inhibiting osteoclast function. The osteoclast targeting and end result is similar to bisphosphonates

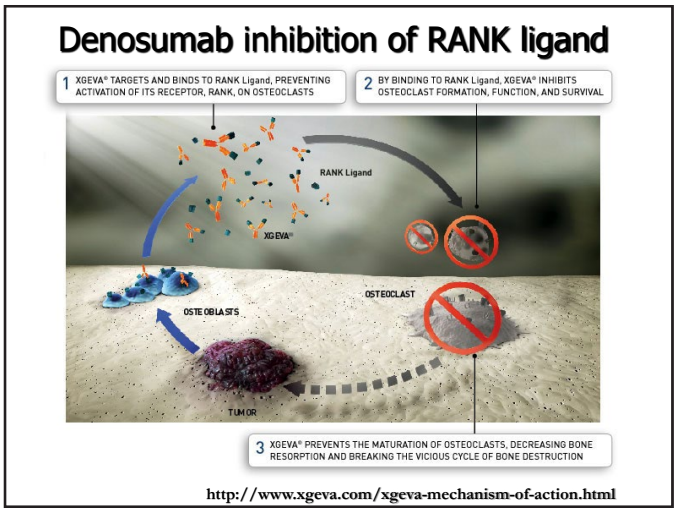
Alternative anti-resorptive:
IV denosumab (Prolia) for osteoporosis

- RANK ligand inhibitor
  - 60 mg subQ every 6 months (120 mg/yr)
  - Cancer patients, 120 mg every month (Xgeva)
    - 6X higher dose



Robbins and Cotran, Pathologic Basis of Disease, 7th Ed



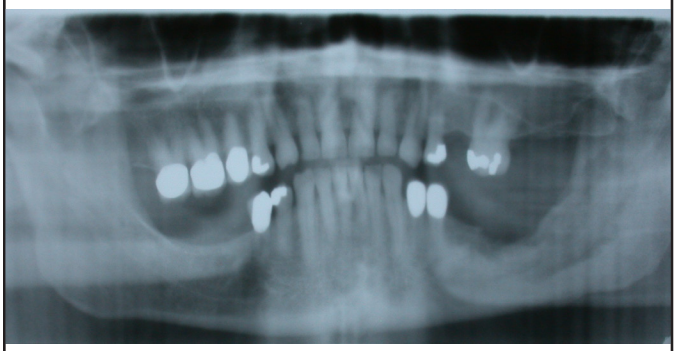


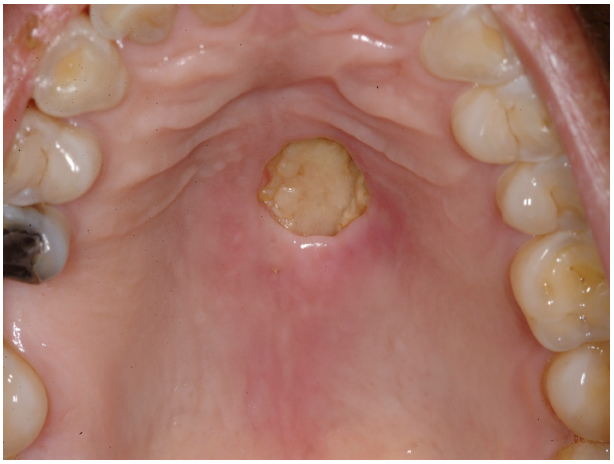
Diagnosis

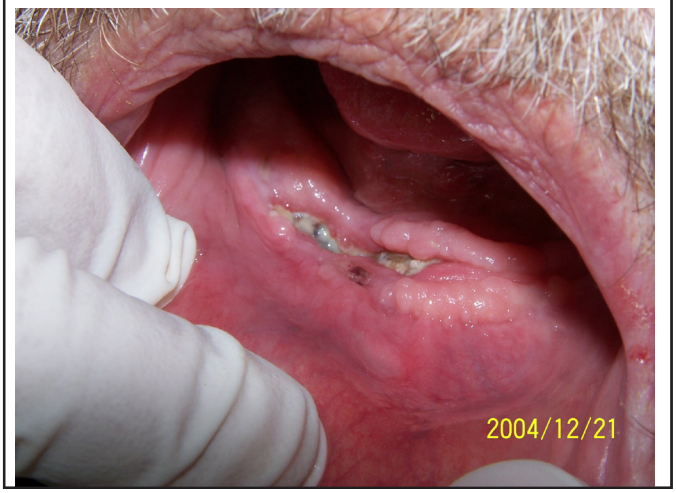
- History of Anti-Resorptive use
- Non-healing area(s) of exposed bone for 8 weeks
  - Necrotic
  - Avascular
  - Marble appearance
- Pain
- Infection
  - Purulence
- Spontaneous or after dental procedure
- Mottled appearance on radiographs
- Similar appearance to ORN
  - Affects maxilla with higher incidence than ORN
- Refractory to conventional treatment

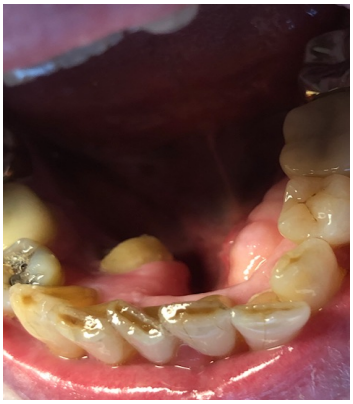
Clinical Findings

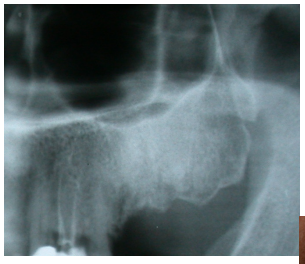
- First signs may be
  - Furcation involvement
  - Widen PDL
  - Tooth mobility

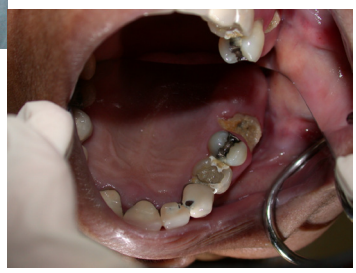


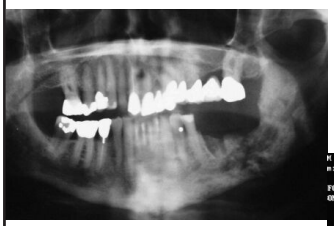


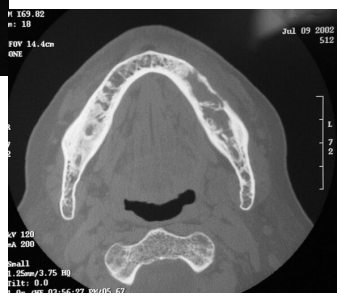


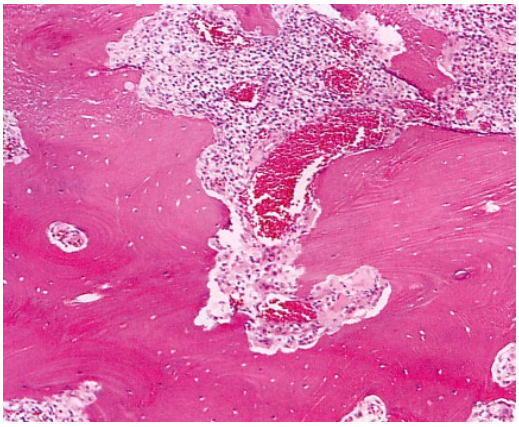












Antibiotics

- It was thought early on that clindamycin was not effective.
- Now it is recommended for PCN allergic patients
- Levaquin--- “Black Box Warning”

Levaquin Warning

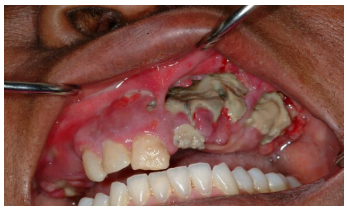
- Levaquin may cause swelling or tearing of a tendon (the fiber that connects bones to muscles in the body), especially in the Achilles' tendon of the heel.
- These effects may be more likely to occur if you are over 60, if you take an oral steroid medication, or if you have had a kidney, heart, or lung transplant.

Current Classification

- Stage O- Medication use but no ONJ
- Stage Ia- Exposed bone <1cm but no pain
- Stage Ib- Exposed bone >1cm/no pain
- Stage IIa-Exposed bone<2cm + *PAIN*
- Stage IIb-Exposed bone>2cm + Pain

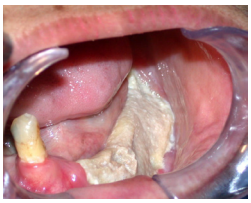
Current Classification

- Stage IIIa- Multiple exposed areas, no FX
- Stage IIIb- Multiple areas and fx or fistula



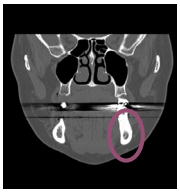
MRONJ: IV Meds

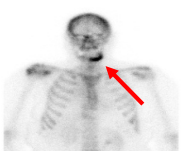
- Lesions more extensive
- All stages
  - II, III more common
- Lower success with Tx
- Patients generally sicker

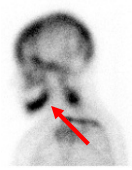


Stage 0 Lesions

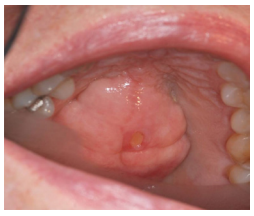
- Spontaneous onset numbness and pain
- No exposed bone
- No prior dental antecedent
- Positive image findings:
  - Sclerosis
  - Positive bone scan

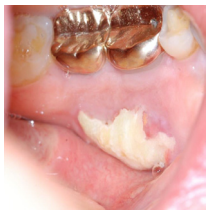




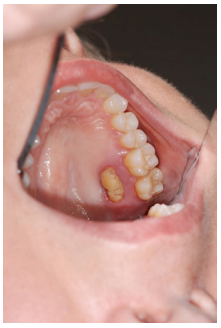


Stage I Lesions

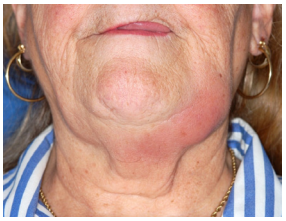


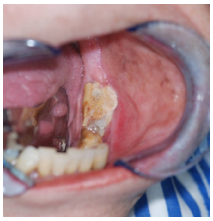


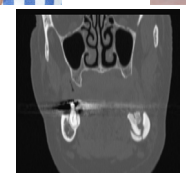
Stage II Lesions



Stage III Lesions







IV Bisphosphonate Patients

- Overall risk factor is 7-9%
- **Use of drug > 1year greatly increases risk**
  - Spontaneous 25.2%
  - Extraction 37.8%
  - Active Perio. disease 28.6%
  - Perio surgery 8.4%

Dental Care for I.V. Bisphosphonate Patients
Stage 0

- Aggressive management prior to begin therapy
- All extractions/perio. Surgery prior to treatment
- Usually have 2 months to treat even with Multiple Myeloma

During Treatment

- Avoid Extraction/Perio. Surgery
- Implants?---NO!!!!!
- Treat caries
- RCT/Amputate crowns
- Frequent prophy- Supra-gingival only
- Splint mobile teeth
- Partials/ Dentures Ok
  - No pressure

I.V. Patient-Exposed Bone – Stage Ia/Ib

- Asymptomatic exposed bone
  - Chlorhexadine rinse TID

I.V. Patient-Exposed Bone – Stage IIa or IIb

- Avoid Debridement
- Smooth Sharp edges only
- Peridex TID
- PenVK 500mg QID
- Pen allergy
  - ***Use Levaquin 500mg QD
  - Clindamycin 300mg QID
- Add Flagyl 500mg TID for refractory cases

Stage III

- Chlorhexadine TID
- Antibiotics
- Extensive Alveolectomy or Surgical resection if necessary
- You can not cure with minor debridement!

Oral Bisphosphonates

- Risk clearly increases with extended use
- >3 years increases risk
- Co-morbidity is significant
  - Rheumatoid Arthritis
  - Use of Steroids
  - SLE
  - Diabetes
  - Radiation

Oral Bisphosphonates

GOOD NEWS

- More reversible
- More amenable to treatment
- More predictable

Oral Bisphosphonates

- Less than 3 years use and no Co-morbidity
  - Proceed with treatment as routine
- Implants- OK ??
  - but use consent

Oral Bisphosphonates Treatment Protocols

- **Pt. to begin treatment with Fosamax**
  - Talk to MD first
  - Have them delay therapy for 2 months
  - Treat all active dental risk factors

Oral Bisphosphonates Treatment Protocols

- **Pt. on meds. already > 3 years**
  - D/C bisphosphonate for 4 months
  - Talk to MD first
  - Obtain reference CTX + -
  - Accomplish surgery or procedure if CTX is >150
    - Or if clinical finding support proceeding
  - Restart meds. 3 months later

Oral Bisphosphonates Treatment Protocols

- **If exposed bone is present**
  - Discontinue oral bisphosphonate for 4 months
  - Chlorhexadine
  - Antibiotics
  - May see spontaneous healing

Exposed Bone

- **If debridement is required**
  - is more straightforward because the necrotic area is better distinguished from viable bone
  - Obtain primary closure
- Discuss with MD to change to different drug for osteoporosis
  - Drug Holiday

Oral Bisphosphonates Treatment Protocols

- **Urgent Treatment required**
  - Go ahead and treat
  - Risks associated from untreated infection greater than that of BRONJ in this population
  - Be sure to use consent!

Orthodontic Considerations

- orthodontic treatment itself must come into question with these patients.
- Research has found that evidence suggests that tooth movement in patients receiving bisphosphonate therapy may be retarded
  - Igarashi and colleagues 1994
  - Kim and colleagues 1999

Influence of bisphosphonates on orthodontic tooth movement in mice

- Delayed/decrease tooth movement

- Yuji Fujimura, Hideki Kitaura, Masako Yoshimatsu 2009

Management Considerations

- Management of these lesions has been frustrating, and an effective approach remains unclear
  - Local irrigation
  - Antibiotics
  - Debridement?
  - Resection
  - HBO?
  - Cessation of drug (long half life)
  - Flap coverage
  - Change medication

Diagnostic Test

- CTX Test
  - C-Terminal Telopeptide Test
- May be useful measure for risk associated with **oral Bisphosphonates**
- **Initially felt to be very useful**
- **Now Skeptics question efficacy**

CTX

- Measures specific carboxyl terminal end fragment in type I collagen in bone that is cleaved by osteoclast in bone resorption.
- Particularly useful in assessing degree of bone turnover suppression induced by oral bisphosponates

CTX

- ????
- To date there is no good literature to support the use of the CTX
- On the other hand, there is no better test available either
- We are still using clinical judgment and x-ray finding above and beyond testing

Drug Holiday

- Period of drug cessation with re-administration at later date
- Strong evidence suggests with Fosamax –
  - Treat for 2-3 years
  - d/c drug for 1 year
  - NO change in bone density and decrease rate of vertebral fracture- similar to long term use

N Engl J Med 2004;350:1189-1199

Drug Holiday

- 19% Fracture rate (non-vertebral) if on Bisphosphonate for 5 years then off for 5 years
- 18.9% if on 10 years straight
  - JAMA Black et al Dec 27, 2006; 296(24):2927

Drug Holiday

- For many women d/c alendronate for up to 5 years does not significantly increase fracture risk
- Women at high risk may benefit from continued therapy
  - JAMA Black et al Dec 27, 2006; 296(24):2927

Reclast

- IV Zoledronic Acid
- 5mg/ year for 3 years
- This low dose does appear to carry very low risk for Osteonecrosis

Evista- **Raloxifene**

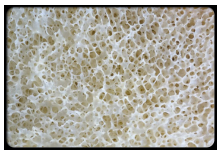
- EVISTA is not a hormone, hormone therapy, or estrogen. EVISTA is in a class of medications called estrogen agonist/antagonist, commonly known as a "Selective Estrogen Receptor Modulator," or SERM.
- EVISTA helps build bone without negatively affecting the breast or uterus

Selective Estrogen Receptor Modulator "SERM"

- There is absolutely NO association of this class of drugs and osteonecrosis!
- BUT they can suppress the CTX giving a low result.

Forteo

- FORTEO is indicated for the treatment of postmenopausal women with osteoporosis at high risk for fracture, defined as a history of osteoporotic fracture, multiple risk factors for fracture, or patients who have failed or are intolerant to other available osteoporosis therapy.



Forteo

- In postmenopausal women with osteoporosis, FORTEO reduces the risk of vertebral and non vertebral fractures
- FORTEO is indicated for the treatment of men and women with osteoporosis associated with sustained systemic glucocorticoid therapy (daily dosage equivalent to 5 mg or greater of prednisone)

Forteo

- May reverse the effects of Bisphosphonates
  - "Teriparatide and Osseous Regeneration in the Oral Cavity"
- Jill D. Bashutski, D.D.S., Robert M. Eber, D.D.S., Janet S. Kinney, M.S., Erika Benavides, D.D.S., Ph.D., Samopriyo Maitra, M.S., Thomas M. Braun, Ph.D., William V. Giannobile, D.D.S., D.Med.Sc., and Laurie K. McCauley, D.D.S., Ph.D.
- October 16, 2010 (10.1056/NEJMoa1005361)

Our Experience

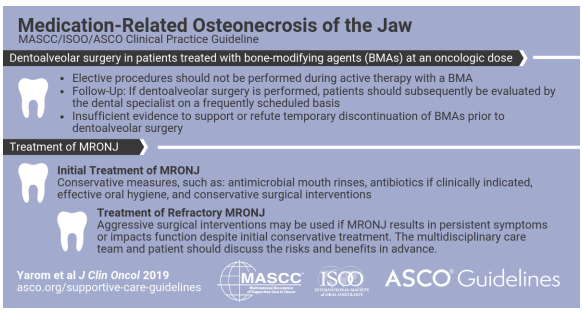
- Prophylaxis is better than treatment
- Treatment can be extensive, debilitative, and frustrating….

Our Experience

- If alveolar bone needs to be removed
  - Radical alveolectomy down to healthy basilar bone of mandible or maxilla
    - Basilar bone appears healthy if unaffected by secondary osteomyelitis
    - Allows for tension free soft tissue closure without the need for rotational flaps
  - Round of all sharp edges of bone
    - Residual affects of bisphosphonates make remodeling impossible
    - Reduced incidence of traumatic ulceration
- Bone appearing to have osteomyelitis needs to be resected if does not respond to antibiotics

Our Experience

- Rigid fixation appears to be safe
  - Keep screws on sound basilar bone, distant to diseased areas
- HBO may be beneficial for soft tissue healing
  - Especially if super-imposed osteomyelitis
  - Ineffective when used alone b/c dead alveolar bone will not remodel or heal



What Have We Learned

- **Recognition** and **understanding** of this problem
- **Identification** of patients at risk for this complication
  - Comorbidity is big factor
- **Avoidance** of procedures and trauma that may induce osteonecrosis
  - Extractions, periodontal surgery, implants, etc.
- Use Soft-liners for dentures

What Have We Learned

- Early **detection** and **referral** for management
- Propagate further **research** and possible **change** in practice and guidelines for administering these drugs
- **Interdisciplinary consensus**

Must Use Consent Prior To Treatment

STATEMENT ON BISPHOSPHONATES

The Food and Drug Administration and Novartis Pharmaceuticals Corporation have each issued a drug precaution for health professionals regarding a condition known as Osteonecrosis of the Jaw (ONJ). According to these precautions, this condition has been observed in cancer patients who undergo invasive dental procedures such as dental implants or tooth extractions while receiving treatment with intravenous bisphosphonates. ONJ can cause severe, irreversible, and often debilitating damage to the jaw. The two intravenous bisphosphonates that were mentioned in the precautions are marketed by Novartis under the trade names Aredia and Zometa.

Bisphosphonates, also known as bone-sparing drugs, are commonly used in the treatment of osteoporosis and cancer that has spread to the bone. Doctors prescribe intravenous bisphosphonate therapy, which was the subject of the precautions, for patients with cancer that has spread to the bone to help decrease associated pain and fractures. In addition, emerging research is exploring the ability of intravenous bisphosphonate therapy to inhibit the spread of some cancers to the bone.

Doctors also prescribe an oral dose of bisphosphonates for patients at risk for osteoporosis to help delay the onset of disease by slowing the natural progression of bone tissue destruction, or to reduce its complications. Orally administered bisphosphonates were not the subject of the drug precautions. However, the FDA noted that there have been anecdotal reports of ONJ in association with oral bisphosphonates administered for osteoporosis.
Osteonecrosis literally means death, or "necrosis," of bone. According to the National Osteonecrosis Foundation, the many risk factors for osteonecrosis can be divided into two categories: definite and probable. Definite risk factors include major trauma, fractures, dislocations, Caisson Disease, Sickle Cell Disease, post-irradiation, chemotherapy, Arterial Disease, and Gaucher's Disease. Probable risk factors include corticosteroids, blood clotting, alcohol, lipid disturbances, connective tissue disease, pancreatitis, kidney disease, liver disease, lupus, and smoking.

The FDA recognizes additional risk factors associated with the development of osteonecrosis (not limited to the jaw) in cancer patients, such as female sex, advanced age, edentulous regions, combination cancer therapy, blood dyscrasias/metastatic disease, anemia coagulopathy, surgical dental procedures, and prior infection.

Of course, the decision about what treatment to provide to a patient must be made by a doctor in the exercise of his or her best judgment. However, in light of the precautions, dentists are advised to determine whether a patient is receiving intravenous bisphosphonate therapy. If so, invasive dental procedures should be avoided unless absolutely necessary. Conversely, if a dentist becomes aware that a patient is going to be treated with intravenous bisphosphonates, any needed invasive dentistry should, if possible, be performed before the initiation of such treatment. Finally, practioners should endeavor to identify ONJ and other oral complications of cancer and cancer therapy.
Any questions about ONJ associated with intravenous bisphosphonate therapy can be addressed to Novartis at 1.888.669.6682.
The precautions are available online at:
www.fda.gov/ohrms/dockets/ac/05/briefing/2005-4095B2_03_02-FDA-TAB1.htm and
www.fda.gov/medwatch/safety/2005/zometa_dear dentite_5-5-05.pdf.

I have been made aware of the current information regarding my medications and their potential risks and side effects.

PATIENT OR GUARDIAN SIGNATURE_____
Date

Medical Coding for MRONJ

- ICD-10----------M87.18

Conclusions

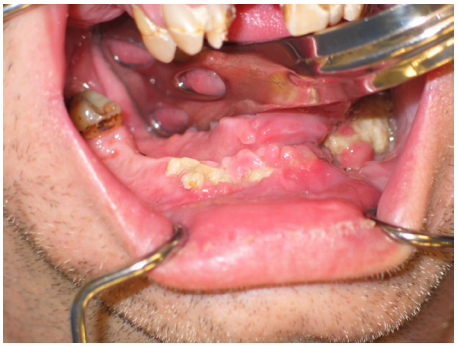
- Our obligation to educate patients and physicians about the potential problems associated with Bisphosphonate or Radiation therapy.
- Above all else "Do no harm"-we must not be the cause of the problems.
- Frequent prophylaxis and preventive dentistry is key.

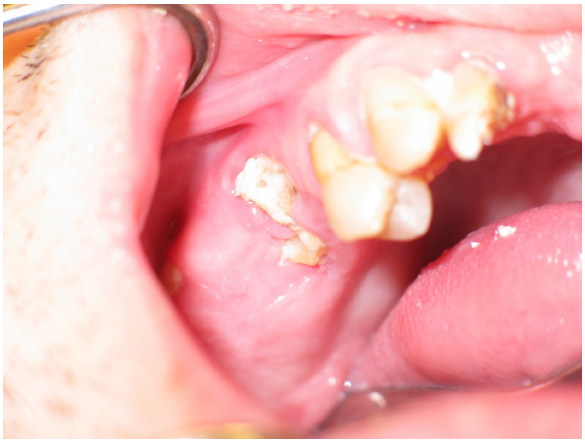
Remember –We are an important part of the medical team!

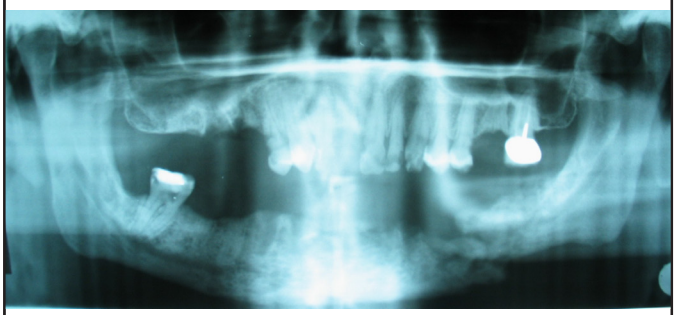
HBO and BRONJ

- Some results have shown some improvement in wound healing and long-term pain scores, but its use as the sole treatment modality for BRONJ cannot be supported at this time.
- Freiberger, JJ et al J Oral Maxillofac Surg 65:1321-7: 2007

Before HBO







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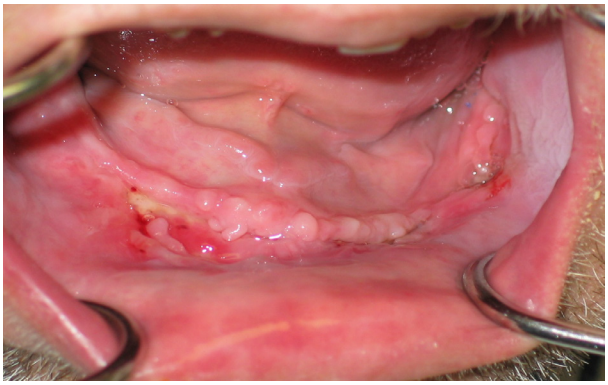

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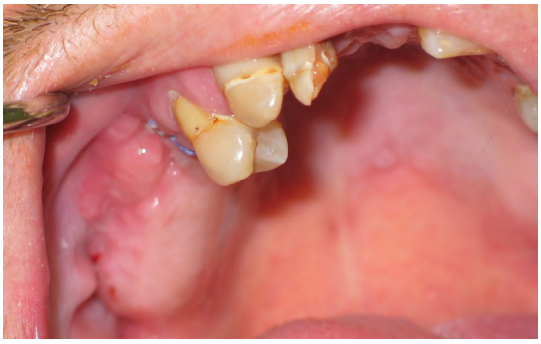

SELF EVALUATION

Dentistry Medical Update: Parts 1-4

1. AHA recommendation for premedication is indicated for all of these conditions, Except…

a. Valve replacement
b. Valve repair
c. Heart Transplant
d. Mitral valve prolapse

2. Patients who have a total joint replacement need antibiotics before dental treatment

a. Within the first 2 years after replacement
b. Within the first 5 years after replacement
c. Do not need antibiotics
d. For the rest of their lives
e. Only if they have diabetes or other comorbidity after discussing with orthopedic surgeon

3. A 64 year old type II diabetic managed with oral metformin and a recent Hgb A1c of 5.5 and predictable mild exertional angina presents for dental treatment. What is his ASA classification?

a. II
b. III
c. IV
d. V

4. Which of these statements about COPD is false

a. COPD is a leading cause of morbidity and mortality worldwide.
b. The burden of COPD is projected to increase in coming decades due to continued exposure to COPD risk factors
c. COPD is associated with significant economic burden
d. Smoking is the only known cause of COPD
e. COPD lung damage is permanent

5. Which of these drugs are likely to be a cause for medication related osteonecrosis.

a. Prolia
b. Fosemax
c. Reclast
d. Boniva
e. All of the above

6. When managing a patient who has been on Prolia, it is safe to remove a tooth

a. Immediately
b. After being off the drug for 4 months
c. If a CTX is less than 50
d. After being off the drug for 1 month
e. After being off the drug for 1 year

7. 60 yo African American male presents for implant surgery in the maxilla. h/o hypertension. Assistant takes bp-180/100 left arm, 190/105 right arm
What goal BP is most appropriate for this patient?

a. <150/90 mmHg
b. <130/80 mmHg
c. <140/90 mmHg
d. <140/80 mmHg
e. <140/85 mmHg

8. A patient with a history of COPD who presents with bronchitis can have elective dental treatment…

a. Immediately
b. 2 weeks after symptoms resolve
c. 4 weeks after symptoms resolve
d. 60 days after the symptoms resolve

9. The best alternative for patients who need SBE antibiotic prohylaxis but are allergic to amoxicillin is…..

a. Levaquin
b. Erythromycin
c. Cipro
d. Clindamycin

10. If a patient has had an MI but needs emergency dental care, the most ideal option to determine how to proceed with treatment would be,

a. Proceed with treatment since it is an emergency.
b. Get a clearance from the patient's internist
c. Get a risk assessment from the cardiologist
d. Do not treat the patient for a minimum of 6 months after the MI.

Dentistry Medical Update: Parts 1-4 cont.

11. The definition of Frailty includes all of the following except.

a. Shrinkage
b. Weakness
c. decreased grip strength
d. Exhaustion
e. Chest pain

12. Asthma patients are frequently on multiple different medications. Which of the following is the correct medication to ask them to bring with them to office for emergency use.

a. Flonase
b. Proventil
c. Dupixent
d. Nucala

13. Treating a patient with Congestive heart failure is difficult because

a. They have difficulty sitting still
b. Their symptoms can vary greatly from day to day
c. They need antibiotics before each appointment
d. They have difficulty healing after treatment

14. COPD and asthma share these similar clinical symptoms except

a. Shortness of breath
b. Wheezing
c. Permanent damage to airways
d. Difficulty laying flat in dental chair

15. When a patient on coumadin needs an extraction the dentist should

a. Stop the coumadin 3 days before procedure
b. Proceed with the procedure if INR is less than 2.5
c. Proceed with extraction is INR is <1
d. Stop the coumadin 7 days before extraction

16. All of the following are Anti- Platelet medications except

a. Aspirin
b. Eliquis
c. Plavix
d. Ticlid

17. For the diabetic patient having an Hemaglobin A1c greater than ____ increases risks of complications.

a. 5
b. 6
c. 7
d. 8

18. Diabetics undergoing sedation procedures in the dental office

a. Should always have a Pre and post operative BSL
b. Well controlled DM (<180 mg/dL)
c. Hold all agents am
d. Cover with short acting (SSI)
e. All of the above

19. The metabolism of older patients decreases the ability to breakdown medications because all of the following except

a. Increased liver mass and blood flow
b. Decreased metabolic capacity
c. Increased renal blood flow and filtration
d. Fewer functioning brain cells

Answer Key: 1. D, 2. E, 3. B, 4. D, 5. E, 6. B, 7. C, 8. C, 9. D, 10. C, 11. E, 12. B, 13. B, 14. C, 15. B, 16. B, 17. C, 18. E, 19. A

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Eric J. Morin, MBA, of Kennesaw, Georgia, is the founder and CEO of Tower Leadership, a dental practice optimization consulting firm. As a national speaker, author, consultant and thought leader he specializes in educating dentists on how to achieve financial freedom by investing in their own practices. Mr. Morin's expertise has improved the work environment, impact and bottom lines of hundreds of practices by equipping dentists with the knowledge and tools they need to grow and improve their operations in a way in which everyone on the team benefits. He is also a wealth and business coach and a Forbes Speaker and presents regularly across the country.

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TOWER LEADERSHIP

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Hiring and Retaining a Practice Associate

THERE ARE 3 TYPES OF PEOPLE

1. Someone that has an associate in place but wants to make sure they stay long term
2. Someone that wants to hire an associate soon but doesn't know how to attract, compensate, and keep them long term
3. Someone that doesn't know if now is the right time to bring on an associate

TOWER LEADERSHIP

YOU WILL DISCOVER

- Calculating the perfect time to hire an associate
- Learning how to attract the perfect associate
- How to Align Their Goals with Yours and Compensate Them Accordingly WITHOUT Giving Up Ownership
- How to Keep a Great Associate

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3 Mistakes I See Most Often

1. Hiring at the wrong time
2. Hiring in exchange for equity
3. Tracking associates when you bring them on

TOWER LEADERSHIP

3 PROMISES

1. You'll have tangible tools to attract, compensate, and retain associates
2. You'll walk away realizing the right time to bring on associate
3. You'll know what the financial implications of compensating an associate correctly

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Mistake 1

Hiring an associate at the wrong time

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GENERAL RULE OF THUMB FOR WHEN TO BRING ON AN ASSOCIATE

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CRITICAL MISTAKE
OFTEN MADE

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WE DO NOT BRING IN
ASSOCIATES TO REDUCE
TIME AT FIRST

TOWER LEADERSHIP

ASSOCIATES ARE
BROUGHT IN TO
MEET CAPACITY

TOWER LEADERSHIP

IF AN ASSOCIATE HAS TO
MARKET YOUR PRACTICE
YOU ARE BRINGING THEM
IN TOO EARLY

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PATIENTS PER DOCTOR
PER DAY

TOWER LEADERSHIP

Mistake 2

Hiring in exchange for equity

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OLD MODEL REQUIRED
YOU TO GIVE UP EQUITY

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WHAT ARE
CORPORATIONS DOING?

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EXAMPLE

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DOCTOR HAD $1,500,000
IN COLLECTIONS AT A 50%
PROFIT MARGIN

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$1,500,000 * 50%
= $750,000

TOWER LEADERSHIP

SELL HALF THE
PRACTICE AT $1,500,000
= $750,000

TOWER LEADERSHIP

$750,000 INVESTED IN STOCK MARKET AT 5% = 37,500

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$375,000 -$37,500 = OPPORTUNITY COST OF $337,500!!!

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THAT IS A LIFE CHANGING PAYCUT

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UNDERSTANDING DEFERRED COMP

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SCENARIO #1

TOWER LEADERSHIP

ASSOCIATE PURCHASES THEIR OWN PRACTICE

TOWER LEADERSHIP

- $500,000 COST

30 YEARS = $2,000,000

$2,000,000 *.80
=$1,600,000

$1,600,000 X .30% TAXES
= $1,120,000

THIS ASSUMES
NO DEBT AND NO
BROKERAGE FEE

$1,120,000-
$ 500,000 initial investment

= $620,000 after 30 years

ALTERNATIVE

TOWER LEADERSHIP

GOLDEN HANDCUFFS

TOWER LEADERSHIP

$50,000 ANNUAL INVESTMENT FOR TEN YEARS

TOWER LEADERSHIP

$50,000 ANNUAL INVESTMENT FOR TEN YEARS

TOWER LEADERSHIP

$500,000 ASSET IN 10 YEARS

TOWER LEADERSHIP

AGE 40 = $500,000
AGE 50 = $1,000,000
AGE 60 = $2,000,000
AGE 65 = $3,000,000

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CHOICE 1
$620,000

CHOICE 2
$3,000,000

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PLANS MUST MEET ERISA AND DOL GUIDLINES

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SAVINGS VEHICLE NEEDS TO BE SAFE, YET KEEP UP WITH INFLATION

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LEGAL TEAM MUST BE TRAINED IN THESE PLANS

TOWER LEADERSHIP

FINANCIAL TEAM MUST HAVE EXPERIENCE IN THESE PLANS

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Mistake 3

COMPENSATING AND RETENTION

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Mistake 3

HOW DO WE PAY ASSOCIATES?

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33/33/33

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#1 REASON ASSOCIATES LEAVE

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WHEN PEOPLE HAVE A SAY IN THE ORGANIZATION THEY STAY LONG TERM

TOWER LEADERSHIP

BUSINESS REQUIRES BOTH STRATEGY AND TACTICS

TOWER LEADERSHIP

STRATEGY =
WE ARE GOING TO UTILIZE GOLDEN HANDCUFFS AND ORGANIZATIONAL MODEL TO ATTRACT AND RETAIN ASSOCIATES

TOWER LEADERSHIP

TACTICS=
THE EXACT COMPENSATION MODEL AND THE LEADERSHIP TEAM MODEL AND STRUCTURE

TOWER LEADERSHIP

YOU NEED A TEAM THAT IS GOING TO WALK YOU THROUGH STEP BY STEP WHEN TO HIRE AN ASSOCIATE, HOW TO ATTRACT THEM, HOW TO COMPENSATE THEM, AND HOW TO MEASURE THEM

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SELF EVALUATION

Hiring and Retaining a Practice Associate

1. Which of the following are mistakes doctors typically make when hiring associates?

a. Hiring associates at the wrong time
b. Hiring associates in exchange for equity
c. Tracking associates when you bring them onto your team
d. All the above

2. T/F - The general rule of thumb for hiring an associate is when your practice reached $1,000,000 in collections

3. What is a good guideline for compensation associates?

a. 20/30/50
b. 30/30/30
c. 40/40/20
d. None of these are correct

4. T/F - When hiring an associate, the strategy is the HOW.

5. What is the #1 reason why associates leave?

a. Compensation
b. The team
c. They want to start their own practice
d. They don't have a voice in the practice

Answer Key: 1. D, 2. T, 3. B, 4. F, 5. D

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Psychologist

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Understanding and Effectively Dealing with High Conflict People

This program is designed to help you deal with noxious people. These individuals have a remarkable ability to precipitate conflict and disharmony in virtually all of their relationships, including their relationships with health care providers. These "high-conflict" people provoke stress-related illnesses, diminish self-worth, keep us awake and upset, enable bad habits and typically lack insight or remorse.

In this new 6-hour program, learn how to reason with "unreasonable" people and develop the art of the possible when dealing with the "impossible" individual. Emphasis will be placed on practical strategies and applications for medical, dental and behavioral settings.

Participants completing this program should be able to:

1. Describe the diagnostic criteria for noxious or high-conflict individuals, including disorders of personality, mood, anxiety, anger modulation and substance abuse;

2. Discuss empirical findings regarding the etiology of the noxious personality, including aspects of social reasoning, atypical brain chemistry, pathological parenting style and the effects of early childhood trauma; and

3. List several strategic, evidence-based approaches that health care professionals can employ in order to deal effectively and ethically with noxious individuals while maintaining their own sense of balance and psychological health.

I. Noxious People: Common Characteristics

- A. Long history of interpersonal conflict, typically dating back to youth
- B. Disruptive, abusive or otherwise pathological childhood relationships
- C. A tendency to view relationships in all-or-nothing, black-or-white terms
- D. Persistent drive to be validated (center of attention)
- E. Tendency to create "psychodramas"
- F. Intense emotions over-rule rational thinking
- G. Mistrust that can border on paranoia
- H. High level of aggressive energy
- I. Profound problems with judgment and/or impulse control
- J. Unconscious distortions and delusions
- K. Will trigger intense confusion, conflict or counter-transference in the care-giver
- L. As they get older, they are prone to be litigious.
- M. Common defenses:
  1. Splitting (e.g., all-or-nothing thinking)
  2. Projection
  3. Persistent drive to control/manipulate others
  4. Blaming others for problems they create
  5. Extremely defensive about any negative feedback
- N. High probability of being diagnosed with an Axis I disorder, e.g. bipolar disorder, agitated depression, obsessive-compulsive disorder
- O. High probability of being diagnosed with an Axis II personality disorder, e.g., borderline or narcissistic disorders

II. Noxious Behavior: Common Types

- A. Inappropriate expression of anger:
  1. Aggressive – e.g., office bullying

2. Passive-aggressive – e.g., protracted divorce litigation
3. Domestic violence – e.g., 1 out of every 3 women and 1 out of every 6 men will be abused by a domestic partner at some point in their life.
4. Aggression/Violence fueled by:
   a. Stress/lack of exercise/poor diet
   b. Substance abuse
   c. Atypical brain chemistry
   d. Mental illness/treatment non-compliance
   e. Toxic relationship dynamics
   f. Desire for revenge
   g. Impulsive anger
   h. Desire to assert a political, religious or other point of view

B. Boundary violations
   physical, emotional, sexual, spiritual abuse

C. Narcissistic behavior
   entitlement/"special"/selfishness

D. Fear-based
   anxiety-driven, e.g., O.C.D.

E. Ignorance/Fear-based
   bigotry, prejudice, homophobia

F. Self-abusive behavior
   1. Cutting
   2. Burning/branding
   3. Compulsive skin-picking
   4. Self-strangulation
   5. Bone-breaking
   6. Excessive tattooing/body piercing

III. Noxious Behavior: Causes/Correlates

A. Dysfunctional family dynamics:
   1. Child's needs, feelings, wants, observations and reactions are ignored/invalidated by parents > NEGLECT
   2. Family shame or secret
   3. At least one parent has a serious psychiatric problem and/or substance abuse problem.
   4. Boundaries are blurred or violated:
      a. Physical abuse
      b. Psychological abuse
      c. Spiritual abuse
      d. Sexual abuse
   5. Poor role models for healthy communication, intimacy and problem-solving
   6. Children tend to develop compulsive behaviors to lessen pain, develop a sense of control, produce positive feelings or block shame.
   7. Family environment is stressful for the child:
      e.g., parents may have a "crisis-orientation" to life
      e.g., active physical, emotional, sexual abuse
      e.g., the impact of poverty
      e.g., parents have abdicated responsibility and a child is expected to take on the role of parent
      e.g., child is punished/rewarded arbitrarily and cannot predict consequences of behavior
      e.g., parent over-indulges the child materially to compensate for emotional neglect.

B. Biological factors:
   1. Biogenetic influences
      a. Atypical brain chemistry, e.g., insufficient levels of serotonin and dopamine
      b. Inherited mental illness, e.g., bipolar disorder
      c. Inherited characterological behaviors, e.g., explosive temper/volatility

2. Pre-birth or post-birth trauma to the central nervous system, e.g., fetal alcohol syndrome
3. Witnessing violence in the home, neighborhood or school can adversely affect brain chemistry.
4. Lousy diet/lack of physical exercise
5. Substance abuse
6. Hormonal changes/imbalances
7. Food/Drug allergies
8. Undiagnosed/untreated medical conditions, e.g., thyroid or pancreatic disease

C. Poor learning/profound social skill deficits
1. Reinforcement contingencies, e.g., being rewarded for inappropriate behavior and punished for healthy behavior
2. Poor/inadequate role models, e.g., violent role models
3. Profound lack of social intelligence, e.g., lack of compassion/empathy

IV. Special Focus: Personality Disorders

A. Definition of "personality"

B. "Personality Disorders"

C. Common characteristics:
1. Adaptive inflexibility
2. Vicious cycles
3. Tenuous stability
4. Profound denial
5. Pathological problem solving
6. Intense transference/counter-transference
7. Highly resistant to treatment

D. Noxious personality types:
1. Paranoid – they are tense, guarded, suspicious, self-righteous, rigid, petty, vengeful and litigious. They hold grudges and are prone to primitive, overt violent acts of aggression. They rarely seek professional treatment and have a very high incidence of domestic violence (as the perpetrator) and substance abuse.
2. Anti-Social (Sociopathic) – they are pervasively dishonest, manipulative, exploitative and disloyal. They have virtually no conscience and experience little or no remorse when they violate rules, behave unlawfully or shatter the lives of others. They are capable of experiencing intense insecurity and anxiety and tend to assuage their insecurity by raising yours. They do not seek treatment voluntarily, have a high rate of substance abuse, A.D.H.D. and are likely to engage in criminal behavior.
3. Borderline – they straddle the border between sanity and psychosis; "they have egos as fragile as spun sugar (and) psyches that are irretrievably fragmented, like a jigsaw puzzle with crucial pieces missing;" they have profound problems with affect regulation and impulse control; their judgment is typically impaired and they will engage in very primitive, oftentimes self-destructive behavior when emotionally upset or frustrated. Others tend to perceive individuals with B.P.D. as frightening black holes of need who quickly erupt in a rage if their dependency needs are in any way thwarted. B.P.D. individuals have a high incidence of substance abuse, self-mutilation and suicide. Prognosis for recovery is good with the proper treatment.
4. Histrionic – they are teen-agers trapped in adult bodies: rapidly-changing but ultimately shallow moods; pathologically vain and flirtatious; pervasive need to be the center of attention ; they demand constant re-assurance and immediate gratification of their every want/need. As they age, they go out of their way to look and act significantly younger than their chronological age. Multiple plastic surgeries are the norm as is multiple marriages and divorces. They are typically referred to treatment by medical doctors; histrionic patients have the highest incidence of psychosomatic/psychogenic pain and other illness. Prognoses for recovery uncertain.
5. Nacissistic (two sub-types)
   a. Treatable type – they are superficially nice, personable but have a severe emotional wound (e.g., sexual abuse) that drives them; they tend to be passive-aggressive, inordinately sensitive to criticism and inordinately needy of praise/validation from others. While capable of empathy, they tend to be pretty self-absorbed and self-centered; they have a high risk for addictions to assuage shame/low self-esteem/depression. They are also prone to jealousy/envy.
   b. Untreatable/Malignant type – these folks truly believe they are superior to just about everybody else on the planet. Accordingly, they demand constant adulation and "special" treatment everywhere they go. They have fantasies of perfection, may be pre-occupied with envy and typically have an insatiable need for power, wealth, prestige and attention. They are excessively sensitive to shame and embarrassment. If you work for them, they will take credit for

your successes and blame you for their failures. When confronted with their short-comings, they will quickly become hostile and defensive and will project blame on to people and circumstances outside themselves. High risk for addictions, sado-masochistic sex and white-collar crime; may have psychopathic tendencies.

6. Compulsive/Perfectionistic – they can be stiff, perfectionistic, aloof, unemotional, unempathic, overly conscientious and controlling; they often have difficulty seeing the "bigger picture" and can become pre-occupied with details. They are riddled with free-floating anxiety and tend to keep this at bay by creating a meticulously-ordered, efficient and, at times, beautiful environment which belies their internal pain/distress. They can be rigid, unforgiving and unyielding when dealing with interpersonal conflict; they don't like or tolerate "mess". They are prone to workaholism and other addictions; also prone to severe depression at mid-life; good prognosis for recovery.
7. Passive-Aggressive – they are inordinately fearful of anger and conflict and tend to deal with their own angry/hurt feelings in covert, often "sneaky" ways; they are exquisitely sensitive to being manipulated or controlled: any request you make of them will likely be seen as an attempt to manipulate/control them and will be resented. They are notoriously late for appointments and other time commitments. They frequently express irritation by brooding, complaining, sulking or by being deliberately inefficient. In more intimate relationships they will withhold affection or sex to "punish" the loved one, but never be open/clear about the source of their upset. Poor prognosis for treatment, largely due to the fact that they derive pleasure/a sense of superiority by being unforgiving.

V. Special Focus: Other Sources of Noxious Behavior

A. Mood-Disordered: Minor and Major Depression and Bipolar-disordered individuals; If untreated, these conditions can have a pervasively negative impact on mood, cognition, impulse control, judgment and social behavior. They can also lead to a host of psychosomatic illnesses, including chronic physical pain, eating disorders, cardiovascular disease and severe gastro-intestinal distress.

B. Anxiety-Disordered: Generalized anxiety, pathological perfectionism, obsessive-compulsive disorder; all of these conditions can impair emotional, cognitive and social functioning. "Neurotic stupidity," a common characteristic of anxiety-based disorders, can precipitate vicious cycles of maladaptive behavior and impair insight and social awareness.

C. Post-Traumatic Stress Disorder (PTSD): Horror frozen in memory; intrusive thoughts, dreams and feelings and the risk of secondary, "vicarious" PTSD in caregivers who witness trauma.

VI. De-Toxification Strategies

A. Take excellent care of you:
   1. Diet, exercise
   2. Daily meditation/prayer
   3. Balance work/play/spiritual life/social support
   4. Have you been "shoulding" on yourself?
   5. Learn the basics of Active Empathic Listening
   6. Learn the basics of assertiveness, e.g., D-E-S-K model
   7. Ask yourself: "What is my piece of this noxious situation?", e.g., are you enabling this person?

B. What is the nature of the noxious behavior?
   1. Inappropriate expression of anger?
   2. Boundary violation?
   3. Abuse of power/control?
   4. Behavior related to obvious mental illness? -e.g., agitated depression, bipolar disorder, personality disorder, etc.
   5. Behavior related to substance abuse?
   6. Behavior related to misunderstanding, clash of cultures or some other aspect of communication?
   7. Behavior related to individual's anxiety, fear, ignorance, prejudice?

C. What are your feelings about this behavior?
   anger, outrage, fear, intimidation, disgust, etc.

D. What are your thoughts/beliefs/assumptions about the individual and his/her behavior?
   e.g., "he said that just to embarrass me…"

E. Talk about what you've experienced with a colleague, friend, counselor or supervisor.

F. Develop a plan for dealing with the noxious/stressful situation, especially if the noxious behavior is repetitive/part of a larger pattern.

1. Assertive Model:
   a. Identify the specific behavior which has upset you.
   b. Ask yourself what feelings you have about the behavior in question.
   c. Wait at least 24 hours before confronting the other person with their behavior. During this period of reflection ask yourself (and others) how best to handle the situation.
   d. Pick a time that is convenient for both you and the other individual and express your concern.
   e. Lead with an empathetic or affirming statement.
   f. Use the "D-E-S-K" model to express your concern/feeling.
   g. Negotiate a resolution to the problem once you feel the other person understands the issue/your concern.
   h. Follow through with the agreed-upon changes in behavior.
2. Other strategies:
   a. Paradoxing/Fogging e.g., "That's interesting." (When inwardly you disagree)
   b. Work at accepting the person while not liking their toxic behavior.
   c. Find something to respect and admire about the toxic individual; let them know about this in a genuine, affirming way.
   d. Try to get a better sense of what "sets the other person off"; avoid these buttons, if possible.
   e. Keep your distance from those who seem unsafe; see your fear as a "gift" or warning sign.
   f. Set clear, unambiguous limits with inappropriate behavior; make it clear that you will not tolerate this and will seek help if the situation does not change.
   g. If you feel you are in danger, notify appropriate authorities; take whatever reasonable steps necessary to ensure your safety.

VII. Treatment For the Noxious Individual

A. Treatment components/modalities
   1. Individual psychotherapy, e.g., cognitive-behavioral therapy
   2. Group therapy, e.g., strategic family therapy
   3. Skills training (see M. Linehan, 1993)
   4. Milieu treatment (e.g., in-vivo desensitization)
   5. Pharmacotherapy (e.g., SSRI's and mood stabilizers)

B. Specific recommendations for professional caregivers:
   1. Do a thorough assessment.
   2. Be clear about your role and boundaries.
   3. Set realistic, behavioral treatment goals.
   4. Balance empathy with the technology of change.
   5. Hold the patient accountable without being punitive.
   6. Do not participate in the patient's psychodramas; in particular, resist the desire to rescue or attack the patient; focus instead on the specific maladaptive coping behaviors: "Is this getting you what you really want?" "Would you be willing to learn other ways to get what you want (that are not self-destructive or off-putting/harmful to others)?"
   7. Do not allow yourself to be held hostage by any patient; terminate with the patient and explain your reasons for doing so.
   8. Do not confuse "abandonment" with appropriate termination. Legitimate reasons to terminate:
      a. Patient not appropriate for treatment;
      b. Patient clearly isn't benefitting from treatment;
      c. Continued treatment could prove harmful to the patient; and
      d. Patient is trying to hold practitioner hostage with suicidal threats.
   9. Hospitalize patients who are suicidal/a threat to others.
   10. Document, document, document…
   11. Seek the counsel of colleagues when working with any high conflict patient and document this in the patient's chart.
   12. Be aware of your counter-transference, address it but do not share it with the patient.

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THE TEN COMMANDMENTS OF HOW TO GET ALONG WITH PEOPLE

1. Keep skid chains on your tongue. Always say less than you think. Cultivate a low, persuasive voice. How you say it often counts more than what you say.

2. Make promises sparingly and keep them faithfully, no matter what the cost.

3. Never let an opportunity pass to say a kind and encouraging word to or about somebody. Praise good work, regardless of who did it.

4. Be interested in others; their pursuits, their work, their homes and their families. Make merry with those who rejoice; with those who weep, or mourn. Let everyone you meet, however humble, feel that you regard him/her as a person of importance.

5. Be cheerful. Don't burden or depress those around you by dwelling on your aches and pains and small disappointments. Remember, everyone is carrying some kind of burden.

6. Keep an open mind. Discuss but don't argue. It is a mark of a superior mind to be able to disagree without being disagreeable.

7. Let your virtues, if you have any, speak for themselves. Refuse to talk about the vices of others. Discourage gossip. It is a waste of valuable time and can be destructive and hurtful.

8. Take into consideration the feelings of others. Wit and humor at the expense of another is never worth the pain that may be inflicted.

9. Pay no attention to ill-natured remarks about you. Remember, the person who carried the message may not be the most accurate reporter in the world. Simply live so that nobody will believe him/her. Disordered nerves and bad digestion are a common cause of back-biting.

10. Don't be anxious about the credit due you. Do your best and be patient. Forget about yourself and let others "remember." Success is much sweeter that way.

SELF EVALUATION

Understanding and Effectively Dealing with High Conflict People

1. Which of the following is not a characteristic of the high-conflict individual?
   a. A long history of interpersonal conflict
   b. Pathological childhood relationships
   c. Remarkable empathy for the feelings of others
   d. Aggressive energy

2. Common defenses seen with high-conflict individuals include all but which of the following?
   a. Splitting (e.g., black-or-white thinking)
   b. Projection
   c. Blaming others for problems they create
   d. All of the above are seen with high-conflict people.

3. Which of the following is true of the high-conflict individual?
   a. They trigger defensive reactions in others.
   b. They have an inordinate amount of aggressive energy.
   c. They are prone to be litigious.
   d. All of the above are true.

4. Aggressive behavior can be fueled by which of the following?
   a. Stress
   b. Poor physical health, e.g., lousy diet, lack of exercise, chronic pain, etc.
   c. Atypical brain chemistry, e.g., low in serotonin
   d. Toxic relationship dynamics
   e. All of the above can fuel aggression.

5. Which of the following are common behavioral problems with high-conflict individuals?
   a. Boundary violations
   b. Problems managing anger and aggression
   c. Narcissistic behavior
   d. All of the above are behavioral problems with high-conflict individuals.

6. Self-abusive behavior:
   a. Rarely represents a suicide attempt.
   b. Is typically motivated by attention-seeking
   c. Is rarely a serious issue requiring formal intervention
   d. A only

7. Biological factors which may impact the genesis of toxic behaviors include:
   a. Biogenetic influences, e.g., atypical brain chemistry, inherited psychiatric disorders, etc.
   b. Pre-birth or post-birth trauma to the central nervous system.
   c. Chronic or acute substance abuse
   d. Hormonal changes or imbalances
   e. All of the above

8. Borderline personalities:
   a. Straddle the border between sanity and psychosis.
   b. Are typically triggered by real or perceived abandonment.
   c. Have primitive ego defense mechanisms, including splitting and projection of blame.
   d. Rarely seek professional treatment.
   e. A, B, and C are true

9. A serotonin deficiency can cause which of the following symptoms?
   a. Problems with affect regulation, e.g., depression
   b. Anxiety-based disorders, e.g., OCD
   c. Problems with impulse control and judgment
   d. All of the above

10. Health professionals who treat high-conflict patients should:
   a. Be clear about your role and boundaries
   b. Set realistic treatment goals collaboratively with the patient.
   c. Strive to balance the technology of acceptance with the technology of change.
   d. Not allow themselves to be held hostage by any patient.
   e. All of the above.

Answer Key: 1. C, 2. D, 3. D, 4. E, 5. D, 6. D, 7. E, 8. E, 9. D, 10. E

Stuart J. Oberman, Esq.

Stuart J. Oberman, Esq., of Loganville, Georgia, is principle of Oberman Law Firm which focuses on all aspects of commercial law and maintains deep expertise in every facet of healthcare matters from DSO formation, entity structures and mergers, corporate structure compliance and employment law, to contract negotiations, third-party reimbursement, federal and state regulations, and fraud and abuse. Prior to forming his own firm Mr. Oberman was in-house counsel for the Cincinnatti-based insurance company, Berlon & Timmer. He has earned Martindale & Hubbell's Client Distinction Award as a top one percent in the country practitioner and has authored numerous articles on legal issues impacting the practice of dentistry.

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Scaling the Dental Practice
Stuart J. Oberman, Esq.

Table of Contents

The Transition Process – What You Must Know

Are you ready to sell?

- Can you give up ownership control
- Are you ready to work for somebody
  - Love dentistry
  - Ready to give up management
- Do you want to work in the practice post sale
  - Days
  - Compensation
  - Non-compete
  - Non-solicitation
- Or, are you ready to give up practicing

Pre-Sale Checklist

- Review
  - Billing and collections
  - Scheduling
    - How far are you booked out
  - New patient flow
    - Declining or increasing
  - Examine the facility and equipment
    - Need some updating or 40 years old
  - Lease/ building ownership
  - Staff consideration
    - Do you have stable staff

Getting Ready for the Sale

- **General Corporate Information**
  - Corporate Documents
    - Operating (LLC) or Shareholders Agreements (PC)
    - Bylaws (PC)
    - Resolutions (LLC/PC)
    - Articles of Incorporation/ Organization (PC or LLC)
    - "Good Standing Certificate"/Out of Compliance/Dissolved
- South Carolina Seller (35 years)
  - Just prior to sale/ private equity
    - Discovered no entity
    - Taxes filed as entity
    - Defined pension plan
    - Current CPA was not aware

What is Needed

- **Financial Statements and Assets**
- Financial Statements
  - 3 years previous tax returns
- A list of all of the Assets
- List of all Inventory
  - Clinical supplies
- Valuations and Appraisals of the Practice
  - Broker
  - CPA
  - Outside appraisal
- List of Intellectual Property
  - DBA/SOS/USPTO
  - Trademarks
- **Loans and Debt**
- Documents
  - Liens/ UCC-1's
  - Debt/ Payoffs
    - Practice and real estate

What is Needed (cont.)

- **Employees**
  - Schedule of each current employee
  - Name, Social Security Number, and Addresses
  - Position or Job Title
  - Job Description
  - Date of Hire
  - Current Hourly Rate or Salary
  - Classification
    - Full time or part time

What is Needed (cont.)

- **Leases and Contracts**
  - Any and all Leases/ Real Estate
    - Lease and amendments
      - Who owns your building if leasing
      - Is your lease assignable?
      - Nightmare tracking down signed lease agreements
        - Signed amendments

Broker

- Select broker
  - Experience
  - Helpful
  - Offer assistance throughout the process
- What is your broker going to do

No Broker?

- Time consuming/ complex
- Do it yourself (Beware)
- Obtain liens/ buyer financing
- Negotiate terms
  - Do you know the market

Stock vs. Asset Sale

- Asset Purchase
  - Transfers some or all of the assets of the practice
  - Vast majority of transactions
- Stock Purchase
  - Transfer stock ownership interest from the seller to buyer
  - Must have corporate documents
  - Rare
    - Except in associate buy-in

Asset Sale

- Includes tangible assets
  - Equipment
  - Inventory
  - Patient records
- Includes intangible assets
  - Goodwill
    - Personal and corporate
  - Non-compete Agreements
    - Corporate
    - Personal

Corporate LOI vs. Broker

- Corporate
  - Much more detailed
- Some Broker LOI's not as detailed
  - Depends on the broker

LOI / Term Sheet Provisions

- Parties to the sale and purchase
- Purchase price, payment, and tax allocations
- Earnest money deposits
- Excluded assets
- Accounts receivable/ being purchased
- Assets free and clear of liens and encumbrances
- Confidential
- Due diligence period 30/60/90/120 days

LOI / Term Sheet Provisions (cont.)

- Closing date set
- Representations and warranties
- Non-competition/ non-solicitation
  - 10/15 miles
  - 3/5 years
- Post-closing employment of the seller
  - Days
  - Compensation
- Lease assignment, lease, and real estate
- MUST STATE NON-BINDING

Finalize Transaction

- The Players
  - Seller's attorney
  - Seller's CPA
  - Buyer's attorney
  - Buyer's CPA
  - Buyer's lender
  - Landlord/ lease
    - Mortgage company/ sale
    - Sale
      - Real estate closing attorney/ seller
      - Separate from transactional attorneys
        - Seller/ Buyer
- Delays
- Frustrating
- Pick your advisers carefully

Asset Purchase Agreements

- 50-70 pages
- List Redos/Retreats
- Work in Progress List
- Patient Credits List
  - Over $100,000 patient credits (recent transaction)
- Are you selling A/R
  - Sliding scale
- Wire transfer/ finalize

Other Considerations

- Seller hold backs
  - Popular with corporate
    - 2-3 years earnouts
- Seller buy-back of corporate stock
  - Very tricky
  - Tax deferred compensation
    - Hope of recapitalization of private equity
- Defined pension plans
- Tax planning
  - Very complex
  - Subject to audit
- Corporate damage/ provision
  - Employment agreement

The DSO Deal – What You Better Know

Terms for Purchase of Assets

- Non-binding agreements
  - Mutual understanding
  - Reflect the parties intentions
  - Should never sign a binding LOI

Overview of the Proposed Transaction

- Term sheet (Exhibit "A")
  - Seller owner
  - Purchasers
  - Purchase price
    - Purchase price reduction
    - Hold backs
    - Equity rollover treatment
    - Seller indemnification clauses
- Performance bonus
  - Primary bonus opportunity
    - Collections/12 months after closing
    - Collections/24 months after closing
- Primary performance bonus (PPB) parameters
  - PPB not met
  - PPB not earned in specific year

Overview of the Proposed Transaction (cont.)

- Additional performance bonus opportunities
  - Exceeds calculated collections
    - Bonus
    - 12 and 24 months after closing
- Additional performance bonus (APB) parameters
  - Targets achieved/not achieved
  - Pro-rated
- Purchase Price Reductions
  - Asset Purchase Agreement
  - Non-government revenue allocations
    - Medicaid
  - Review earnout hurdle reductions

Overview of the Proposed Transaction (cont.)

- Equity purchase
  - Class A Preferred
  - Class C Shares
- Employment of owner and staff
  - Initial employment term
  - Employment of staff
  - Post closing role
  - Clinical Director
  - Chief Dental Officer
  - Time off
  - Additional compensation

Overview of the Proposed Transaction (cont.)

- Non-Compete
  - 2 years
  - 25 miles
- Excluded assets
- Liability
- Intellectual Property
- Hold Back
  - Cash holdback
    - Purchase Class A Shares
    - Equity/collateral
- Tax allocation of purchase price

Other Provisions

- Due Diligence
  - Extensive due diligence will be conducted
- Exclusive Dealing
  - Owner may not negotiate any other offers
    - 60-120 days
- Termination Provision of LOI
  - Enter into Asset Purchase Agreement
  - Writing to seller that buyer no longer wishes to proceed
  - Expiration of Exclusive Period

Due Diligence Considerations in a Dental Merger and Acquisition

Determine the Right Transaction Form

1. Equity sales – Buyer acquires the seller's equity
   - Seller favorable
   - Buyer takes on seller's liability
2. Asset Sales – buyer acquires seller's assets (e.g. equipment, inventory, supplies, corporate and personal goodwill)
   - Buyer favorable—more tax advantages
   - In a "C corporation" transaction, may trigger a double taxation for seller
3. Merger – Two or more practices merge into a single company (either one of the parties, or a newly formed "Master" entity)
   - A merger may be viewed as an asset sale where the buyer survives (a "forward" merger).
   - An equity sale where the seller survives is generally considered a "reverse" merger.

Top Due Diligence Considerations

- Due Diligence Checklist
- HIPAA Privacy
- Licensure & Accreditation
- Compliance Program
- Litigation, Claims & Investigations
- Fraud & Abuse
- Employee Arrangements
- Successor Liability, Indemnification and Escrows
- Valuation

Due Diligence Checklist

- The health care industry is heavily regulated at both the federal and state levels.
  - Organizational structure
  - Contracts
  - Real estate
  - Corporate compliance
  - Litigation, claims and investigations
  - Financial information
  - Insurance
  - Tax matters
  - Personal property assets
  - Employment and employee benefits
  - Information technology
  - Intellectual property

Compliance Program

- What is the target (seller) company's compliance culture?
- Is there a compliance program in place
  1. Program Administration
  2. Policies & Procedures
  3. Training & Education
  4. Open Lines of Communication
  5. Discipline & Exclusion Checks
  6. Auditing & Monitoring
  7. Investigations & Corrective Actions

Litigation, Claims & Investigations

- Are there pending governmental inquires?
- Any other litigation or claims?

Dental Employment Arrangements

- Identify any referral risks such as:
  - Independent Contractors
  - Leasing relationships for real estate or equipment
  - Employment contracts
  - Income guarantees
  - Practice support payments
  - Joint ventures
  - Nonmonetary compensation
  - Providing anything of value at no cost (staff, space, commuters, etc.)

Successor Liability, Indemnification & Escrow

- **Successor Liability**
  - Due diligence will in most cases uncover potential liability
  - Disclaiming liability in the purchase agreement may not avoid successor liability
    - In a change of "ownership", buyer will generally assume all the seller's penalties and sanctions
- **Indemnification and Escrows:**
  - Post-closing exposure for insurance (payors) government overpayments
    - Consider securing post-closing seller/target cooperation in addressing government claims
    - Consider how much indemnification protection
  - Seller and Buyer should consider indemnification provisions and/or set aside an escrow to address any specific liabilities

Thank you!

For more information, please sign up for our newsletters. Text **OBERMAN** to **22828** or contact Stuart Oberman at stuart@obermanlaw.com.

Presented by Stuart J. Oberman, Esq.

SELF EVALUATION

Scaling the Dental Practice

True/False

1.___ Equipment, inventory, and patient charts are considered tangible assets in relation to the sale of a dental practice.

2.___ Personal goodwill is considered an intangible asset in relation to the sale of a dental practice.

3.___ Prior to the sale of a dental practice a buyer should not investigate any litigation or claims that may be pending against a seller.

4.___ The seller should not prepare a list of excluded assets to a buyer in the sale of a dental practice.

5.___ A stock purchase and an asset purchase are the same in relation to the sale of a dental practice.

Answer Key: 1. T, 2. T, 3. F, 4. F, 5. F

Sleep Disorders: Their Treatment and Relationship with Chronic Pain

Michael Howell MD-Disclosure

- Co-creator of the SPI Sleep Journey App

Contents

- Sleep and Pain
  - Review of chronic pain progression
  - How sleep disorders exacerbate chronic pain
- The patient who can't fall or stay asleep: A practical approach
- Snoring and sleep apnea: Finding treatments that work for patients and bedpartners

Sleep and Pain

National Sleep Foundation

- Among patients with Chronic Pain 67-88% have sleep problems.

(Smith et al, Sleep Med Rev 2004)

National Sleep Foundation

- 54 million Americans describe nightly difficulty falling asleep because of chronic pain
- Those with chronic pain have 42 minutes less sleep
- Those who are in acute pain have 14 minutes less sleep in the last week

(Smith et al, Sleep Med Rev 2004)

What do you think is the relationship between pain and poor sleep?

What do you think is the relationship between pain and poor sleep?

Result
Chronic Pain
and
Poor Sleep

Wikimedia Commons

What do you think is the relationship between pain and poor sleep?

Chronic Pain First

Result
Chronic Pain
and
Poor Sleep

Wikimedia Commons

What do you think is the relationship between pain and poor sleep?

Chronic Pain First

Poor Sleep First

Result
Chronic Pain
and
Poor Sleep

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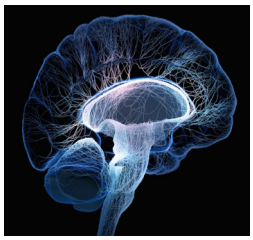
Neuroanatomy

- Substantial overlap in the circuitry for wakefulness and pain.



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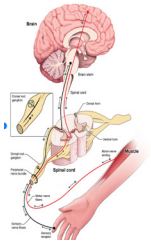
Review of the Pain System

- Distinct Function



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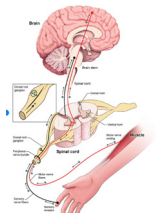
Chronic Pain-Failure of the System

- Chronic pain, in the absence of a clear chronic stimulus (say a malignancy that has metastasized to the bone), is a failure of the system.

People should not have chronic pain

Pain Circuits



Spinothalamic Tract
Pain and Temperature
from Limbs

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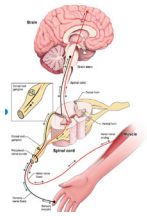
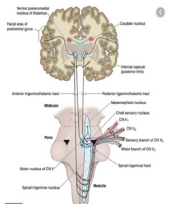
Pain Circuits



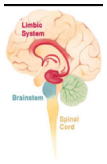
Spinothalamic Tract
Pain and Temperature
from Limbs

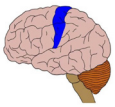


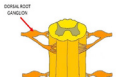
Trigeminothalamic Tract
Pain and Temperature
from the Face

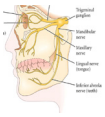
Wikimedia Commons

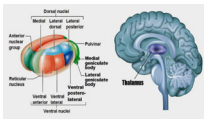
The Pain Circuit and Chronic Pain

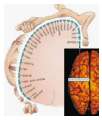












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The Pain Circuit and Chronic Pain-Central Sensitization

- Wind up phenomena-chronically
  - lower the threshold for pain signals to be transmitted,
  - amplify those signals
  - spread the signals to feel like a noxious stimulus is occurring in larger body regions
  - and maybe most important amplify negative emotional activity (anxiety, depression) with those pain signals.

(Finan et al J Pain, 2013)

So what is the effect of sleep on central sensitization?

- Healthy sleep helps calms the nervous system down
- Resets Healthy Neurotransmitters
- Prevents a wind up of the pain system

Wikimedia Commons

(Finan et al J Pain, 2013)

So what is the effect of poor sleep on central sensitization?

- Poor sleep exacerbates wind up processes
- Sleep deprivation predicts hyperalgesia.
  - Short duration of sleep or poor sleep quality tonight predicts how much pain you are going to be in tomorrow.

(Finan et al J Pain, 2013)

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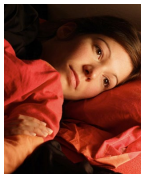

Sleep fragmentation and pain

- Among patients with TMD poor sleep efficiency impairs pain inhibition and leads to increased spontaneous pain the next day.

(Edwards et al 2009 Eur J Pain)

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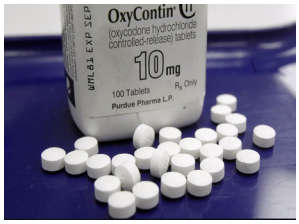
What about exogenous opioids?



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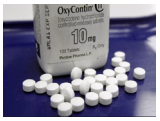
What about exogenous opioids?

- Sleep deprivation decreases the analgesic effect of exogenous opioids.



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(Ukponmwan et al 1984, Raymond et al 2004)

Clinical Correlation

- This means for our patients on opioids sleeping more will mean they need lower dose and sleeping less will mean a higher dose.

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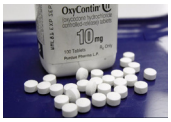

Sleep restriction, limbic effects

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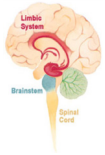
- Sleep deprivation results in changes in the cingulate cortex and correlates with emotional responses to pain



(Tiede et al 2010)

Sleep and Mood

- Depressed mood from sleep deprivation explains to a large degree the directional association of poor sleep to the worsening of chronic pain.

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Sleep and Mood

- Depressed mood from sleep deprivation explains to a large degree the directional association of poor sleep to the worsening of chronic pain.

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Sleep and Mood

- Depressed mood from sleep deprivation explains to a large degree the directional association of poor sleep to the worsening of chronic pain.

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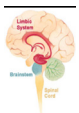
Poor Sleep and the Limbic System-Catastrophizing

- Pain catastrophizing is a unique mechanism exacerbating chronic pain in insomniacs.
  - Distinct from clinical anxiety and depression



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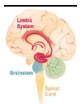
Poor Sleep and the Limbic System-Catastrophizing

- Pain patients with poor sleep have more self ruminative catastrophic thoughts regarding their pain.



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Buenaver et al. 2012

Sleep restriction and limbic system

- What does sleep have to tell us about patients who do well with chronic pain?

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Positive Affecters

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- Patients living with chronic pain whose elevated mood buffers their pain, have greater physical and psychosocial functioning with pain, have greater resilience to exacerbations of pain.

Positive Affecters

Wikimedia Commons

- What do you think their sleep is like?

Positive Affecters

- Pain patients who slept longer were most likely to have a positive affect regarding their pain.

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(Hamilton et al 2007)

Poor Sleep leads to Chronic Pain-Evolving Insight

- Researchers from Johns Hopkins performed An extensive critical review of the sleep and pain literature.
- They were unable to find any prospective study to conclude that pain led to a sleep disorder.

(Finan et al 2013)

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Why is this important?

Why is this important?

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Why is this important?

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Why is this important?

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How to approach the sleepless patient in pain

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- Provide Hope
- Review and understand the foundation of of their sleep-wakefulness.
  - i.e. their circadian rhythms
- Understand barriers that are affecting the quantity of their sleep.
- Address reversible causes of poor sleep quality.

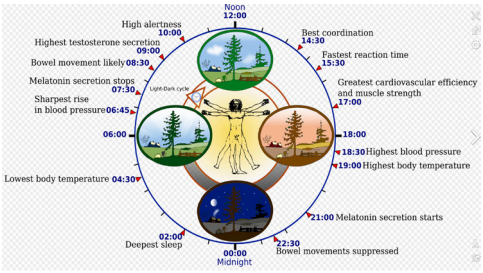
Circadian Disorders

- How they present as sleep disorders
- How to provide evidence-based, non-pharmacological, practical advice to patients with circadian disorders

Circadian Disorders-Presentation

- Can't Fall Asleep
- Can't Stay Asleep
- Too Tired During the Day

Understanding the 24-hour clock



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Circadian Self-Discovery

- Ask patients to take the following thought experiment.
- You are asked to take a 3-month trip to Hawaii…
  - What would your ad lib schedule look like?

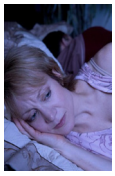
Kaanapali Beach

Examples of Circadian Disruptions in Action

I go to bed at 10pm and my "mind won't shut down"

Wikimedia Commons

I fall asleep at 10pm easily but then I wake up at 3 AM and "Can't fall back asleep"



"Mind won't shut down"

Ask two questions

1. What happens in the evening?
2. What happens in the morning?

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What Happens in the Evening?

Mind Won't Shut Down

"I am tired but I can't fall asleep, I want to fall asleep but I can't, my mind races. This is incredibly frustrating."

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What Happens in the Morning?

Mind Won't Shut Down

"When the alarm goes off I am sleepy, I have trouble waking up, I could sleep in several hours if I did not have to get up."

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What Happens in the Morning?

Mind Won't Shut Down

"When the alarm goes off I am sleepy, I have trouble waking up, I could sleep in several hours if I did not have to get up."

Her Hawaii scenario…

Wikimedia Commons

Circadian delay

- If given the opportunity this individual would fall asleep later and wake up later.


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Circadian delay

- If given the opportunity this individual would fall asleep later and wake up later.


Wikimedia Commons

She has a delay in her circadian rhythm

Delayed Circadian Rhythm

- Common modern problem
  - May be the most common reason people have trouble falling asleep
- Trouble falling asleep at night and sleepy in the AM
- Living in the wrong time zone
- Delay in bodies 24-hour clock.

Galileo Spacecraft-NASA

(Zee PC and Abbott SM, Continuum 2020)

Delayed Circadian Rhythm-Treatment

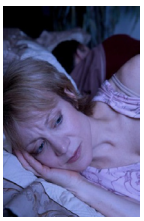
- Bright light (sunlight or 10,000 lux light box light) for 30-60 minutes in the AM.
- Melatonin small doses (0.5-1.0mg) several hours before bedtime.

Galileo Spacecraft-NASA

(Zee PC and Abbott SM, Continuum 2020)

"Can't Fall Back Asleep"

Ask two questions



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"Can't Fall Back Asleep"

Ask two questions

1. What happens in the morning?
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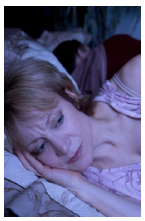

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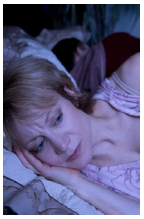
What Happens in the Morning?

Brain won't give more sleep

"Its only 3am but I am clearly done sleeping, I lay there for hours but nothing happens, incredibly frustrating."



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What Happens in the Evening?

"I am often very tired in the evening, I sometimes have trouble staying awake before bedtime"

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What Happens in the Evening?

"I am often very tired in the evening, I sometimes have trouble staying awake before bedtime"

Wikimedia Commons

Her Hawaii Scenario…

Circadian Advance

If given the opportunity she would fall asleep earlier and wake up earlier

Wikimedia Commons

She has an advance in her Circadian Rhythm

Advanced Circadian Rhythm

- Common problem particularly middle aged and elderly
- Trouble staying asleep but also sleepy and tired in the evening.
- Living in the wrong time zone
- Advance in bodies 24-hour clock.

Galileo Spacecraft-NASA

(Zee PC and Abbott SM, Continuum 2020)

Advanced Circadian Rhythm-Treatment

- Bright light (sunlight or 10,000 lux light box light) for 30-60 minutes in the evening.
- Stop melatonin in the evening

Galileo Spacecraft-NASA

(Zee PC and Abbott SM, Continuum 2020)

Advanced Circadian Rhythm-Treatment

- Bright light (sunlight or 10,000 lux light box light) for 30-60 minutes in the evening.
- Melatonin small doses (0.5-1.0mg) during a middle of the night awakening.
  - Do not take before bedtime as this will make an advanced rhythm worse!

Galileo Spacecraft-NASA

(Zee PC and Abbott SM, Continuum 2020)

32-year-old female with "insomnia"

A 32-year-old female has trouble falling asleep before midnight. By the end of the day she is exhausted and craves sleep. She feels sleepy but she can't because of a body discomfort that is "impossible to describe". She will get up and walk around which helps with the discomfort but within a couple minutes the discomfort is back and she can't fall asleep.

Previous trial of zolpidem resulted in sleepwalking and one morning she woke up to realize she had raided the refrigerator.

Restlessness (AKA Restless Legs Syndrome)

- Common reason for trouble falling asleep
- Often difficult for patients to describe the discomfort and may not be located in the legs
  - Discomfort causes an urge to move
  - Movement relieves the urge (although often only momentarily)
  - Worsens at night thus interferes with sleep
- Frequently the presenting complaint is often only "I can't fall asleep"

(Avni et al 2019)

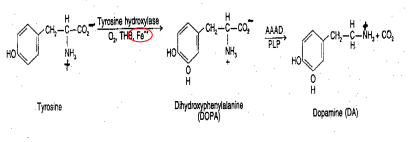
Etiology of Restlessness

- CNS dopamine deficiency a primary cause of restlessness.
- Common in the setting of neuropsychiatric illness
  - Neuropathy
  - Pain syndromes
  - Spinal cord disease
  - stroke
  - antidopaminergic psychoactive agents

(Garcia-Malo C et al, Continuum 2020)

Iron deficiency in restlessness

- Co-factor in the tyrosine hydroxylase
  - Rate limiting step in the production of CNS dopamine
- Common in young healthy women.
  - Vegans/Vegetarians at higher risk.
  - Pregnancy exacerbates relative iron deficiency



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(Garcia-Malo C et al, Continuum 2020)

Iron deficiency in restlessness

- Difficult to measure
  - CNS iron stores v. serum iron
- Serum ferritin is the most readily available marker
  - However hospital labs base low normal values on those which would place patients at risk for iron deficiency anemia not for health CNS iron stores.
    - Low normal values are often listed at 10mcg/l.
    - More appropriate low value would be 50mcg/l.
    - Sleep medicine consensus is even higher at 75mcg/l.

(Avni et al 2019)

Restlessness Treatment-First Iron Replacement

- Oral iron supplementation is challenging
  - Poor intestinal absorption of elemental iron
  - GI side effects.
- Increased absorption with iron gluconate formulation.
  - Recommend 325mg
  - Absorption improved when combined with 100mg Vitamin C.
- IV Iron replacement an option
  - Ferric carboxymaltose

(Avni et al 2019)

Snoring and sleep apnea: Finding treatments that work for patients and bedpartners

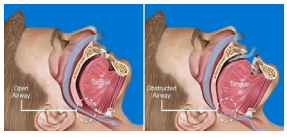
Snoring and obstructive sleep apnea (OSA)

- Collapse of the upper airway
  - Snoring-vibration of tissue
  - Hypopneas-partial restriction of airflow
  - Apneas-complete restriction of airflow
- OSA is a common condition
  - Relatively to pliable upper airway evolved for vocalization
  - Higher risk: men, weight gain, family history, increased neck circumference.

OSA-spectrum of disease

- Polysomnogram (sleep study) thresholds for diagnosis and severity (consensus based)
  - Ideal for adults: AHI < 5/hr
  - Mild: AHI 5-15/hr
  - Moderate: AHI 15-30/hr
  - Severe: AHI > 30/hr

(Kirsch DB, Continuum 2020)



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OSA-spectrum of disease

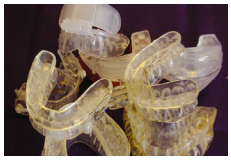
- Most patients with OSA have Mild or Moderate OSA.
- Most important clinical strategy is to find a treatment most acceptable to patients.
  - CPAP
  - Oral Appliance
  - Upper Airway Surgery
  - Positional Therapy

(Kirsch DB, Continuum 2020)

Wikimedia Commons

Oral Appliance Therapy for OSA

- Excellent Resources
  - American Academy of Dental Sleep Medicine
    - www.aadsm.org
  - American Board of Dental Sleep Medicine
    - www.abdsm.org



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SELF EVALUATION

Sleep Disorders: Their Treatment and Relationship with Chronic Pain

True/False

1.___ Poor sleep exacerbates chronic pain by exacerbating central sensitization.

2.___ Patients with TMD have decreased next day pain after a night of sleep deprivation.

3.___ Sleep deprivation increases the effect of opioids like oxycodone.

4.___ Patients with living chronic pain can decrease their pain through better sleep.

5.___ A Circadian rhythm is an individuals 24-hour clock.

6.___ A person who has a circadian delay (natural night owl) can address their circadian rhythm with bright light in the morning?

Answer Key: 1. T, 2. F, 3. F, 4. T, 5. T, 6. T

David Schwab, PhD

David Schwab, PhD, of Orlando, Florida, is principal of David Schwab & Associates, Inc. a marketing consulting firm providing in-office seminars, online training and consulting, customized patient education videos, and other practice management services. He speaks, writes and consults on helping dentists grow their practices, educate their patients, and train their teams to optimize practice profitability through practice management and marketing approaches for the entire dental team by developing brand identity, leveraging social media, revving up internal marketing, communications and team leadership, improving and growing referral relationships, and increasing case acceptance.

Dr. Schwab's articles have appeared in numerous publications, including *The Journal of the American Dental Association, Dental Economics, The Seattle Study Club Journal,* and *The Journal of the Canadian Dental Association*. His website, www.davidschwab.com, features blogs, articles, and videos.

You may contact Dr. Schwab with your questions and comments at DSchwabPhD@me.com, or by phone at (407) 324-1333.

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28 Ways to Improve Your Dental Practice

David Schwab, Ph.D.

Bridging the Business/Clinical Gap

- The clinical side often leaps forward, while the business side lags behind.

David Schwab, Ph.D.

Bridging Business/Clinical Gap

- From 1-10, how would you rate your clinical practice?

David Schwab, Ph.D.

Bridging the Business/Clinical Gap

- From 1-10, how would you rate your clinical practice?
- From 1-10, how would you rate your practice in terms of business and communications?

David Schwab, Ph.D.

Bridging Business/Clinical Gap

- You cannot have an outstanding practice unless both the clinical and admin sides are excellent!

David Schwab, Ph.D.

7 Confident Responses to the Money Objection

1. Our fees reflect the quality of care provided uniquely to you. We use only the best materials and technology.

David Schwab, Ph.D.

7 Confident Responses to the Money Objection

1. Our fees reflect the quality of care provided uniquely to you. We use only the best materials and technology.
2. I agree it's a lot of money but it's a great investment in your health. You deserve it.

David Schwab, Ph.D.

7 Confident Responses to the Money Objection

1. Our fees reflect the quality of care provided uniquely to you. We use only the best materials and technology.
2. I agree it's a lot of money but it's a great investment in your health. You deserve it.
3. One option, if you qualify with this company, is to spread out payments over time. The monthly payment is $_____.

David Schwab, Ph.D.

7 Confident Responses to the Money Objection

4. Dental implants are replacement body parts. They look and function like natural teeth. It's all about quality of life.

David Schwab, Ph.D.

7 Confident Responses to the Money Objection

4. Dental implants are replacement body parts. They look and function like natural teeth. It's all about quality of life.
5. People don't say they regret having dental implants. A common regret is not doing it sooner.

David Schwab, Ph.D.

7 Confident Responses to the Money Objection

4. Dental implants are replacement body parts. They look and function like natural teeth. It's all about quality of life.
5. People don't say they regret having dental implants. A common regret is not doing it sooner.
6. You said that you need to replace those missing teeth. We want to help you find a solution.

David Schwab, Ph.D.

7 Confident Responses to the Money Objection

7. I understand. We don't claim to be the cheapest dental office. It doesn't happen often, but we have had patients go elsewhere due to fees. However, we have never lost a patient due to quality. It's never cheaper to do it twice.

David Schwab, Ph.D.

6 Action Steps to Higher Case Acceptance

1. "Power of 10"—Confidence!

David Schwab, Ph.D.

6 Action Steps to Higher Case Acceptance

1. "Power of 10"—Confidence!
2. Avoid Negative Words
   - Deposit or down payment/initial investment
   - Objection/concern
   - Problem/challenge

David Schwab, Ph.D.

6 Action Steps to Higher Case Acceptance

3. Use Positive words
   - Option
   - Benefit
   - Exciting
   - Wonderful

David Schwab, Ph.D.

6 Action Steps to Higher Case Acceptance

3. Use Positive words
   - Option
   - Benefit
   - Exciting
   - Wonderful
4. Systematic follow up

David Schwab, Ph.D.

6 Action Steps to Higher Case Acceptance

3. Use Positive words
   - Option
   - Benefit
   - Exciting
   - Wonderful
4. Systematic follow up
5. Video testimonials

David Schwab, Ph.D.

6 Action Steps to Higher Case Acceptance

3. Use Positive words
   - Option
   - Benefit
   - Exciting
   - Wonderful
4. Systematic follow up
5. Video testimonials
6. Additional consultation.

David Schwab, Ph.D.

5 Critical Reasons Patients Accept Treatment

1. Prevention
2. Function
3. Health
4. Esthetics
5. Quality of Life

David Schwab, Ph.D.

4 Great Responses to "I'll think about it."

1. The proposed treatment will never be more conservative, more cost effective, or less invasive than it is today.

David Schwab, Ph.D.

4 Great Responses to "I'll think about it."

1. The proposed treatment will never be more conservative, more cost effective, or less invasive than it is today.
2. I think you're going to do this sooner or later. Let's get started now so you can enjoy the benefits.

David Schwab, Ph.D.

4 Great Responses to "I'll think about it."

3. On a scale of 1-10, where are you now? What would make it a 10?

David Schwab, Ph.D.

4 Great Responses to "I'll think about it."

3. On a scale of 1-10, where are you now? What would make it a 10?
4. I've said the same thing myself in certain situations when I had a concern that wasn't being addressed. What is your concern?

David Schwab, Ph.D.

3 Ways to Convert Leads to Appointments

1. Reply promptly—create a texting relationship. Text should be the default patient follow-up.

David Schwab, Ph.D.

3 Ways to Convert Leads to Appointments

1. Reply promptly—create a texting relationship. Text should be the default patient follow-up.
2. "You owe it to yourself to meet the doctor and get all your questions answered."

David Schwab, Ph.D.

3 Ways to Convert Leads to Appointments

1. Reply promptly—create a texting relationship. Text should be the default patient follow-up.
2. "You owe it to yourself to meet the doctor and get all your questions answered."
3. Make it very convenient to appoint.

David Schwab, Ph.D.

2 Key Reasons Patients Don't Accept Treatment

1. Cost or cost/benefit analysis.
2. Benefits not clear or persuasive enough.

David Schwab, Ph.D.

1 Essential Step You Should Take Immediately

- Train the Team.

David Schwab, Ph.D.

Secret Statistic Costing You Money

- It's not number of new patients per month.

David Schwab, Ph.D.

Secret Statistic Costing You Money

- It's not number of new patients per month.
- It's monthly number of potential new patients who call and do not appoint.

David Schwab, Ph.D.

Telephone L.E.A.D. Protocol

- Listen
- Empathize
- Assure
- Direct

David Schwab, Ph.D.

Listen

- I am here to listen and help.
- In case we get disconnected, may I please have your name and call back number?
- [Patient says they have been missing teeth for years.] What prompted your call today?
- Echo technique: repeat patient's key points.

David Schwab, Ph.D.

Empathize

- [When patient reports problem or discomfort]:
- I am sorry to hear that.
- You did the right thing by calling.
- The doctor will do a thorough exam and advise you of your options.

David Schwab, Ph.D.

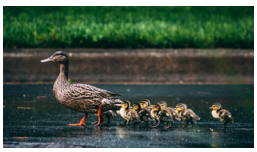
Assure

- The doctor always provides a personal touch.
- The doctor is gentle and understanding.
- We have a state-of-the-art facility, and we offer the latest treatment options.
- The doctor will answer all your questions.

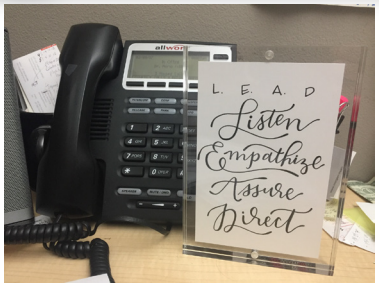
David Schwab, Ph.D.

Direct

- We want to get you in as soon as possible.
- Offer first available appointment.
- Control conversation; know how to answer the cost question.
- Goal is to end call with appointment made.



David Schwab, Ph.D.



David Schwab, Ph.D.

Sure-Fire Marketing Tips

- Doctor calls new patients prior to first appointment.

David Schwab, Ph.D.

Sure-Fire Marketing Tips

- Doctor calls new patients prior to first appointment.
- Let everyone know new patients are welcome.

David Schwab, Ph.D.

Sure-Fire Marketing Tips

- Doctor calls new patients prior to first appointment.
- Let everyone know new patients are welcome.
- Follow up with emergency patients.

David Schwab, Ph.D.

"Do it Now" Mindset

- Best day to work on the practice: yesterday.

David Schwab, Ph.D.

"Do it Now" Mindset

- Best day to work on the practice: yesterday.
- Second best day: today.

David Schwab, Ph.D.

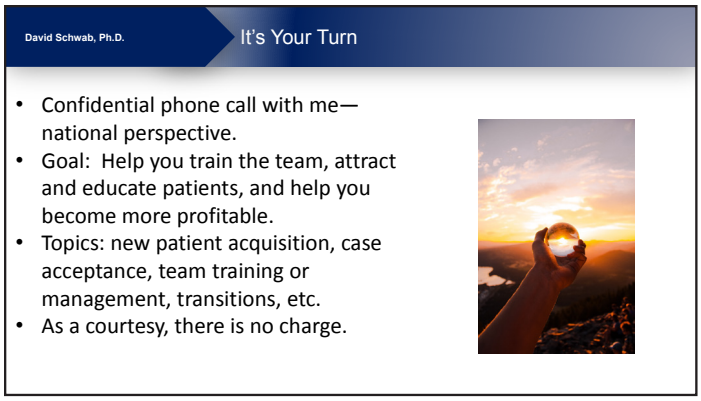
"Do it Now" Mindset

- Best day to work on the practice: yesterday.
- Second best day: today.
- Worst day: some day.

David Schwab, Ph.D.

"Do it Now" Mindset

- Best day to work on the practice: yesterday.
- Second best day: today.
- Worst day: some day.
- Need to break out of the “some day” loop.



SELF EVALUATION

28 Ways to Improve Your Dental Practice

1. T/F - The business side of the practice leaps forward, while the clinical side lags behind.

2. T/F - Third-party financing options should be used on a very limited basis because they are expensive.

3. T/F - The phrase "initial investment" is preferable to "down payment."

4. Which of the following are recommended to increase case acceptance:

a. Systematic follow up
b. Video testimonials
c. Additional consultation.
d. All of the above.

5. The acronym discussed in the course for a telephone protocol is

a. E.N.C.O.U.R.G.E.
b. F. A. S. T
c. L.E.A.D.
d. A.C.T

Answer Key: 1. F, 2. F, 3. T, 4. D, 5. C

Dr. Gerald Levine, MD, CCFP

Dr. Gerald Levine, MD, CCFP (Canadian College of Family Physicians), of Barrie, Ontario, graduated from the University of Toronto Medical School and the University of Toronto Family Medicine School. He was a family practitioner for over 30 years and since 2006 has focused on stress management, burnout prevention and mindfulness facilitation offering training to physicians, dentists, and their staffs as well as for dental and medical associations throughout Canada including the Simcoe Muskoka District Health Unit, the General Practitioner Psychotherapy Association of Canada, the Canadian Mental Health Association York Region and many others. Dr. Levine has also authored an e-book, *52 Mindful Weeks, Cultivating Awareness and Resilience* available on his website, www.ManageStress.ca.

You may contact Dr. Levine with you questions or comments at geraldlevine@rogers.com, or by phone at 705-721-3130.

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Employing Mindfulness to Reduce Stress and Avoid Burnout

Learning Objectives :

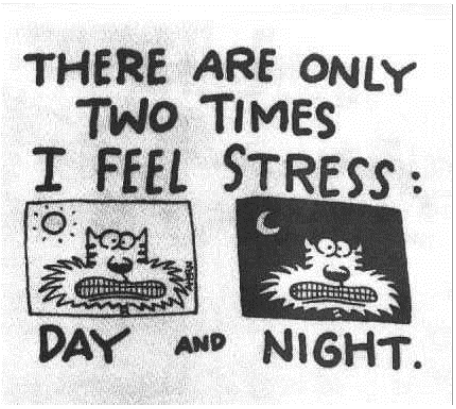
Understand current stress research

Identify and assess stress and burnout symptoms

Apply mindfulness concepts and skills to manage stress and burnout

THINGS TO REMEMBER

Awareness, Acceptance
Breath, Body
Curiosity, Compassion
70 %
5 %



Definition of Stress

- Mind and body reaction to an actual or PERCEIVED threat
- -designed for short-term physical survival, not joy nor calm problem-solving
- -chronic stress state from constant threats to actual or emotional safety
- -emotional safety threatened by discrepancy between conditioned expectations and lived reality

Topics:

Stress physiology/research
Managing Stress
Professional Burnout:Problems
Professional Burnout:Solutions
Self Awareness
Self Care
Mindfulness
Mindful Self Compassion

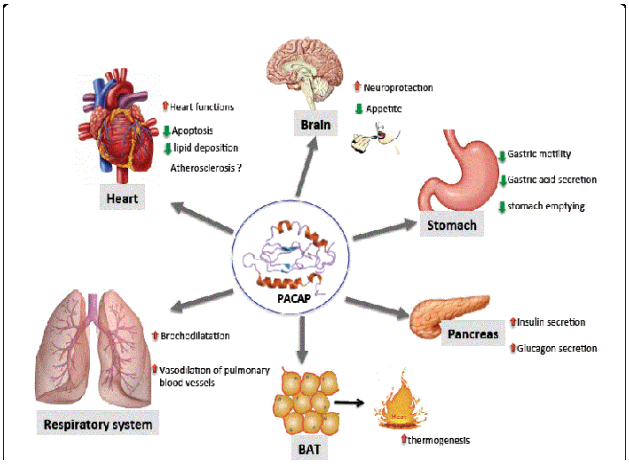
Stress physiology/research

- PACAP
- Neurotransmitter role in stress tolerance
- Telomeres and resilience/aging
- Immune system: cancer, infections: Covid, URTI (N of 1)
- Inflammatory markers (interleukins, CRP)
- Memory and stress
- Neuroplasticity-fMRI studies

PACAP

Pituitary Adenylate-Cyclase-Activating Polypeptide

- Master regulator of adaptation to stress
- Part of glucagon/secretin/Vasoactive intestinal peptide (VIP) superfamily
- mediates via 3 G-protein-coupled receptors in the limbic system
- Regulates H-P-A axis-works w Ach, epinephrine, norepinephrine to maintain homeostasis
- dysregulated in PTSD
- Future pharmacologic possibilities



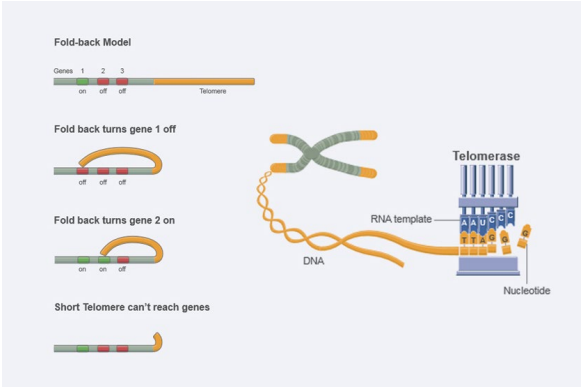
Neurotransmitters Role in Stress Tolerance

- **Dopamine**: neuronal signaling and circuit activation
- Dopamine-related genes, neuron structure, firing patterns relate to variations in stress response during development and in adulthood
- **Serotonin:** mood, anxiety
- **Glutamate:**
- excitatory: activates Ca2+ influx, kinases
- stress=excess of glutamate: Ca2+ toxicity, necrosis, apoptosis-HPA axis activation=increase in glutamate sensitivity
- **Natriuretic peptides:**
- Atrial: inhibits HPA axis =decreased anxiety
- C-type:(vascular-derived) ACTH increases=increased anxiety
- Brain-derived: stress-neutral

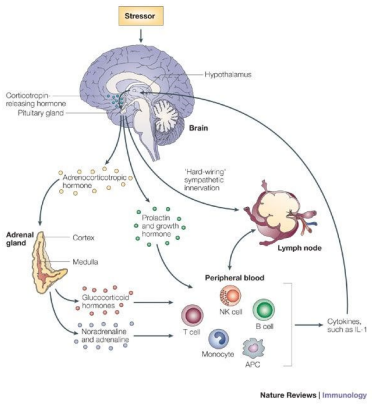
Telomeres

Drs. E. Blackburn, E. Epel: The Telomere Effect (2017)

- Chromosomal end cap health via telomerase
- Chronic stress unwinds telomeres
- Premature aging, lowers resilience
- Stress management, meditation: increases telomerase
- Telomerase replenishes telomeres



Immune System and Stress



Memory and Stress

Case:35 year old patient: "doc, I'm sure I have Alzheimer's"

- Catecholamines and cortisol act in the hippocampus, amygdala, pre-frontal cortex
- Stress decreases neurogenesis in dentate gyrus of hippocampus
- Reduces spatial and working memory
- Stress hormones consolidate memory during stressful events
- Stress hormones reduce memory retrieval

Neuroplasticity

Dr Norman Doidge "The Brain that Changes Itself" 2007

- Neurons that fire together, wire together
- Brain training "10,000 hours" concept at any age
- fMRI studies: 20" daily of mindfulness meditation X 3 months measurably increases glucose uptake in pre frontal cortex
- cultivates ability to place attention when and where needed most
- promotes calmness, connection with others, complex problem solving

Topics:

Stress physiology/research

Managing Stress

Professional Burnout: Problems

Professional Burnout: Solutions

Self Awareness

Self Care

Mindfulness

Mindful Self Compassion

Managing Stress

REACT Flight/fight/freeze

vs.

RESPOND Calm, aware, skilled

Managing Stress

"Stress is inevitable, suffering is optional"

Unskilled , reactive, automatic behaviour

vs. Skilled, flexible, adaptive behaviour

Topics:

Stress physiology/research

Managing Stress

Professional Burnout: Problems

Professional Burnout: Solutions

Self Awareness

Self Care

Mindfulness

Mindful Self Compassion

Professional Burnout: WHO (2020)
"occupational syndrome associated with unmanaged stress at work"

- June 2014 CMAJ: Flegel, et al: soaring rate of burnout in family docs=MD illness, decreased patient care
- HCP suicide rate 2X general population
- HCP students:15-30% higher rate of depression than general population
- 46-51% of HCPs report significant burnout symptoms (2015) (emedcert.com Jan. 2016)
- Anxiety, depression, substance abuse, suicide (in Barrie alone, aware of at least 3 MD suicides)
- CMAJ April 2019 issue: burnout blogs, podcasts, articles
- WORSE SINCE PANDEMIC

Professional Burnout...from the American Dental Association:

….You are not alone. In the 2015 Dentist Well-Being Survey report by the American Dental Association, 2,122 dentists described their stress levels and triggers. Over two-thirds of them, 79%, reported moderate to severe stress. More than a quarter of them, 26%, also reported moderate to high levels of depression.

Empathy Fatigue/Burnout: Secondary Traumatic Stress

mirror neurons in mammalian brain

Empathy: pre-verbal resonance with others; "interpersonal synchrony"; does not necessarily involve concern source of vicarious trauma

Compassion: empathy plus a wish to help; rewarding, energizing, inexhaustible

Empathy fatigue or Secondary Traumatic Stress (STS): gradual lessening of empathy and capacity for compassion over time.

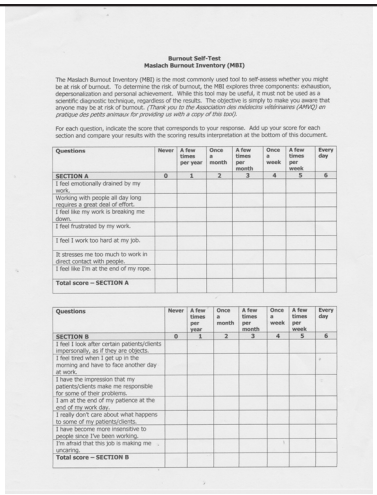
Common with front line workers who work directly with trauma victims

Professional Reactions to Empathy/Compassion Fatigue or Secondary Traumatic Stress (STS)

- **Job Performance** – decrease in quality or quantity of work, low motivation, avoidance of job tasks
- **Morale** – decrease in confidence, loss of interest, dissatisfaction, negative attitude, apathy, burnout
- **Relationships with Peers** – impatience, decrease in quality of relationships, poor communication, staff conflicts
- **Behaviour** – absenteeism, exhaustion, faulty judgment, irritability, tardiness, overwork

Professional Burnout:
Personal factors: perfectionism, self-sacrifice, lack of self care
Professional factors: pandemic, lack of "agency", forms, IT, crises (covid, lifestyle disease, political, climate change, inequality, leadership)

- burnout not in DSM, but in WHO ICD-10
- Symptoms of reactive depression that improves when not working
- physical (insomnia, fatigue, headaches, GI upset)
- psychological: (irritability, cynicism, decreased concentration)
- emotional: (exhaustion, depersonalization, perception of lack of accomplishment)
- Maslach Burnout Inventory



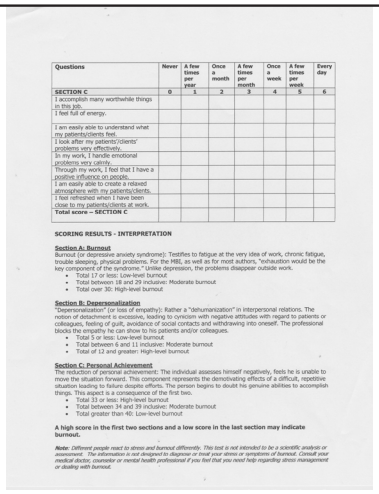
Burnout Self-Test
Maslach Burnout Inventory (MBI)

The Maslach Burnout Inventory (MBI) is the most commonly used tool to self-assess whether you might be at risk of burnout. To determine the risk of burnout, the MBI explores three components: exhaustion, depersonalization and personal achievement. While this tool may be useful, it must not be used as a scientific diagnostic technique, regardless of the results. The objective is simply to make you aware that anyone may be at risk of burnout. *(Thank you to the Association des médecins vétérinaires (AMMQ) en pratique des petits animaux for providing us with a copy of this tool).*

For each question, indicate the score that corresponds to your response. Add up your score for each section and compare your results with the scoring results interpretation at the bottom of this document.

Questions	Never	A few times per year	Once a month	A few times per month	Once a week	A few times per week	Every day
SECTION A	0	1	2	3	4	5	6
I feel emotionally drained by my work.							
Working with people all day long requires a great deal of effort.							
I feel like my work is breaking me down.							
I feel frustrated by my work.							
I feel I work too hard at my job.							
It stresses me too much to work in direct contact with people.							
I feel like I'm at the end of my rope.							
Total score – SECTION A							

Questions	Never	A few times per year	Once a month	A few times per month	Once a week	A few times per week	Every day
SECTION B	0	1	2	3	4	5	6
I feel I look after certain patients/clients impersonally, as if they are objects.							
I feel tired when I get up in the morning and have to face another day at work.							
I have the impression that my patients/clients make me responsible for some of their problems.							
I am at the end of my patience at the end of my work day.							
I really don't care about what happens to some of my patients/clients.							
I have become more insensitive to people since I've been working.							
I'm afraid that this job is making me uncaring.							
Total score – SECTION B							



Questions	Never	A few times per year	Once a month	A few times per month	Once a week	A few times per week	Every day
SECTION C	0	1	2	3	4	5	6
I accomplish many worthwhile things in this job.							
I feel full of energy.							
I am easily able to understand what my patients/clients feel.							
I look after my patients'/clients' problems very effectively.							
In my work, I handle emotional problems very calmly.							
Through my work, I feel that I have a positive influence on people.							
I am easily able to create a relaxed atmosphere with my patients/clients.							
I feel refreshed when I have been close to my patients/clients at work.							
Total score – SECTION C							

SCORING RESULTS - INTERPRETATION

Section A: Burnout
Burnout (or depressive anxiety syndrome): Testifies to fatigue at the very idea of work, chronic fatigue, trouble sleeping, physical problems. For the MBI, as well as for most authors, "exhaustion would be the key component of the syndrome." Unlike depression, the problems disappear outside work.

- Total 17 or less: Low-level burnout
- Total between 18 and 29 inclusive: Moderate burnout
- Total over 30: High-level burnout

Section B: Depersonalization
"Depersonalization" (or loss of empathy): Rather a "dehumanization" in interpersonal relations. The notion of detachment is excessive, leading to cynicism with negative attitudes with regard to patients or colleagues, feeling of guilt, avoidance of social contacts and withdrawing into oneself. The professional blocks the empathy he can show to his patients and/or colleagues.

- Total 5 or less: Low-level burnout
- Total between 6 and 11 inclusive: Moderate burnout
- Total of 12 and greater: High-level burnout

Section C: Personal Achievement
The reduction of personal achievement: The individual assesses himself negatively, feels he is unable to move the situation forward. This component represents the demotivating effects of a difficult, repetitive situation leading to failure despite efforts. The person begins to doubt his genuine abilities to accomplish things. This aspect is a consequence of the first two.

- Total 33 or less: High-level burnout
- Total between 34 and 39 inclusive: Moderate burnout
- Total greater than 40: Low-level burnout

A high score in the first two sections and a low score in the last section may indicate burnout.

***Note:** Different people react to stress and burnout differently. This tool is not intended to be a scientific analysis or assessment. The information is not designed to diagnose or treat your stress or symptoms of burnout. Consult your medical doctor, counselor or mental health professional if you feel that you need help regarding stress management or dealing with burnout.*

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Topics:

Stress physiology/research

Managing Stress

Professional Burnout: Problems

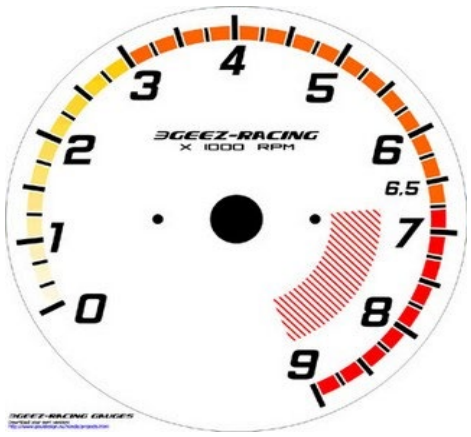
Professional Burnout: Solutions

Self Awareness

Self Care

Mindfulness

Mindful Self Compassion



Self-Awareness

Internal stress o meter

Frequent "check in"

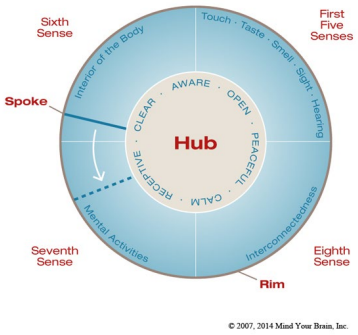
Time and space for inventory: "I'm too busy"

Recognizing your personal stress triggers

Recognizing your own stress reaction

. Cultivating "3rd person" perspective,
. awareness of inner dialogue

Dr Dan Siegel's Wheel of Awareness



SOLUTIONS:

Self Awareness

Self Care

Mindfulness
Mindful Self Compassion

SELF CARE
"enlightened self interest"

self-awareness/self assessment
-"70% rule": leave room for contingencies
-releasing **conditioned** habits-"5% rule"

. Increases efficiency and effectiveness
. reduces burnout

Basic self care

common sense,but not common practice
Routine (especially during pandemic)
Sleep
Food
Exercise/fresh air
Relationships
Vacation
Hobbies/interests
Meditation/Spiritual connection

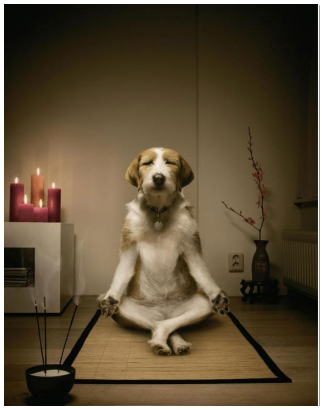
.Caffeine, alcohol, drugs, screen time, overworking….not!

Einstein's definition of insanity: doing the same thing and expecting a different outcome!

. Is what I am doing working?
. What needs to change?
. Overcoming barriers to change:
. ego, pride, fear, conditioned expectations
. **Individua**l stress "sweet spot" (70% of capacity)

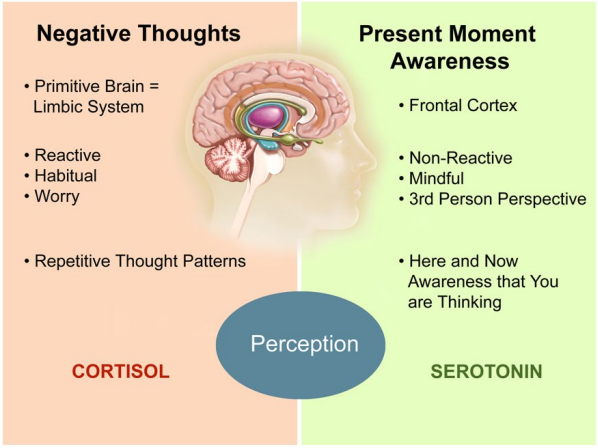
SOLUTIONS:

Self Awareness
Self Care
Mindfulness
Mindful Self Compassion



Mindfulness:

- paying attention to the here and now with attitudes of curiosity and acceptance
- Intentional focus on the present
- Repeated shifting of attention from the past or future to the present moment
- Awareness of what you are doing as you are doing it



Neurobiology of Mindfulness

Mindfulness: "awareness of the present moment, with acceptance" (Chris Germer)

- **Default mode network (DMN):** -midline brain structures
- (medial prefrontal cortex/posterior cingulate cortex (PCC)
- highly active when NOT paying attention (Dr. Ron Siegel)
- =mind wandering/rumination/worry/sense of self projected into past and future
- -built for survival, not joy or happiness
- -mindfulness meditation deactivates the PCC/DMN (Brewer, 2011)
- -mindfulness increases activity in the insula=increased empathy
- -bypasses automatic pilot in the medial prefrontal cortex, increases activity in the L prefrontal lobe=neural integration (cortex, limbic areas, brainstem, body, social world) (Dr Dan J Siegel)

Mindfulness: Myths and Facts

- **Myths:** trying to empty the mind, religious doctrine, passive, isolating, waste of time

- **Facts:** scientifically proven concentration/attention training
- rewires the brain for calm, clear problem-solving,
- wise responses, presence, connection with others

Mindful Principles/Attitudes

- Kindness
- Non-judgment
- Acceptance
- Patience
- Curiosity
- Trust
- Non-striving
- Letting go/reduced attachment

"Live each moment. Practice being mindful.
Be present in… Hold on, I have to take this."

Mindful Practices

Formal: breathing, body scan, yoga:1"-20"
Informal:
STOP
sense and savor nature walk

Informal Practice:STOP

- STOP
- TAKE SOME BREATHS
- OBSERVE
- PROCEED

Mindfulness for Busy Practitioners

Morning: few deep breaths before getting up
shower meditation

. Middle of Day: "disinfect" between patients
. soles of feet reset, STOP,
. gratitude practice

. End of Day: boundaries, mindful driving,
. hand on house door knob, attitude reset,
. gratitude while lying in bed, body scan for EMW

SOLUTIONS:

Self Awareness
Self Care
Mindfulness
Mindful Self Compassion

Mindful Self Compassion (MSC)

Drs. Chris Germer and Kristin Neff 2003

"two wings of the mindfulness bird"

Mindful Self Compassion

. Managing our conditioned inner critic
. Kind, instead of harsh, inner coaching
. Mindfulness vs over identification
. Self kindness vs self criticism
. Common humanity vs isolation, shame

Mindful Self Compassion: physiology

THREAT/DEFENSE	INNER CRITIC	SELF-COMPASSION
Fight	self-critic	self kindness
Flight	isolation	common humanity
Freeze	self-absorption	mindfulness

Mindful Self Compassion

. Including yourself equally in the circle of care
. Treating yourself as you would a good friend
. Preventing depletion with self kindness, self-care
. **Myth**: weakness, self indulgent, selfish
. **Facts**: promotes strength, resilience, connection, helping others effectively

Managing Secondary Traumatic Stress/Empathy Fatigue

Reduced attachment to outcome

Reduced attachment is that we simply do our very best and accept the outcome.

Remain caring, present and connected but less attached to how things turn out

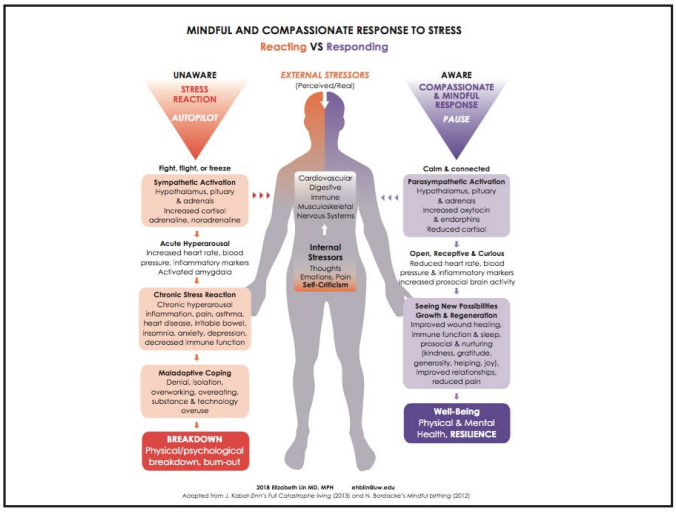
Do not try to change the things beyond our sphere of influence:

Most outcomes are far beyond our control

Managing Secondary Traumatic Stress

Mindful self compassion

"This a moment of difficulty"
"One for me, one for you"
Including yourself equally in the circle of care
Treating yourself as a good friend



Ultimate Courage: Seeking help

Barriers: Pride: "I can bully my way through"

Ego: "I'm indispensable"

Fear: "I can't afford to slow down"; "My peers and patients will think I'm incompetent."

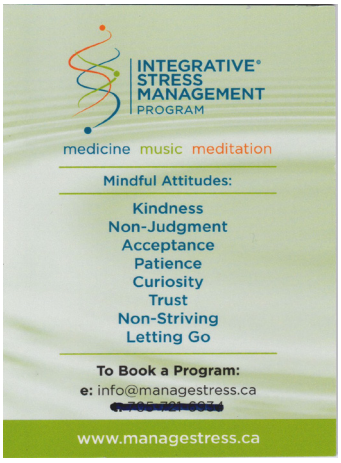
Facts:

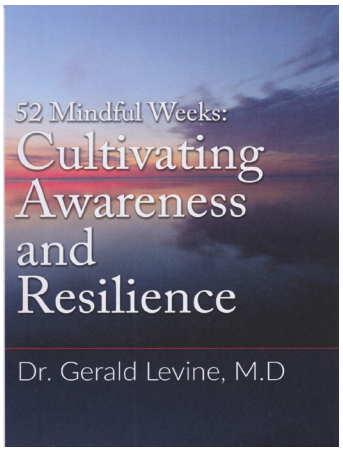
seeking help requires strength and courage; works out better in the long run (N of 1)

NEED TO CULTIVATE A SUPPORTIVE WORKPLACE

THINGS TO REMEMBER

Awareness, Acceptance
Breath, Body
Curiosity, Compassion
70 %
5 %





CONTINUED PRACTICE/RESOURCES

Dr Gerald Levine: www.managestress.ca

eBooks: 52 Mindful Weeks

Stress Physiology: Handbook of Stress v 3 by George Fink

Mindfulness: Full Catastrophe Living by Dr. Jon Kabat-Zinn

The Mindful Brain by Dr. Daniel J. Siegel

The Mindfulness Solution by Dr. Ronald D. Siegel

Resilient by Dr. Rick Hanson

Meditation for Fidgety Skeptics by Dan Harris

Burnout: Drs. Maslach, Shanafelt, Bodenheimer

Time to Care by Dr. Robin Youngson

Dr. Jonathan Fisher: https://www.mindheartnow.com/Self-Compassion:

Wisdom and Compassion in Psychotherapy by Dr. Chris Germer

Center for MSC.org Dr. Kristen Neff

APPS: 10% Happier, Insight Timer, Calm, Headspace

SELF EVALUATION

Employing Mindfulness to Reduce Stress and Avoid Burnout

1. Chronic stress negatively effects:

a. our immune system function
b. working memory
c. problem solving capabilities
d. chromosomal telomeres, causing premature aging
e. all of the above

2. T/F - Health Care Professional burnout is rare because of high pay and work satisfaction

3. T/F - fMRI neuroplasticity studies show that 3 months of 20 minutes mindfulness training per day improves prefontal cortex function

4. T/F - Mindfulness involves being more efficient at multi tasking

5. Mindful self compassion reduces burnout by:

a. reducing attachment to outcomes beyond our control
b. nourishing ourselves during difficult professional encounters to helping to manage secondary traumatic stress
c. treating ourselves as we would a good friend
d. all of the above

6. T/F - 70% rule means we need to find and maintain our stress levels to 70% of our limit

7. T/F - 5% rule means that we need at least 5% average annual returns on our investments

8. T/F - Health Care Practitioners have no time for self care, mindfulness and mindful self compassion

Answer Key: 1. E, 2. F, 3. T, 4. F, 5. D, 6. T, 7. F, 8. F

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Mobile: 407.463.0145

- Seminars
- Consulting
- Videos for Your Office
- Team Training

Creating a Culture of Accountability in the Dental Practice

David Schwab, Ph.D. | Lessons from amazon.com: What will NOT change?

- Customers want speed of delivery.

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- Customers want speed of delivery.
- Customers want the best value—may or may not be the lowest price.

David Schwab, Ph.D. | Lessons from amazon.com: What will NOT change?

- Customers want speed of delivery.
- Customers want the best value—may or may not be the lowest price.
- Companies must relentlessly focus on customer service.

David Schwab, Ph.D. | Translation: What will NOT change in dentistry?

- Efficiency.

David Schwab, Ph.D. | Translation: What will NOT change in dentistry?

- Efficiency.
- Value.

David Schwab, Ph.D. | Translation: What will NOT change in dentistry?

- Efficiency.
- Value.
- Relentless focus on patient-centered practice—achieved through team accountability.

David Schwab, Ph.D.

Biggest Challenge in Dentistry

- Sometimes it's the patients.

David Schwab, Ph.D.

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- On a daily basis, it's frequently the staff.

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- Even though staff are a great asset to the practice and you always say that they are essential to everything you do.

David Schwab, Ph.D.

Biggest Challenge in Dentistry

- Sometimes it's the patients.
- On a daily basis, it's frequently the staff.
- Even though staff are a great asset to the practice and you always say that they are essential to everything you do.
- Covid has changed the workplace.

David Schwab, Ph.D.

Effective Practice Management

- Word of mouth referrals.
- Supplemented through social media advertising.

David Schwab, Ph.D.

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- Great verbal skills.

David Schwab, Ph.D.

Effective Practice Management

- Word of mouth referrals.
- Supplemented through social media advertising.
- Efficiency through systems.
- Great verbal skills.
- Motivated well-trained, and accountable team.

David Schwab, Ph.D.

Accountability

- Externally monitored.

David Schwab, Ph.D.

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- Accountability is internally driven.

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David Schwab, Ph.D.

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David Schwab, Ph.D.

Accountability

- Externally monitored.
- Accountability is internally driven.
- Self starters are good.
- Self finishers are better.
- Chore versus work.
- Chore is boring.
- Meaningful work is the total engagement of one's being.

David Schwab, Ph.D.

Customer Service Training is about Behavior

- How can someone lose weight?

David Schwab, Ph.D.

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- How can someone lose weight?
- Answer: eat healthy and exercise.

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David Schwab, Ph.D.

Customer Service Training is about Behavior

- How can someone lose weight?
- Answer: eat healthy and exercise.
- Solution is intellectually easy but behaviorally hard.
- Providing information is not enough to change behavior.

David Schwab, Ph.D.

Training the Team

- Focus on changing behavior, not just imparting information.

David Schwab, Ph.D.

Training the Team

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- Goal is that something will change!

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- Next meeting: review.

David Schwab, Ph.D.

Training the Team

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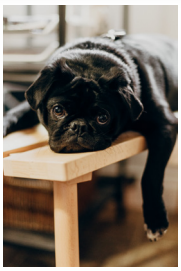
- Goal is that something will change!
- Practice the behavior.
- Next meeting: review.
- Biggest mistake: moving on before the training becomes standard operating procedure.

David Schwab, Ph.D.

Declining Employee Engagement

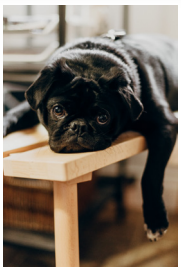
- Engagement does not equal satisfaction.



David Schwab, Ph.D.

Declining Employee Engagement

- Engagement does not equal satisfaction.
- Engagement = Emotional commitment to the company.



David Schwab, Ph.D.

Declining Employee Engagement

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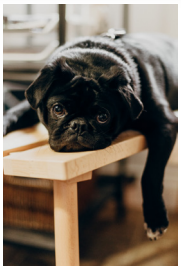
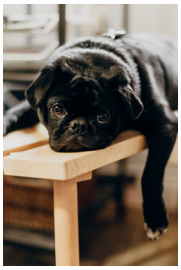
- Only 33% are engaged.
- 51% not engaged.
- 16% actively disengaged.



David Schwab, Ph.D.

Declining Employee Engagement

- Engagement does not equal satisfaction.
- Engagement = Emotional commitment to the company.
- Only 33% are engaged.
- 51% not engaged.
- 16% actively disengaged.
- Millennials are the least engaged demographic group.



David Schwab, Ph.D.

Four Questions for the Team

1. What is the best thing about working here?
2. If you could wave a magic wand and change one thing in the office, what would it be?
3. What are some good ways to increase the number of new patients?
4. If you met a new person in your neighborhood, what would you tell them about the practice?

David Schwab, Ph.D.

"I Don't Want to be a Cop"

1. No team member is Office Manager.
2. De Facto Office Manager.
3. Office Manager in Name Only.
4. Office Manager Who Does Not Manage.
5. Office Manager Who Helps Run the Practice.

David Schwab, Ph.D.

No Team Member is Office Manager

- My practice is too small.
- I want total control.
- If you want something done right, do it yourself.

David Schwab, Ph.D.

DeFacto Office Manager

- It is “understood” that one person is the manager—sort of.
- This person has no title and no authority.
- Individual in this position runs the risk of dealing with power struggles.

David Schwab, Ph.D.

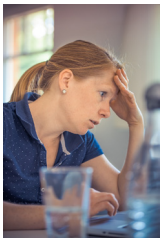
Office Manager in Name Only

- Individual has responsibility but no authority—the biggest management mistake.
- Creates a position with no legitimacy.
- Nature abhors a vacuum; strong personalities challenge this model.

David Schwab, Ph.D.

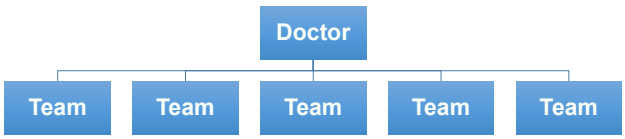
Office Manager Who Does Not Manage

- More of a messenger than a manager.
- Encourages gossip; talking about people rather than to people.
- Creates fiefdoms--competing power centers.



David Schwab, Ph.D.

Organizational Chart



David Schwab, Ph.D.

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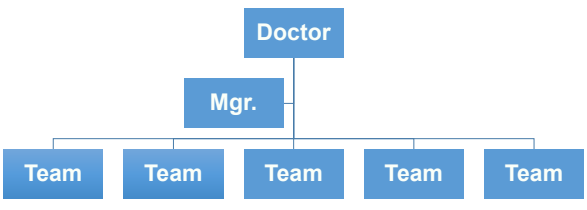
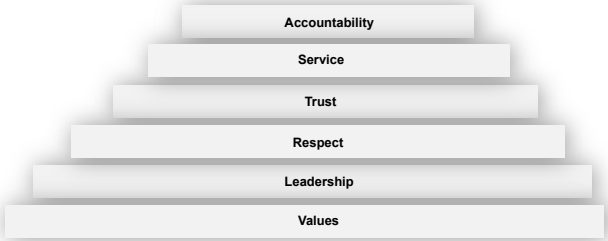


David Schwab, Ph.D.

A Culture of Teamwork



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The Manager's Quandary

- Do I lay down a rigid set of requirements, job descriptions, protocols, etc. and insist that everyone adhere to them?
- OR
- Do I hire good people, explain the goals to them, and let them find different paths to success?

David Schwab, Ph.D.

Surprising Answer

- Companies that are regimented and disciplined are often very successful:

David Schwab, Ph.D.

Surprising Answer

- Companies that are regimented and disciplined are often very successful:
- Ritz-Carlton (service)
- Fed Ex (message and accountability)
- McDonald's (system as important as people)
- Disney (immersion marketing/showmanship)
- Starbucks (consistent image supports price)

David Schwab, Ph.D.

Engagement: Happy and Productive Team

1. Set Expectations.
2. Praise.
3. Reinforce feeling that work is important.
4. Training/Coaching.

David Schwab, Ph.D.

Engagement: Happy and Productive Team

1. Set Expectations.
2. Praise.
3. Reinforce feeling that work is important.
4. Training/Coaching.
5. Good relationships with coworkers.
6. Positive atmosphere.
7. Strong leadership.
8. Fair compensation.

David Schwab, Ph.D.

Gossip Destroys Morale

- Frequently false.
- Often mean spirited.
- Can be very petty.
- Like smoking—very bad for you.

David Schwab, Ph.D.

Messages to New Hires and Team

1. We are life-long learners.
2. We are educators.
3. We have a passion for dentistry.

David Schwab, Ph.D.

Messages to New Hires and Team

4. We expect you to take the next logical step without being told.
5. We expect you to make mistakes and recover quickly.
6. We are both leaders and followers.
7. Your presence here will make us stronger.
8. We take problems to the source.

David Schwab, Ph.D.

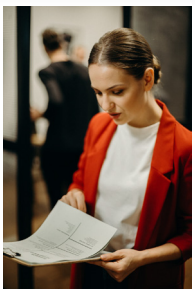
Staff Evaluation System

- Goal is to help you improve over time, not to penalize you in the moment.
- Self-evaluation followed by supervisor evaluation.
- Analogy: take home test.

David Schwab, Ph.D.

Staff Evaluation System: Grading Scale

- _____Outstanding
- _____ Exceeds Expectations
- _____ Meets all expectations
- _____ Below expectations
- _____ Unsatisfactory



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Start a Dialogue About Expectations

- You can accept this evaluation.
- Or, use it as a starting point.
- We'll re-evaluate in 60 days.
- During that time, please ask me how you are doing and how I can help you.
- I may adjust your evaluation in 60 days depending on your performance.
- Salary issue separate from evaluation.

David Schwab, Ph.D.

Keys to Success

- Marketing people, not procedures.

David Schwab, Ph.D.

Keys to Success

- Marketing people, not procedures.
- More outsourcing.

David Schwab, Ph.D.

Keys to Success

- Marketing people, not procedures.
- More outsourcing.
- More team training.

David Schwab, Ph.D.

Keys to Success

- Marketing people, not procedures.
- More outsourcing.
- More team training.
- Bottom line: You hold team members accountable and help them hold themselves accountable.

David Schwab, Ph.D.

Work Ethic and Expectations

1. We are life-long learners.
2. We are educators.
3. We have a passion for dentistry.
4. Tardiness is not part of our culture.

David Schwab, Ph.D.

Work Ethic and Expectations

5. We believe in “lateral” service.
6. We expect you to take the next logical step without being told.
7. We expect you to make some mistakes and learn from them.
8. We are both leaders and followers.

David Schwab, Ph.D.

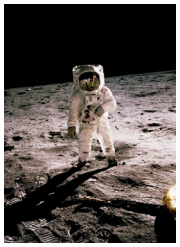
Work Ethic and Expectations

9. Your presence in this practice will make us stronger.
10. We take problems to the source.
11. Our office is a no gossip zone.
12. We are always growing and learning, and we expect you to improve with us.

David Schwab, Ph.D.

We Value Personal Traits

- Personal integrity.
- Trust.
- Professionalism.
- Ability to empathize with patients.
- Commitment to excellence.



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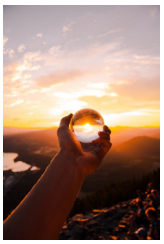
It's Your Turn

- Confidential phone call with me—national perspective.
- Goal: Help you train the team, attract and educate patients, and help you become more profitable.
- Topics: new patient acquisition, case acceptance, team training or management, transitions, etc.
- As a courtesy, there is no charge.



David Schwab, Ph.D.

Accountability Through Patient Surveys

1. How did the treatment you received enhance the quality of your life? In other words, what specific benefits did you derive from the treatment?

David Schwab, Ph.D.

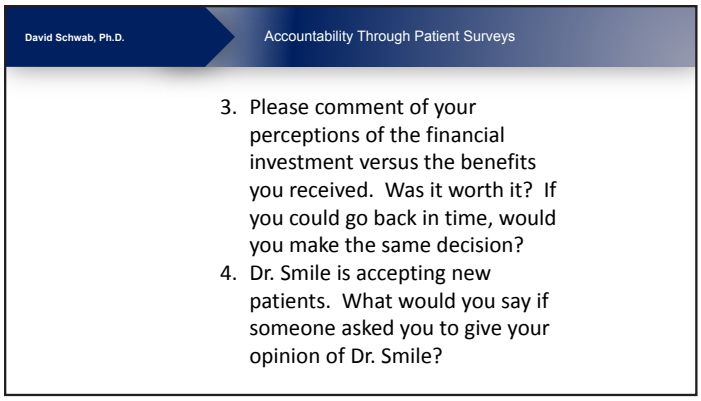
Accountability Through Patient Surveys

1. How did the treatment you received enhance the quality of your life? In other words, what specific benefits did you derive from the treatment?
2. What advice would you give to others who are considering similar treatment?

David Schwab, Ph.D.

Accountability Through Patient Surveys

3. Please comment of your perceptions of the financial investment versus the benefits you received. Was it worth it? If you could go back in time, would you make the same decision?



SELF EVALUATION

Creating a Culture of Accountability in the Dental Practice

1. T/F - According to Amazon, customers always want companies to focus on the lowest price.

2. T/F - Accountability should be internally driven and externally monitored.

3. The course discussed all of the following office manager models except:

a. De Facto Office Manager.
b. Know-it-All Office Manager
c. Office Manager in Name Only.
d. Office Manager Who Does Not Manage.

4. Which of the following companies were presented as being successful due to regimentation:

a. McDonald's
b. Fed-Ex
c. Starbucks
d. All of the above.

5. The staff evaluation system is analogous to:

a. A take home test.
b. Peer review.
c. Personality inventory.
d. Goal setting.

Answer Key: 1. F, 2. T, 3. B, 4. D, 5. A

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oral & facial surgery

Glenn Maron, D.D.S., FACS
Diplomat, American Board of Oral and Maxillofacial Surgery
Fellow, American College of Surgeons
Amy Kuhmichel, D.M.D.
Diplomat, American Board of Oral and Maxillofacial Surgery
Erin Shariff, D.M.D.
Candidate, American Board of Oral and Maxillofacial Surgery
www.jawsoms.com

Safe Management of Pain in Dentistry

Glenn Maron, DDS, FACS

2017

- VANCOUVER, Wash. — Washington's Dental Quality Assurance Commission has fined an owner of Must Love Kids Pediatric Dentistry in Vancouver in connection with the death of a 4-year-old Vancouver boy after a dental procedure in March 2017.

2018

- Kool Smiles in Arizona, has had two deaths tied to procedures performed at the Yuma office.

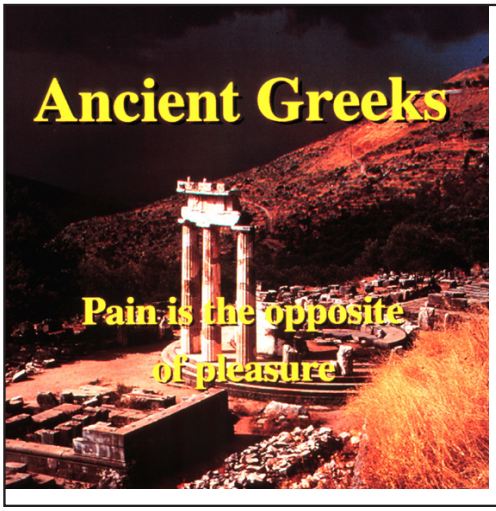
Pain Management in Dentistry

- Introduction
- Nitrous Oxide
- Local Anesthetic Adjuncts
- Post Op Pain Management
  - **Opioids**
  - **NSAIDs**
  - **Other analgesic agents**
    - **Antidepressants**
    - **Anticonvulsants**
  - **Narcotic Crisis in U.S.**
- Monitoring of Sedated Patients

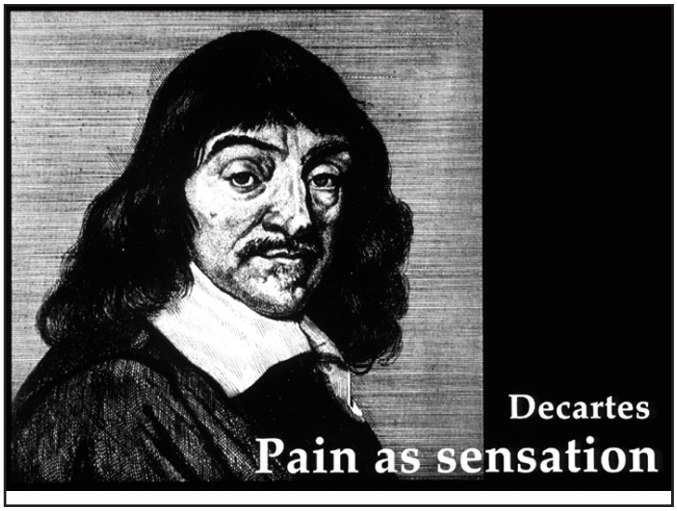
FACT

- Dentists prescribe opioids at a rate higher than nearly every other specialty, responsible for writing 1 out of every 8 prescriptions for immediate-release opioids nationwide.
- Prescription opioids, in turn, are widely considered the root of a national opioid crisis that's caused more than 300,000 deaths since 2000.

What is pain?

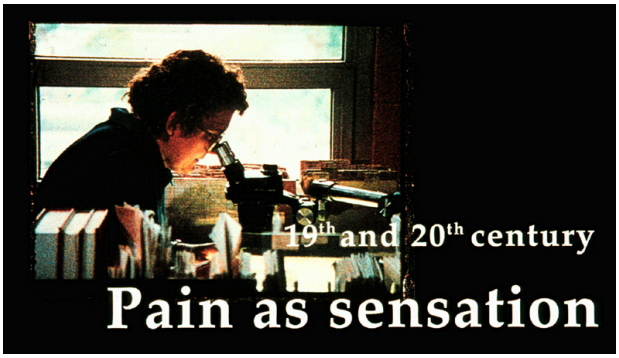


the idea of pain



19th Century

- Widespread disagreement
- Pain as emotion vs sensation



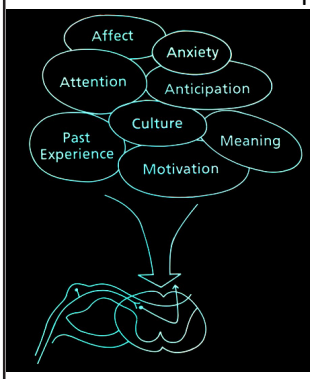
Dichotomous thinking forced clinicians to define…

- What are the target organs?
- Is it "Psychological"?
- Is it "Functional"?
- "Imaginary"
- "All in the head"

IASP Definition of Pain (Merskey&Bogduk),1994

- "Pain is an unpleasant sensory and emotional experience, associated with actual or potential tissue damage or described in terms of such damage"

PAIN

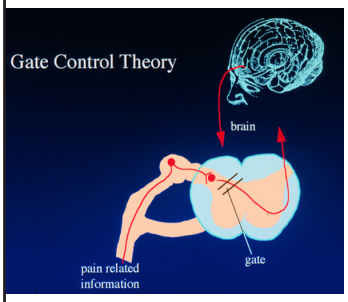


- A complex biopsychosocial experience
- Sensory
- Affective
- Evaluative
- Affected by
  - Expectations
  - Control, anxiety
  - Context and meaning
  - Past experience/learning

Nociceptive pain

- The body's nervous system is working properly.
- There is a source of pain, such as a cut, a broken bone or a toothache.
- The body's system of telling the brain that there is an injury starts working.
- This information is passed on to the brain and one becomes aware that they are hurting

Normal physiological pain



- Activation of specialized primary sensory neurons/high threshold nociceptors (tissue damaging stimuli)
- Info conveyed to dorsal horn via small diameter A(delta) and C fibers
- Synapse mainly in superficial laminae
- Cross and ascend to Brain

Neuropathic pain

- The body's nervous system is not working properly.
- There is no obvious source of pain, but the body nonetheless tells the brain that injury is present

Traditionally

- all pain has been viewed as a symptom of disease or injury

Now

- know that chronic pain is a problem in its own right, often more debilitating and intolerable than the disease process which initiated it.

Melzack & Wall,1988

Acute vs Chronic Pain

- Acute Pain
  - Physiological or "nociceptive" pain
  - Signals tissue damage
  - Serves a useful biological purpose
- Chronic Pain
  - Pathophysiological pain
  - Neural response to tissue injury
  - Serves no useful biological purpose

Definition of Patho-physiological Pain Assists in Understanding

- Allodynia: Pain evoked by a stimulus that does not normally cause pain
- Hyperalgesia: Increased response to a stimulus which is normally painful
- Anesthesia Dolorosa: Pain in an anesthetic area
- Phantom Pain: Pain in an area that does not exist.

Fear:

A short-lived feeling that something terrible is going to happen; accompanied by physiologic changes (increased HR, perspiration) and overt behavior signs (jitteriness, shaking) "Fight or Flight"

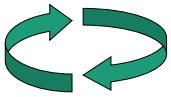
IMMEDIATE THREAT

Odontophobia

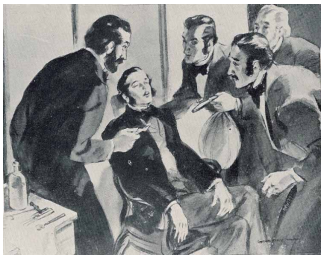
- The severe fear of teeth or of dentistry and of receiving dental care.
- It is estimated that as many as 75% of U.S. adults experience some degree of dental fear, from mild to severe.
- 5 to 10% of U.S. adults are considered to experience dental phobia.
- They are so fearful of receiving dental treatment that they avoid dental care at all costs.

Cycle of Avoidance

- Some patients avoid dental care due to fear until they experience a dental emergency requiring invasive treatment, which can reinforce their fear of dentistry.



Nitrous Oxide



Advantages of Nitrous Oxide

- Rapid onset (almost equal to that of iv)
- Titratable (up AND down)
- Depth of sedation readily altered
- Flexible duration of action
- Rapid recovery from sedation
- Safe

Advantages of Nitrous Oxide

- No injection required
- Very few side effects
- No adverse effects on vital organs
- May substitute for local anesthesia in selected circumstances (e.g., soft tissue procedures)

Disadvantages of Nitrous Oxide

- Initial cost of cumbersome equipment is high
- Continuing costs of gases high
- Equipment takes up operatory space
- Lack of potency
- Requires constant patient cooperation
- Chronic exposure of office personnel

Indications for Inhalation Sedation

- Mild to moderate dental anxiety
- Medically compromised patients
- Gagging (impressions, radiographs)

Relative Contraindications to Inhalation Sedation

- Severe dental anxiety & fear
- Compulsive personalities
- Poor past experience with oral sedation
- Claustrophobia
- Pregnancy
- URI, COPD

Physical Properties of Nitrous Oxide

- A non-flammable, sweet-smelling gas
- Relatively insoluble
- Stable
- Stored in BLUE cylinders

Chemical Properties

- Nitrous oxide is inert
- Quickly absorbed from the alveoli of the lungs and physically dissolved in the blood
- Eliminated unchanged from the body
- Gas is rapidly excreted from the lungs when the concentration gradient is reversed

CNS Pharmacology

- CNS depressant
- Weak anesthetic potency- MAC >100%
- Relatively potent analgesic
- Response to suggestion enhanced
- Cough reflex moderately suppressed

Cardiovascular Effects

- Parallels inhaling 100% oxygen
- Slight decrease in heart rate
- No evidence of increased myocardial irritability
- No change to slight decrease in blood pressure
- May help normalize BP in anxious patient

Respiratory Effects

- Slight stimulation-resulting in increased tidal volume
- Sense of smell decreased

Gastrointestinal Effects

- Nausea and Vomiting
  - Very low incidence
  - Usually, no special eating instructions prior to administration
  - Correlation with fluctuating concentrations of N2O?

Relative Contraindications

- COPD-bronchitis, emphysema
- URI
- Otitis Media
- Severe emotional disturbances
- Claustrophobia or irrational fear of “gas”
- Maxillofacial deformities or nasal obstructions
- Pregnant patients-especially in first trimester

Equipment

- Numerous types of machines available
- Fail-safe mechanism- minimum 20% O2
- Audible or visual alarm if O2 interruption
- Flush lever
- Pin-indexed yoke system
- Gas cylinders color coded
  - Green-oxygen
  - Blue-nitrous oxide

Patient Selection

- Medical history and physical exam
- Informed consent
- Mild-moderate anxiety
- Strong gag reflex
- Capacity to be compliant and follow directions

Administration

- Prior to seating patient
  - Make sure equipment is set up and working properly
  - Select nasal hood of proper size
  - Have patient use restroom if necessary
  - Make sure you have an assistant in room at all times

Administration-continued

- Introduce child to equipment (slowly)-use tell, show, do
- Make adjustments to ensure mask fits snugly but comfortably
- Establish a total liter per minute of gases first with 100% O2
  - 3-7 liters per minute depending on size of patient

Administration-continued

- Encourage the patient to breathe through nose
  - Light finger pressure under lower lip
  - Tap on nosepiece
  - Keep reminding them verbally
- Slow vs. Rapid induction

Administration-continued

- Watch patient for signs of proper level of sedation
- Therapeutic nitrous oxide levels usually between 30%-50%
- Do NOT exceed 50%
- Vomiting is rare but watch for signs of nausea
- If patient does vomit-
  - Don't panic
  - Turn head to side
  - Suction mouth
  - 100% O2 and complete procedure

Diffusion Hypoxia

- Upon termination of nitrous oxide administration, the outpouring of of nitrous oxide into the lungs can dilute the amount of oxygen available to the patient
- This danger is probably insignificant in healthy patients

Administration-continued

- Upon termination of procedure
  - Inhalation of 100% O2 for 3-5 minutes
  - Have patient sit up in chair for several minutes prior to discharge.

Minimizing Risk

- Good scavenging system
- Adequate circulation of room air
- Limiting speech and mouth breathing of patient
- Proper size nasal hood
- ? Use in uncooperative child

Safety Issues for Dental Personnel

- Chronic exposure (>8 hrs. per week)
  - Increases in liver, kidney and neurologic diseases
  - Increase in spontaneous abortion
  - Increase in congenital abnormalities

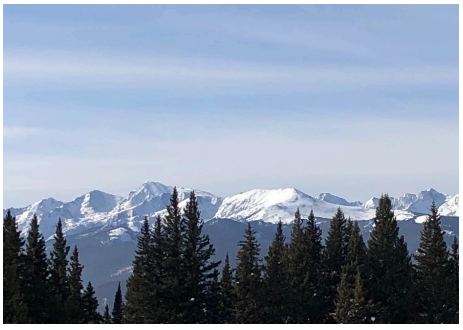
Potential for Abuse

- A real concern in our profession
- Secure safely
- Common signs of abuse
  - Parasthesia or clumsiness of hands and legs
  - Loss of balance
  - Unsteady gait

Remember!

- Nitrous oxide is not a substitute for traditional behavior management techniques
- It should be considered an adjunct to aid in the management of the mild to moderately anxious patient who is capable of cooperating in the dental chair

Oral Pre-medication



Advantages of Oral Sedation

- Universal acceptability
- Ease of administration
- Low cost
- Incidence of adverse reactions less than some other techniques
- No needles, syringes or special techniques
- Various drugs, dosage forms available
- Allergic reactions less severe than seen in parenteral administration

Disadvantages of Oral Sedation

- Reliance on patient compliance
- Prolonged, variable onset of action
- Unreliable absorption of drug from G.I. tract
- INABILITY TO TITRATE
- Prolonged duration of action
- Ineffective in anxiety levels > mild/mod.
- Adverse interactions of sedative drugs

Idiosyncrasy

An unexpected, unpredictable adverse or undesirable drug action

Indications for Oral Sedation

- Mild to moderate dental anxiety
- To assist with restful sleep on night before dental appointment

Contraindications to Oral Sedation

- Severe dental anxiety & fear
- High probability of adverse drug interaction
- Poor past experience with oral sedation
- Allergy to drug being used
- Other drug contraindications (pregnancy, glaucoma, etc.)
- Need for rapid onset and/or rapid recovery

Oral Sedation: Expectations

- Pain control, reduced need for local anesthesia
- Control of defiant behavior, mentally-challenged patients
- Amnesia
- Lack of adverse effects
- Consistency from appointment to appointment
- “A good night’s sleep” the night before the dental procedure

Sedation should NOT be used to control pain and does NOT substitute for good local anesthesia

"Sedation with local, beats sedation with vocal"
Bob Bays

Enteral Sedation

- Light to mild conscious sedation administered not for analgesic effect
- primarily for behavioral management (drug absorbed through GI tract or oral mucosa)

Factors Influencing Oral Drug Absorption

- Lipid solubility
- pH of gastric tissues
- Mucosal surface area
- Gastric emptying time
- Dosage form of drug
- Drug inactivation ("first pass effect")
- Presence of food in stomach
- Bioavailability of drug
- Genetics

Characteristics of Benzodiazepines

- Facilitate binding of GABA (endogenous inhibitory transmitter)
- More favorable therapeutic index than other agents
- Can produce anterograde amnesia
- Agents differ in onset, duration & metabolism
- Agents differ in regard to sedation vs. hypnosis

Advantages of Benzodiazepines

- Specificity of effect
- Well absorbed by the oral route
- High margin of safety/therapeutic index
- Effective as single agents
- Specific reversal agent available (flumazenil)

Reasons NOT to use BZs…

- Allergy
- Narrow angle glaucoma
- Chronic BZ ingestion
- Tricyclic antidepressant therapy

Classification of Benzodiazepines

- Alprazolam: antianxiety
- Diazepam: antianxiety
- Lorazepam: antianxiety/sedative-hypnotic
- Midazolam: sedative/hypnotic
- Oxazepam: antianxiety
- Triazolam: sedative/hypnotic

Diazepam (VALIUM)

- Usual dose range: 2 - 20 mg, 1 hr before appointment (adults)
- Onset: 1 hr (peak levels in 2 hrs)
- Duration: 1 - 3 hrs
- Contraindications: allergy, narrow-angle & untreated open-angle glaucoma

Diazepam

- Availability: 2, 5 & 10mg tabs, 5 mg/ml liquid, rectal gel 5 mg/ml
  - We give Rx as follows
  - Dispense 2
    - pt can take 1 po at bedtime night prior to procedure
    - Then take 1 –an hour prior to appointment

Lorazepam (ATIVAN)

- Usual dose range: 2 - 4 mg 1 hr before appointment (adults)
- Onset: 1 hr (peak levels in 2 hrs)
- Duration: 2 - 4 hrs (use for longer procedures)
- Contraindications: allergy, narrow-angle glaucoma
- Precautions: greater likelihood of excessive sedation than with other agents, do not use in cases of depressive disorder/psychosis

Lorazepam

- Availability: 0.5, 1 and 2-mg tabs

Alprazolam (XANAX)

- Usual dose range: 0.25 – 1 mg 1 hr before appointment (adults)
- Onset: 1 hr (peak levels in 1 – 2 hrs)
- Duration: 1 – 2 hrs
- Contraindications: allergy, narrow- and untreated open-angle glaucoma, potent CYP 3A4 inhibitors (e.g., azole antifungals)
- Precautions: sedation intensified by CYP 3A4 inhibitors, produces little or no amnesia or somnolence

Alprazolam

- Availability: 0.25, 0.5, 1 & 2mg tabs, 0.5- and 1 mg/ml liquid

Triazolam
COMMON BRAND(S): Halcion

- Used for insomnia
- Used for sedation dentistry
  - .25mg po 30 minutes prior to procedure
- "DOCS"-****
  - stacked dosing-

Triazolam (Halcion)

- Primary therapeutic use: insomnia: Halcion is labeled for sleep problems that are usually temporary, requiring treatment for only a short time, usually 1 or 2 days and no more than 1 to 2 weeks.
- Adverse effects: CNS depression, amnesia
- Precautions: myasthenia gravis, pulmonary disease, narrow-angle glaucoma, C-IV controlled substance, pregnancy category X
- Dosage forms: tablets: 0.125 and 0.25 mg
- Directions: 0.25 (0.125-0.5) mg 30 min before bedtime or 45 min before treatment
- Clinical duration: 2 hr

- At the start of the new millennium, the DOCS technique was a well-known entity in the dental profession
- Issues with DOCS marketing education
- Stacked dose technique initially marketed as a Titrated Oral Sedation

Bad publicity

- Great deal of negativity surrounding "sleep dentistry"
- Reports of deaths and adverse events begin to surface

Main Concerns of Dental Organizations and Regulatory Agencies

- "Sleep dentistry" was either misleading advertising or promoted unlawful drug administration
- Weekend courses largely devoted to marketing have resulted in inadequately educated clinicians
- Giving additional doses before the full effects of the first dose have occurred may result in oversedation
- "Titration" of oral medication for the purposes of sedation is unpredictable.
- Repeated dosing of orally administered sedative agents may result in an alteration of the state of consciousness beyond the intent of the practitioner.(ADA Guidelines)

DOCS

As negative publicity surrounds "sleep dentistry", DOCS attempts to dissociate from the term
DOCS initiates impressive marketing campaign
Becomes major focus of new dental controversy

The Research

- Very little data with triazolam in dentistry
- Difficult to obtain good funding
- Off-labeled use
- Safety
- Reversal Agent

Summary of Research

- Given the considerable inter-subject variability in triazolam concentrations and effects, additional research is needed to assess this multidosing strategy before it can be endorsed as a useful and safe sedation sedation technique for managing fearful and anxious patients in dental practice.

Case Review

- 62 yo m had multiple extractions and immediate denture at dentist office
  - 9am-- Premed 10mg Valium
  - 10am-- At beginning of procedure .5mg Triazolam
  - 1130am—Additional .25mg Triazolam
  - 2pm– complete case
  - 3pm pt not responding

Case Review

- Pt is given 100% O2
- Starts CPR
- Dentist gives 2.5mg Romazicon sublingual
- Pt arrests
- EMS arrives
- Pt dies in ICU 3 days later

What causes the sudden death of a patient?

- Respiratory arrest with or without airway obstruction
- Cellular hypoxia without respiratory depression (CN, CO)
- Severe hypotension (hypovolemic, etc.)
- Lethal cardiac dysrhythmias
- Post-seizure complications (pulmonary aspiration, hypoxia, brain damage)
- Organ damage (e.g., APAP/liver)

Why does this patient die

- No post op monitoring
- No way to titrate and assess release of oral meds into system
- Wrong dose of flumazenil
  - Dose is .2mg IV or at most 2mg SL in divided dose
- No ACLS

Midazolam(Versed)

- Now available from Ranbaxy Pharmaceuticals as 2 mg/ml cherry syrup (Princeton, NJ)
- Usual dosage range: 0.25 – 0.5 mg/kg single dose up to a total maximum of 20 mg (children)
- Onset: 10 – 20 min
- Duration: 30 – 60 min
- Contraindications: allergy, narrow-angle glaucoma

Midazolam

- Precautions: may cause intense CNS/respiratory depression
- NOT TO BE ADMINISTERED AT PATIENT'S HOME
- Availability: 2 mg/ml syrup

Antihistamines

- Benadryl
- Vistaril
- Phenergan

Benadryl- Diphenhydramine

- widely used in nonprescription sleep aids for insomnia.
  - either alone or in combination with other ingredients such as acetaminophen in Tylenol PM or ibuprofen in Advil PM.
  - Diphenhydramine can cause sedation and has also been used as an anxiolytic.
- Dose 25-50mg

Hydroxyzine (ATARAX, VISTARIL)

- Usual dose range: 50 – 100 mg, 1 hr before appointment (adults), 1.1 – 2.2 mg/kg (children)
- Onset: 30 min (peak effect 2 hrs)
- Duration: 3 – 4 hrs
- Contraindications: allergy
- Precautions: same as for benzodiazepines, more anticholinergic actions (glaucoma, respiratory disease)

Hydroxyzine

- Availability: 10-, 25-, 50- & 100-mg tabs; 10mg/5 ml syrup (ATARAX); 25-, 50-, & 100-mg caps and 25mg/5 ml oral suspension (VISTARIL)
- Non-controlled substance

Promethazine (PHENERGAN)

- Usual dose range: 25 – 50 mg, 1 hr before appointment (adults), 2.2 mg/kg (children, when used as SOLE sedative agent)
- Onset: 1 hr (peak effect 2 hrs)
- Duration: 3 – 4 hrs (may be up to 12 hrs)
- Contraindications: allergy, conditions worsened by anticholinergic actions
- Precautions: same as for other sedatives, also seizure disorders

Promethazine

- Availability: 12.5-, 25- & 50-mg tabs; 6.25 mg/5 ml syrup; 25 mg/5 ml syrup
- Not a controlled substance

Agents NOT Recommended (Adults)

- Alcohol
- Chloral hydrate
- Opioids
- Multi-Drug Cocktails
- Repeat Dosing

New Adjuncts

- Kovanaze
- Exparel

Intra-nasal Dental Anesthesia

- On June 29, 2016, the U.S. Food and Drug Administration approved Kovanaze™ (St. Renatus, L.L.C.), a needleless, intranasally administered spray combination of the ester anesthetic tetracaine HCl plus the vasoconstrictor oxymetazoline HCl (6 mg/0.1 mg per 0.2 mL) for regional maxillary anesthesia.

Kovanaze

is indicated for regional pulpal anesthesia when performing a restorative procedure on #4 through 13 and A through J in adults and children who weigh 40 kg (88 lbs) or more

Kovanaze issues

- 1) The dosage.
- Current guidelines call for two dosages, 10 minutes apart and dosage to begin procedure time- 14 minutes.
- That is a long time to keep a patient idle in a chair, especially a kid.
- It will be hard to incorporate this change of procedure into a busy practice with a shot to procedure, which takes 5-7 minutes.
- Patients hate the shot, but they also value their time!

Kovanaze issues

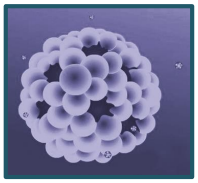
- 2) The price.
- Two 200microliter sprayers constitute one dose, and for some adults, a third dose may be necessary.
- The cost to the dentist is $45-$70.
- How will that cost be passed on to the patient?
- Most dentists code for a procedure, not numbness to do a procedure, so it's going to be a change in mindset for the patients and the dental staff.
- It may be a no-brainer for a boutique dentist office,
- but adding extra time and cost to an appointment will make more than a few patients hesitate.

Exparel

- Exparel (bupivacaine liposome) is a non-opioid postsurgical analgesic used in the management of postsurgical pain.
- Exparel provides prolonged postsurgical analgesia for up to 72 hours with a single-dose local administration at the surgical site.

EXPAREL Uses DepoFoam® to Release Bupivacaine Over Time

- **By utilizing the DepoFoam product delivery platform, EXPAREL delivers therapeutic levels of bupivacaine over time**
- **DepoFoam is a multivesicular liposomal product delivery technology that encapsulates drugs without altering their molecular structure and then releases them over a desired period of time[1]**

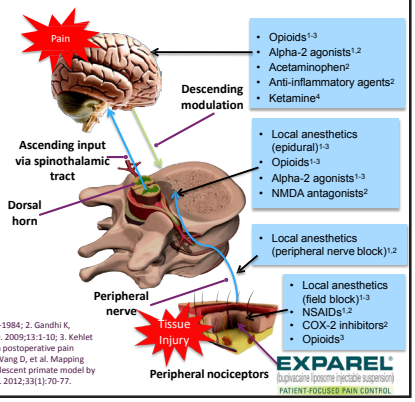


- **DepoFoam utilizes membrane components that are based on natural and well tolerated sources and are cleared by normal metabolic pathways**
- **DepoFoam is <3% lipid, biodegradable, and biocompatible**

1. Lambert WJ, Los K. In: Rathbone MJ et al, eds. *Modified-Release Drug Delivery Technology*. Volume 2. 2nd ed. New York: Informa Healthcare; 2008: 207-214.

A Multimodal Approach Uses a Variety of Therapeutics to Minimize Opioid Use and ORAEs[1-4]

- **Simultaneous use of a combination of ≥2 analgesics that act at different sites within the central and peripheral nervous systems in an effort to**
  - **Reduce pain**
  - **Minimize opioid use and ORAEs**



ORAE, opioid-related adverse event;
NSAID, nonsteroidal anti-inflammatory drug;
NMDA, N-methyl-D-aspartate; COX, cyclooxygenase .

1. Gottschalk A, Smith DS. *Am Fam Physician*. 2001;63(10):1979-1984; 2. Gandhi K, Viscusi E. *The Journal of New York School of Regional Anesthesia*. 2009;13:1-10; 3. Kehlet H, Dahl JB. The value of "mulitmodal" or "balanced analgesia" in postoperative pain treatment. *Anesth Analg*. 1993;77(5):1048-1056; 4. Yu H, Li Q, Wang D, et al. Mapping the central effects of chronic ketamine administration in an adolescent primate model by functional magnetic resonance imaging (fMRI). *Neurotoxicology*. 2012;33(1):70-77.

- The safety and efficacy of EXPAREL have only been demonstrated in bunionectomy and hemorrhoidectomy
- Broad label indication: Used in more than 1,000,000 patients since its launch in April 2012

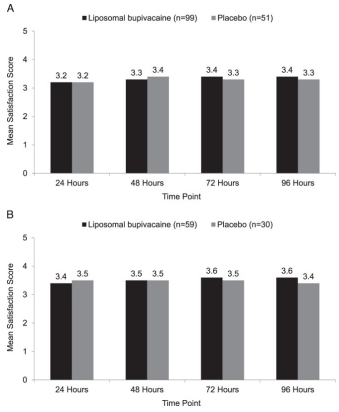
Exparel

- IINFILTRATION WITH EXPAREL
  - Lateral aspect of mandible for teeth #17 and #32
  - Buccal aspect of teeth #1 and #16

Exparel

- In recent weeks, two different studies have concluded that the medicine, Exparel, is no more effective than an older form of the treatment.
- Exparel combines bupivacaine, an injectable drug that has been a standard of care, with a proprietary technique for administering pain relief.

Pain Assessment- Exparel



Exparel- Conclusion?

- It is reasonable to question whether Exparel would have ever been marketed for dentistry if it were not for the opioid crisis, especially since literature exists showing similar benefits from currently available bupivacaine solutions.

Post-Op Pain Management

Current Options for Treatment

- "Pain Management"
  - Education
  - Therapeutic use
  - Psychological techniques

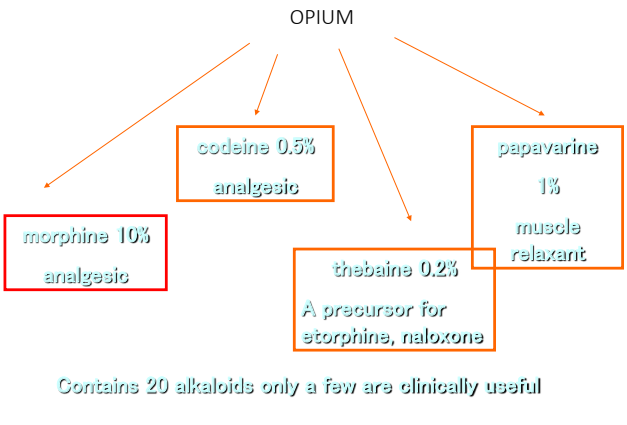
Current Options for Treatment

- "Rational Poly-Pharmacy"
  - Opioids
  - NSAIDS
  - Dual action (methadone, tramadol)
  - Antidepressants
  - Anticonvulsants

OPIOIDS

"POPPY JUICE" (OPIUM)

- Papaver somniferum
- Accounts of it's use in Egyptian, Greek and Roman documents
- At first used for Rx dysenteries
- By the mid 16th century many uses appreciated

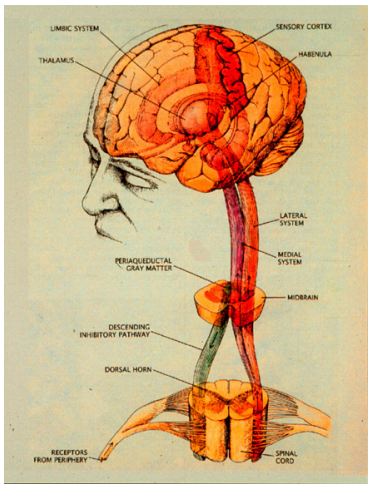


History of Opioid Development

- 1806 Sertürner isolated a pure substance from opium ⇒ "Morphine"
- Discovery of other alkaloids quickly followed
  - **Codeine (1832)**
  - **Papaverine (1848)**
- By the mid 19th c. use of the pure alkaloids began to spread
- In U.S. opioid abuse was accentuated by unrestricted availability until early 20th Century
  - **cultivation of the opium poppy is now restricted by international agreement**

History of Opioid Development

- Search for potent analgesics free of addictive potential began in early 1920's
- WW2 era⇒ synthetic opioids⇒ meperidine, methadone introduced
- Opioid antagonists ⇒naloxone developed
- Mixed agonist antagonists (pentazocine,butorphanol)
- This led to discovery of opioid receptors



Distribution of Opioid Receptors

- Primary afferent nociceptors
- Dorsal horn spinal cord nociceptors
- Rostral ventral medulla
- midbrain

Endogenous Opioid Peptides 3 Families

- Enkephalins
- Endorphins
- Dynorphins

The body is equipped with an extensive pain defense system that we can manipulate using drugs, part of this system is opioid mediated

Specific Opioid Agonists

- Phenanthrenes
  - morphine, hydromorphone, oxycodone, codeine, diacetylmorphine (heroin)
- Phenylpiperidines
  - fentanyl,sufentanyl, meperidine

Specific Opioid Agonists

- Phenylheptylamines
  - methadone
- Morphinans
  - levorphanol
- Phenylheptylamines
  - Propoxyphene (in general avoid)

Clinical uses

- Analgesia
- Cough suppression (dextromethorphan)
- Antidiarrheal action (loperamide)

CODEINE

- By itself is useless for pain
- With acetaminophen can be useful for mild/mod. Pain
- Adverse effect- severe nausea/vomiting
- Dose-Tablets: 15mg, 30mg, 60mg. Elixir: 12mg/5ml (teaspoon)
  - Q3-4H

HYDROCODONE

- Combined with acetaminophen
  - 2.5,5, 7.5,10mg
  - Lortab, Vicodin, Lorcet
- Good for mild/mod. Pain
- Adverse effects-nausea (less than codeine)
- Dose- Q3-4hours

HYDROCODONE

- Combined with ibuprofen
  - 7.5mg
  - Vicoprofen 7.5/200
- Excellent for mild/mod. Pain
- Dose- Q4-6H

Ziccardi et al, JOMS, june 2000

- Pain relief scores were significantly better for Vicoprofen than placebo throughout the study and significantly better than for acetaminophen with codeine from 2 through 8 hours after dosing.

OXYCODONE

- Also combined with acetaminophen
  - 5,10mg combos
- Percocet, Roxicet,Oxycontin
- Dose
  - 1 PO Q4-6H

Demerol- meperidine

- Alone is not very effective orally
- High incidence of nausea and vomiting
- If used must also Rx anti-nausea med.
  - Demerol 50mg
  - Phenergan 25mg

TRAMADOL-ULTRAM

- ULTRAM is a centrally acting synthetic opioid analgesic.
- Its mode of action is not completely understood.
- Two complementary mechanisms appear applicable: binding of parent and M1 metabolite to μ-opioid receptors and weak inhibition of reuptake of norepinephrine and serotonin.

ULTRAM

- In contrast to morphine, tramadol has not been shown to cause histamine release.
- At therapeutic doses, tramadol has no effect on heart rate.
- Dosing- 50mg PO Q6h

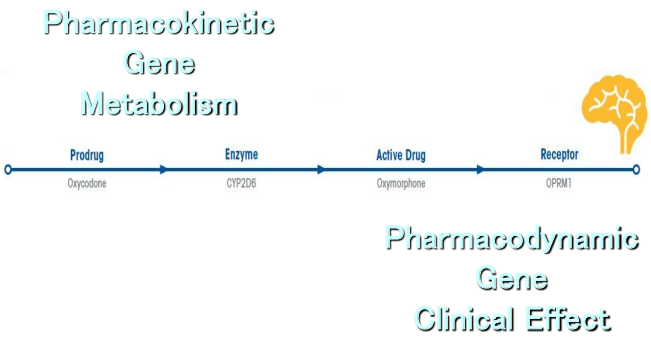
ULTRAM ER

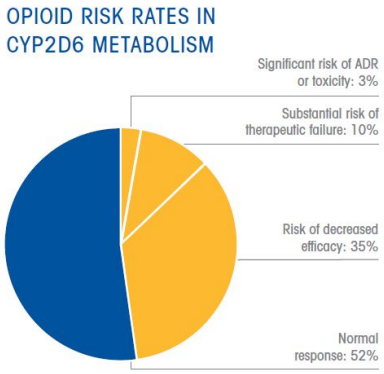
- ULTRAM ER should be initiated at a dose of 100 mg once daily
- Titrated up as necessary by 100mg increments every five days to relief of pain and depending upon tolerability.
- ULTRAM ER should not be administered at a dose exceeding 300 mg per day

Ultracet

- Tablets combines two analgesics, tramadol 37.5 mg and acetaminophen 325 mg.
- Recommend-
  - Take 1 Ultracet and 1 tylenol to gain ideal dosing of acetaminophen

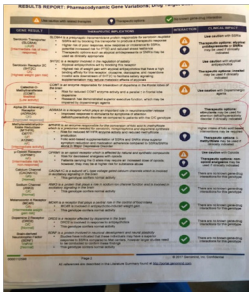
Pharmacogenetics

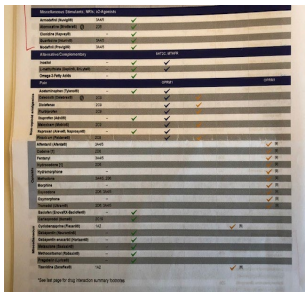




Poor Metabolizer

- CYP2D6 Poor Metabolizer (PM): This patient's genotype is consistent with a lack of CYP2D6 enzymatic activity.
- PMs are at increased risk of drug-induced side effects due to diminished drug elimination of active drugs
- lack of therapeutic effect resulting from failure to generate the active form of the drug, as is the case with pro-drugs
- 10-15% of Caucasians





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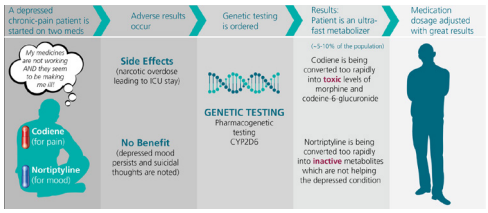
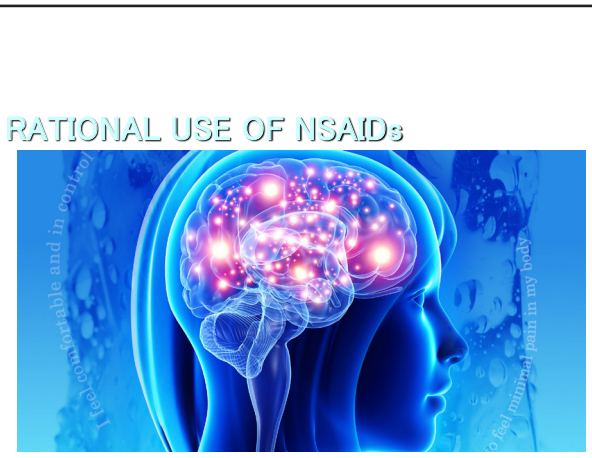


Bottom Line

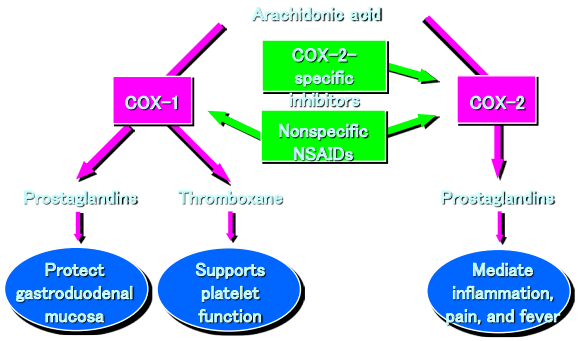
- Avoid Codeine all together-
  - Other than for cough suppression
- Great concern about hydrocodone in some patient populations



WHAT DO WE DO TODAY?

- Present uses: Rational/Pitfalls
- What NSAIDS should we use in the dental population?
- WHY?
- Which one of several?
- What is the near FUTURE for NSAIDS?

Mechanism of Action of NSAIDs



NSAID Facts

- NSAIDs are the most commonly used medications in the world
- Over 100 million prescriptions in the USA
- 1 in 7 Americans takes NSAIDs or ASA
- 1.2% of Americans take NSAIDs on a daily basis
- NSAIDs are the mainstay of treatment for musculoskeletal pain and inflammation.

APPROVED INDICATIONS for NSAIDs

- RA
- OSTEO
- AS
- PAIN
- DYSMENORRHEA
- JUVENILE RA
- TENDONITIS
- BURSITIS
- DENTAL PAIN
- ACUTE GOUT
- FEVER
- SUNBURN
- MIGRAINE
- CLUSTER HEADACHE
- ACNE VULGARIS
- MENORRHAGIA
- PREMENSTRUAL SYNDROME
- CYSTOID MACULAR EDEMA

WHAT ARE WE TRYING TO TREAT?

- PAIN
  - ACUTE
  - CHRONIC
  - PROPHYLACTIC
- INFLAMMATION
- PLACEBO EFFECT?

Why NSAIDS?

- Ineffectiveness of simple analgesics to reduce inflammation
- Drawbacks of using opioids
  - Reluctance of utilizing opioid therapy due to adverse effects (AEs) and other limitations
  - Regulatory status of narcotics make their use cumbersome

Ibuprofen- Advil, Motrin

- Used for the management of mild to moderate pain, fever, and inflammation.
- Ibuprofen blocks the enzyme that makes prostaglandins (cyclooxygenase), resulting in lower levels of prostaglandins.
- As a consequence, inflammation, pain and fever are reduced.
- The FDA approved ibuprofen in 1974.

Ibuprofen

- Dosing
  - 400-800mg PO Q6-8H
  - Reduce dose in elderly

Diflunisal-Dolobid

- Mild to Moderate Pain
  - Starting dose is 1,000 milligrams, followed by 500 milligrams every 8 to 12 hours
- Osteoarthritis and Rheumatoid Arthritis
  - The usual dose is 500 to 1,000 milligrams per day in 2 doses of 250 milligrams or 500 milligrams.
  - The maximum recommended dosage is 1,500 milligrams per day.

Naproxen- Aleve,Naprosyn

- Rheumatoid Arthritis, Osteoarthritis, MPD
  - Dose: 250-500 mg 2 times a day (morning and evening). EC-Naprosyn is taken in doses of 375 or 500 milligrams twice a day.
- Mild to Moderate Pain
- Starting dose is 500 milligrams, followed by 250 milligrams every 6 to 8 hours as needed.

Ketorolac- Toradol

Indication

- Short-term (<5 days) management of moderately severe acute pain.

  The combined duration of use of Toradol IV/IM and Toradol Oral is not to exceed 5 days.

Toradol

- Dosing
  - 30mg IV/IM
  - For the first dose 20 milligrams and then 10 milligrams every 4 to 6 hours
- DO not exceed 5 days

COX-2 Selective

- Major advantages over nonselective NSAIDs:
  - Significantly less GI toxicity
  - No effect on platelets* (bleeding time)
  - Bad rap due to Cardiac affects!!!

Summary of Acute Pain Studies in Adults

- Cox2s have consistently demonstrated analgesic efficacy in a variety of moderate-to-severe pain models.
- Onset of pain relief occurred within 45 minutes in single-dose studies of postoperative dental pain.
- Management of acute pain beyond five days has not been studied.

Celebrex-Dosing

- Osteoarthritis/MPD
  - 200mg PO QD
- Acute pain
  - 400mg PO initial postop
  - 200mg additional dose 1st day
  - 200mg PO BID after that

Adverse Effects of NSAIDs

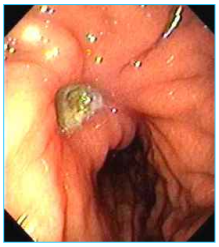
Gastrointestinal	● Peptic ulceration; gastrointestinal (GI) hemorrhages ● Esophagitis and strictures ● Small and large bowel erosive disease
Renal	● Reversible acute renal failure ● Fluid and electrolyte disturbance ● Chronic renal failure ● Interstitial nephritis ● Nephrotic syndrome
Cardiovascular	● Exacerbation of • Hypertension • Congestive heart failure (CHF) • Angina ● Decreased platelet aggregation

PLATELET EFFECTS of NSAIDs

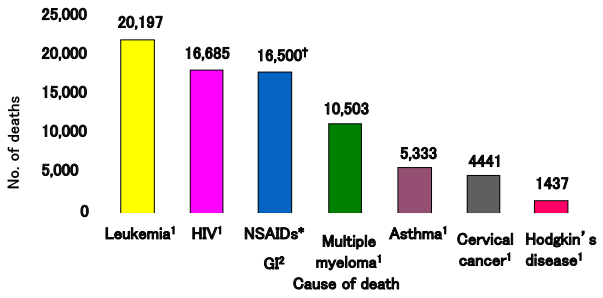
- QUALATATIVELY EXACTLY THE SAME AS ASPIRIN
- DIFFERENCES ARE LENGTH OF TIME
  - ASPIRIN BINDS PERMANENTLY AND LASTS AS LONG AS THE PLATELET LIVES/8-9 DAYS
- NSAIDS BIND REVERSABLY AND EFFECT IS GONE WHEN DRUG IS OUT OF THE SYSTEM

Risk of GI Complications and Death With NSAIDs

- Risk of GI complications is 3 to 10 times higher in users of nonspecific NSAIDs vs nonusers
- ≈107,000 hospitalizations and 16,500 deaths annually related to nonspecific NSAID
- Even 1 week of nonspecific NSAID use can cause ulcers



Mortality From NSAID-induced GI Complications* vs Other Diseases in the United States



NSAID Costs: GI Complications

- 31 to 40% of total cost of treating arthritis patients is due to GI complications from NSAIDs
- $10,000 to $20,000 per patient per hospitalization for an NSAID-related GI event
- Total Annual Cost: $3.9 Billion

NSAIDS –Bottom Line

- These drugs have potent effects and therefore use of Advil, Motrin etc. should be monitored by the dental practioner
- Toradol/Celebrex have fewer GI problems but ? Cardiac concerns

Tricyclic Antidepressants are Analgesic In Neuropathic Pain

- Analgesic effect is independent of the antidepressant effect
- Analgesia occurs earlier and at lower doses than the antidepressant effect
- Effective in sharp, lancinating and chronic dysesthetic types of pain

Antidepressant Analgesics

- Often used as adjuvants but can be used as sole analgesic
- Mild-severe pain especially where sleep disturbance needs to be addressed
- Usual start dose is 10-25 mg po hs
- Start with desipramine (Norpramin)
- Titrate in 10-25 mg increments every 5-7 days to minimum effective dose not causing limiting side effects

Antidepressant Analgesics

- Usual range for analgesic response (10-75 mg qhs, some require up to 150 mg)
- Mechanism of action
  - Inhibition NA/5HT re-uptake
  - Block of excitatory amino acid receptors (NMDA)
  - Inhibition of adenosine uptake (caffeine blocks actions in animal studies)

Anticonvulsants as Analgesics

Generally used as adjuvants in pain with sensitization
Efficacy similar to amitriptyline, different side effects
Settle down nerve firing (probable mechanism⇒ hi voltage neuronal Ca channel blockade)
Most commonly used agents

Gabapentin (Neurontin®) dose 300-3600 mg/day, in selected patients up to 6000)
Carbamazepine (Tegretol®) dose 800-1200 mg/day

Avoid Carbamazepine in cases of liver dysfunction

NARCOTIC CRISIS IN AMERICA

Opioid Crisis

- About 45 people a day, more than 16,600 people a year, die from overdoses from taking opioid drug
- For every death, more than 30 others are admitted to the emergency rooms
  - This includes methadone, morphine, Oxycodone or hydrocodone combined with acetaminophen (Lortab and Vicodin)

Prescription Drug Abuse -Myth or Fact?

- Rx drugs provide a medically safe high

  -Myth, Rx drugs are EXTREMELY dangerous to physical, mental, emotional, & social health.
- 1 in 5 teens report abusing Rx drugs

  -Fact, 19% or 4.5 million abused Rx that were not prescribed to them.
- Teens use Rx drugs only to get high

  -Myth, teens use Rx drugs to relieve pain, sleep better, experiment, help with concentration & alertness
- Rx drugs are safer than street drugs

  -MYTH! Teens believe Rx drugs are responsible, controlled or safe…it is completely wrong.

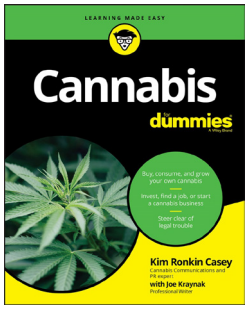
Rx Drugs

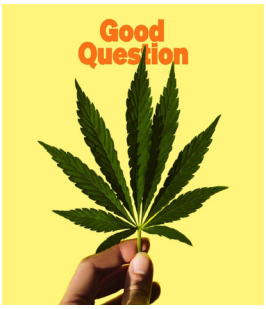
•Teens are turning away from street drugs & using Rx drugs to get high.
•New users Rx drugs have caught up with new users of Marijuana
•Next to Marijuana, the most common illegal drugs teens are using to get high are Rx medications
•Teens are abusing Rx drugs because they believe the myth that these drugs provide a medically safe high
•The majority of teens get Rx drugs easily and for Free, often from friends or relatives.

Rx Drugs

- Girls are more likely than boys to intentionally abuse Rx drugs to get high
- Pain relievers such as OxyContin and Vicodin are the most commonly abused Rx drugs by teens
- Adolescents are more likely than young adults to become dependent on Rx medication.

Cannabis





PHARMACOLOGY

- The pharmacokinetics of cannabinoids are difficult to predict because the THC concentration in any one delivered dose depends on several variables, including the THC concentration of the cannabis products, the route of delivery, and the metabolism and elimination of the cannabinoids.

Physiological effects of marijuana

Effects of Marijuana

	Acute effects	Chronic effects
Cardiovascular	Tachycardia Vasodilation Orthostasis	Atheromatous disease
Pulmonary	Bronchodilation Hyperreactivity Airway edema	Chronic bronchitis Emphysema
Central nervous system	Anxiolysis Anxiety Paranoia/psychosis Euphoria Dizziness Headache Memory dysfunction Analgesia	Similar to acute effects but tolerance develops, requiring higher doses for similar effects
Gastrointestinal	Antinausea Increased appetite Abdominal pain	Hyperemesis
Endocrine	None	Gynecomastia Anovulation Galactorrhea

PREOPERATIVE CONSIDERATIONS

- Preoperative patients with a known or suspected history of marijuana use should be asked about the duration, frequency, and route of use.
- In addition, it is necessary to ask about the most recent intake.
- Care should be taken to reassure patients that information on illicit use of cannabis products is only being used to help guide safe perioperative care.
- It is key to assess for signs and symptoms of acute intoxication, because the most concerning anesthetic implications are related to acute intoxication.

PREOPERATIVE CONSIDERATIONS

- If patients exhibit central nervous symptoms of acute cannabis intoxication, care should be taken to assess for symptoms of escalating anxiety, paranoia, or psychosis, because these may result in a more violent emergence from anesthesia.

INTRAOPERATIVE CONSIDERATIONS

- human study of the propofol induction dose required to achieve a bispectral index (BIS) <60 in self-reported cannabis users showed that they required significantly higher induction doses of propofol when compared to self-reported cannabis nonusers

Anesthesia and Sedation for marijuana users

- 2019 study in Colorado outpatient endoscopy verified that marijuana users require up to 2-3 x normal dosing for sedation.

POSTOPERATIVE CONSIDERATIONS

- Of particular interest in this phase of care is the relationship between cannabis and analgesia. Cannabinoids have been used for certain chronic pain conditions, but evidence is lacking on the use of cannabis for acute pain.
- Despite this, there is a perception among perioperative patients that cannabis may be helpful in decreasing postoperative pain.
- Recent trials have actually shown higher pain scores and greater analgesic use in the postoperative period among cannabis users.

Prescription Opioid Distribution after the Legalization of Recreational Marijuana in Colorado

- Colorado had a significantly greater decrease in codeine and oxymorphone than the comparison states.
- The most prevalent opioids by morphine equivalents were oxycodone and

Methadone.

However, there is a trend downward in use of opioids across the country and there remains a large concern as to any benefit of marijuana in the post op phase of care.

So Are We Responsible For The Opioid Crisis?

- No---??
- YES!!!!!!!
- This is not an inner city problem, the highest rates of narcotic abuse is now in the suburbs and in rural areas
- The government is looking at us closely
- ADA trying to stay ahead of the curve

Dentist –psychosocial issue

- Pain after procedure judged as having a problem
- Did you do something wrong?

Dentist's Role

- Nearly all dispensed dental opioid prescriptions (99.9%; n = 653,650) were for immediate-release opioids and were initial prescription fills (96.2%).
- Hydrocodone (76.1%) and oxycodone (12.2%) combination products were the most frequently dispensed opioids prescribed by dentists.
- People younger than 21 years received 11.2% of dentist-prescribed opioids dispensed

What are we doing wrong

- There is more and more data showing that many patients receive more potent and more doses of opioid medications than they need to manage their post-operative pain.
- It is clear that doctors often prescribe too many doses of narcotics that end up being used by other members of the patient's family, including children.
- We are all aware that some patients give away or sell the opioids we prescribe for them.
- Many individuals with narcotic addiction were, in part, led to or carry on that addiction using opioids legally prescribed for them by their doctors

What does a narcotic abuser look like?




Disposal of Unused Drugs

- Remove the drugs from their original containers and mix them with something undesirable, such as used coffee grounds, dirt, or cat litter.
  - This makes the medicine less appealing to children and pets and unrecognizable to someone who might intentionally go through the trash looking for drugs.

Disposal of Unused Drugs

- Put the mixture in something you can close (a re-sealable zipper storage bag, empty can, or other container) to prevent the drug from leaking or spilling out.
- Throw the container in the garbage.
- Scratch out all your personal information on the empty medicine packaging to protect your identity and privacy.
- Throw the packaging away.

Unsure? Check with FDA

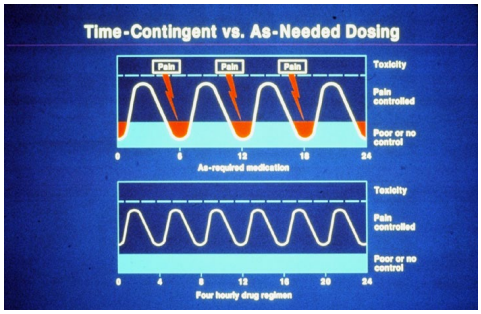
Pain Management Final Thoughts

- Uncontrolled pain causes suffering and will increase morbidity and mortality ⇒ important to treat pain
- Consider the risk/benefit ratio
- Analgesic ladder

Pain Management- General Principles

- Dosing to effect
- For continuous pain use time contingent dosing
- Rational "poly-pharmacy" (use adjuvants)

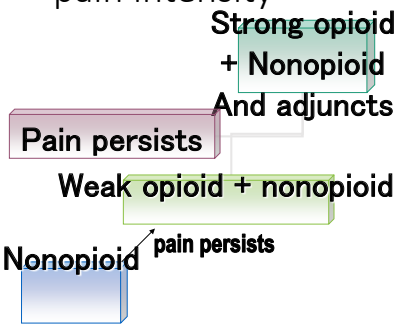
Therapeutics
General Principles



Analgesic Ladder
Agents chosen according to pain intensity

- Mild (1-4)
  - **Non-opioid**
  - **Adjuvants**
- Mild-Mod (5-6)
  - **Non-opioid+ weak/low efficacy opioid**
  - **Adjuvants**
- Mod-Severe (6-10)
  - **Non-opioid+ weak/low efficacy opioid**
  - **Strong opioid + non-opiod**
  - **Adjuvants**

Analgesic Ladder
Agents chosen according to pain intensity



Post-Op pain-
take home message

- Use NSAIDS when possible
- Do not be afraid to use Narcotic if indicated
- Dose to affect!
- Counsel patient and family

Opioid Withdrawal

Symptoms

- Craving for opioid
- Restlessness,irritability
- Increased sensitivity to pain
- Nausea, cramps
- Muscle aches
- Dysphoria
- Insomnia, anxiety

Signs

- Pupillary dialation
- Sweating
- Piloerection (goosebumps)
- Tachycardia
- Vomiting, dairrhea
- Increased blood pressure
- Yawning
- Fever

Management of Overdose

- Naloxone(Narcan)
  - **Opioid overdose**
    - **.4mg IV or IM**
    - **Intra nasal**

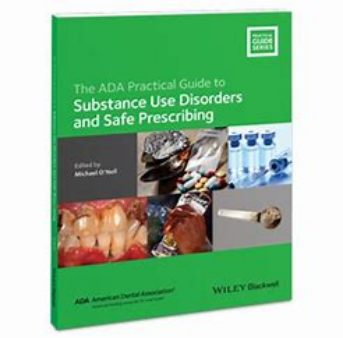
Intra-nasal Narcan

- Newly released-
- 4mg/.1ml metered dose
  - Equivalent to .4mg IM

PDMP

- Each prescriber with a DEA shall register to use the PDMP no later than January 1, 2018, and is encouraged to register as soon as possible after July 1, 2017
- - Beginning January 1, 2018, every new DEA prescriber registrants must register with the PDMP within 30 days of obtaining a DEA permit

????????



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State Regulations

- Appropriate permitting of dentists utilizing moderate sedation, deep sedation and general anesthesia is highly recommended.
- State dental boards have the responsibility to ensure that only qualified dentists use sedation and general anesthesia.
- State boards set acceptable standards for safe and appropriate delivery of sedation and anesthesia care, as outlined in this policy and in the ADA Guidelines for the Use of Sedation and General Anesthesia by Dentists.

ADA

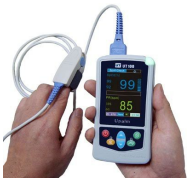
- POLICY STATEMENT: The Use of Sedation and General Anesthesia by Dentists As adopted by the October 2007 ADA House of Delegates
- Updated 2018

Monitoring Requirements

- Pulse Ox
- NIBPM
- ECG
- Precordial Stethoscope
- CO2 monitoring

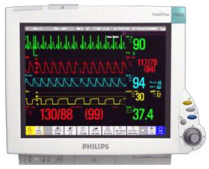
Pulse Oximetry

- Minimal Standard if you will be using any enteral sedation!
- If using oral premed and or N2O



NIBPM

- Non-invasive blood pressure monitor
- Should have a pre-procedure baseline BP on all adult patients



ECG

- Again, required for any IV sedation
- MUST have anesthesia permit
- ACLS certification

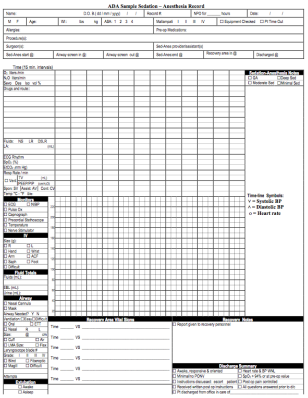
Precordial Stethoscope

- Allows direct continuous monitoring of respiration
- Difficult to hear over noise of dental handpiece

CO2 monitoring-Capnography

- Now “standard of care” / mandatory in 2014 for any IV sedation procedure.

Anesthesia Record



Conclusions

- Avoid narcotics when possible
- Monitor your patients appropriately

"Expect the Best, but plan for the worst"

SELF EVALUATION

Safe Management of Pain in Dentistry

1. The definition of Allodynia is ….

a. Pain evoked by a stimulus that does not normally cause pain
b. Increased response to a stimulus which is normally painful
c. Pain in an anesthetic area
d. Pain in an area that does not exist.

2. The Advantages of Nitrous Oxide include all of the following Except…

a. No injection required
b. Very few side effects
c. No adverse effects on vital organs
d. Works well in patients with severe dental anxiety & fear

3. The benefits of use of oral sedation is which of the following

a. Works well for severe dental anxiety & fear
b. High acceptance from patient
c. No need for monitoring
d. Easy to titrate
e. Rapid onset and/or rapid recovery

4. The use of an analgesic ladder for post op pain management involves

a. Starting with Non- Steroidal pain medicine
b. Use of narcotic pain medicine for the first few days after surgery
c. Use of Steroids as adjunct
d. Use of high dose of acetaminophen in first 48 hours
e. Use of valium to help with pain management

5. The use of marijuana as an adjunct for pain

a. Is an accepted practice in states that it is now legal
b. Can lead to higher pain scores after surgery
c. Leads to decrease use of narcotics in the post op period
d. Will allow quicker recovery after surgery
e. Should be discouraged

Answer Key: 1. A, 2. D, 3. B, 4. A, 5. E

TOWER LEADERSHIP

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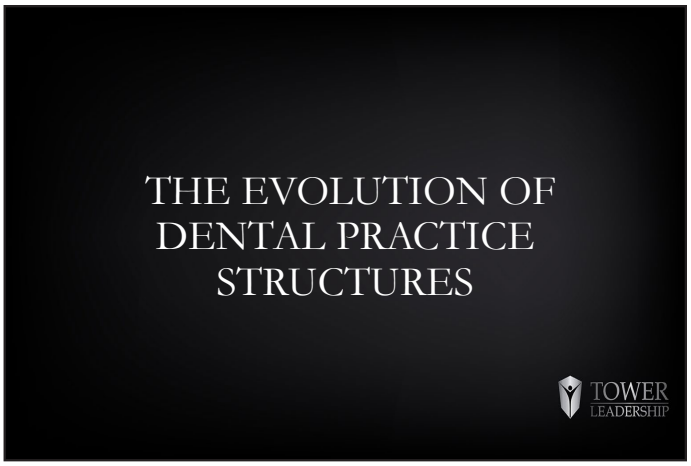
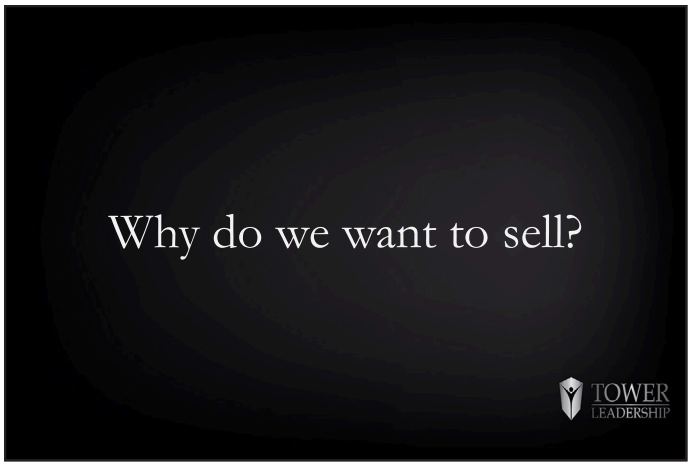
The Dental Practice as a Sales Organization




Why do we want to sell?
TOWER
LEADERSHIP


Do you have the right operating structure to capture sales?
TOWER
LEADERSHIP


Do you have a sales team?
TOWER
LEADERSHIP


Who is managing sales?
TOWER
LEADERSHIP


You Get What You Measure
TOWER
LEADERSHIP


Are sales in your organization reactive or active?
TOWER
LEADERSHIP

Phoner = Sales Team
Receptionist = Administrative Team

TOWER LEADERSHIP

Insurance is Reactive

TOWER LEADERSHIP

Phoner = Sales Team
Phoner is skilled and turns calls into appointments scheduled

TOWER LEADERSHIP

Receptionist = Admin Team
Can schedule calls if little to no pushback and can transfer calls

TOWER LEADERSHIP

Exercise:
Who is on your sales team?

TOWER LEADERSHIP

Exercise:
Build out your chart
Who's on your sales team?

TOWER LEADERSHIP

Do you need to hire anyone?
Do you need to move anyone's positions?

TOWER LEADERSHIP

What metrics will you measure?

TOWER LEADERSHIP

In this example the key number is Number Of Patients

TOWER LEADERSHIP

What is Number of Patients an indicator of?

TOWER LEADERSHIP

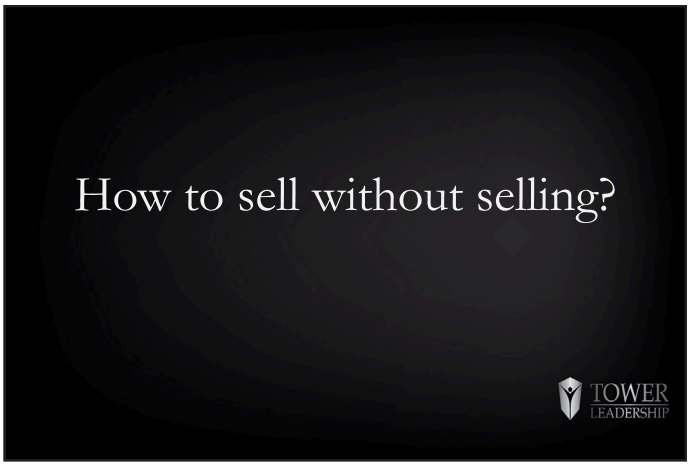
Exercise:
What needs to be on your sales scorecard?

TOWER LEADERSHIP

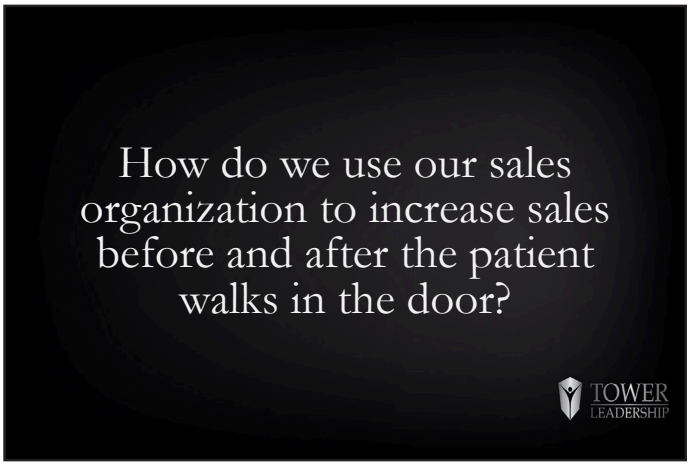
Sales Cycle

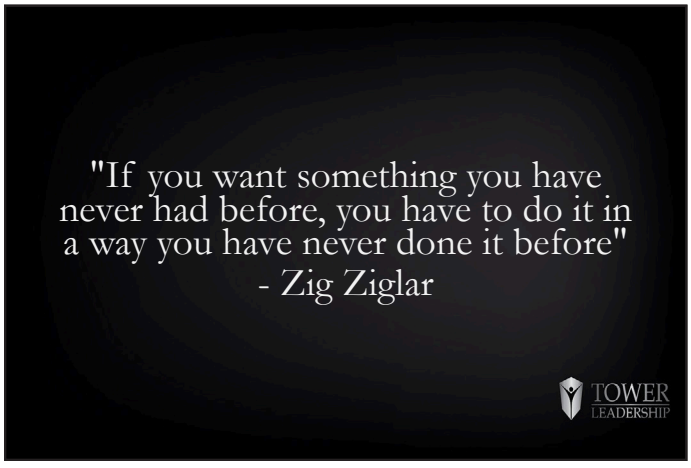
TOWER LEADERSHIP

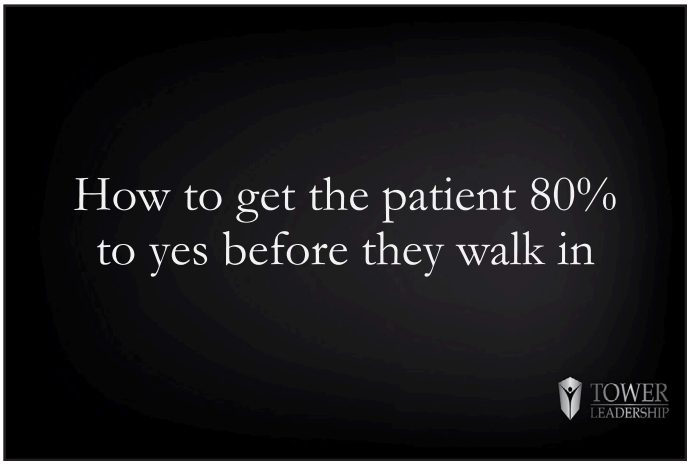

What does this look like in its entirety?
TOWER LEADERSHIP


How to sell without selling?
TOWER LEADERSHIP


Are Sales in your Organization Reactive or Active?
TOWER LEADERSHIP


How do we use our sales organization to increase sales before and after the patient walks in the door?
TOWER LEADERSHIP

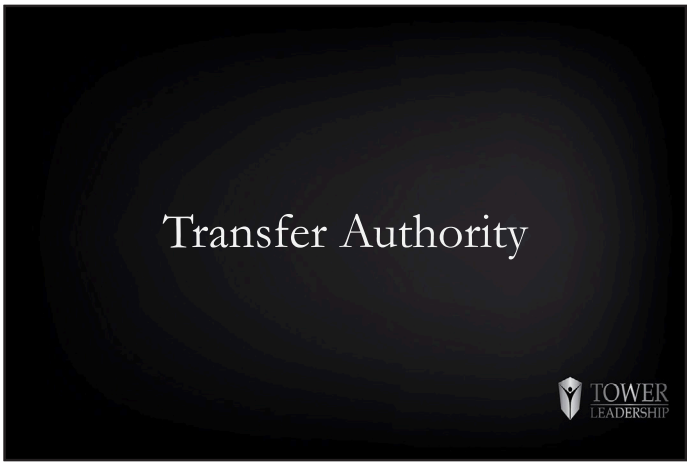

"If you want something you have never had before, you have to do it in a way you have never done it before"
- Zig Ziglar
TOWER LEADERSHIP


How to get the patient 80% to yes before they walk in
TOWER LEADERSHIP

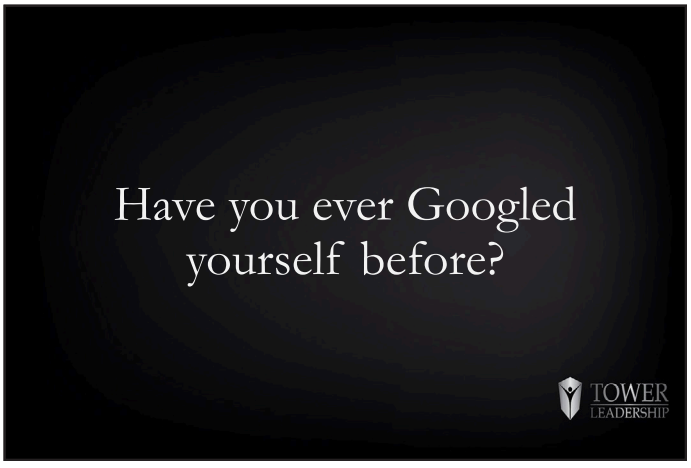

Build authority in the marketplace
TOWER LEADERSHIP


Your sales team must be able to master building your authority
TOWER LEADERSHIP


Specialists have authority built by the referring doctor
TOWER LEADERSHIP


Transfer Authority
TOWER LEADERSHIP

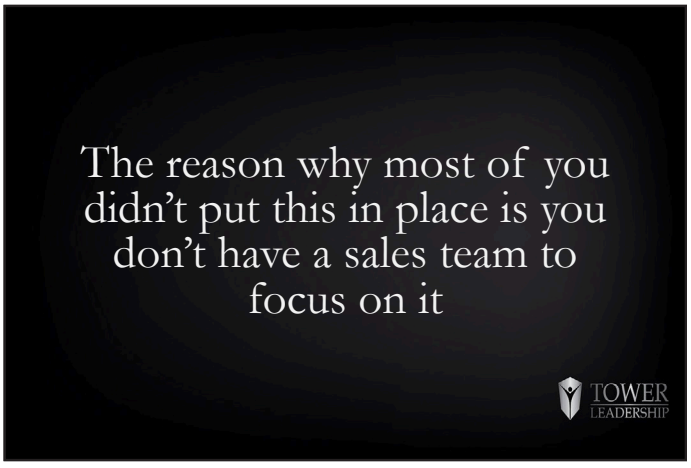

What does your online presence look like?
TOWER LEADERSHIP


Have you ever Googled yourself before?
TOWER LEADERSHIP

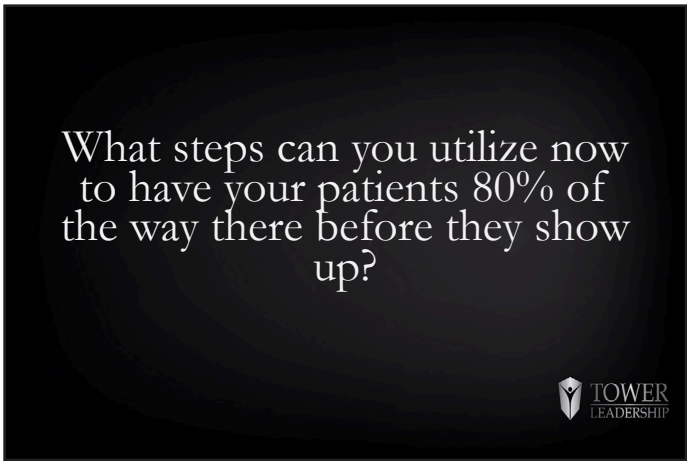

Who is building out these marketing campaigns?
TOWER LEADERSHIP


Build Your Social Proof
TOWER LEADERSHIP


Social Currency Is Powerful
TOWER LEADERSHIP


The reason why most of you didn't put this in place is you don't have a sales team to focus on it
TOWER LEADERSHIP


Built to show, built to grow
(people want to see people at your practice)
TOWER LEADERSHIP


What steps can you utilize now to have your patients 80% of the way there before they show up?
TOWER LEADERSHIP

Make a commitment today

Exercise: What steps are you willing to take in the next 90 days to build your authority

TOWER LEADERSHIP

Remember, we have 3 things to consider:
obstacles, strategy, and who

TOWER LEADERSHIP

What happens once the patient is in your chair?

TOWER LEADERSHIP

Be curious, not judgmental

-Walt Whitman

TOWER LEADERSHIP

If someone does not accept treatment, do not make excuses, ask yourself why

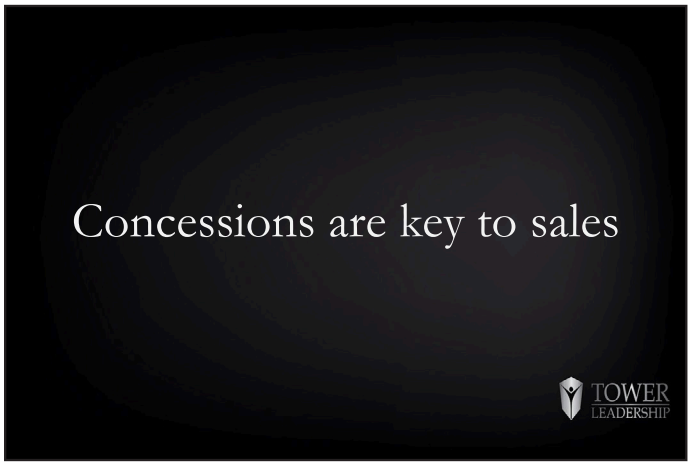
TOWER LEADERSHIP

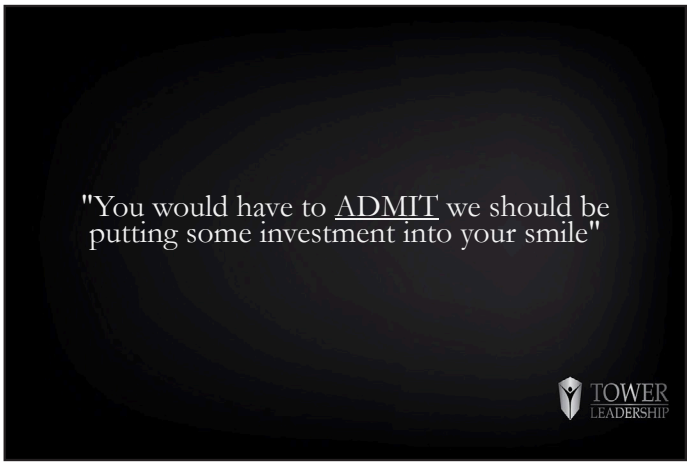
Who is sitting in your chair?

TOWER LEADERSHIP

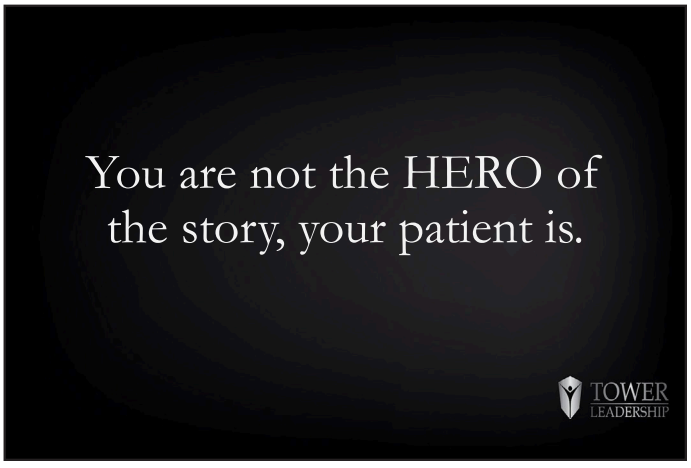

People must remain consistent
TOWER LEADERSHIP

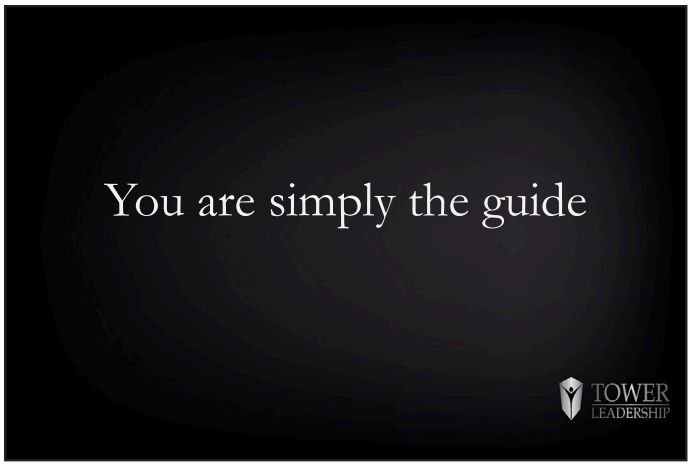

Is that a fair statement?
TOWER LEADERSHIP


Concessions are key to sales
TOWER LEADERSHIP


"You would have to ADMIT we should be putting some investment into your smile"
TOWER LEADERSHIP

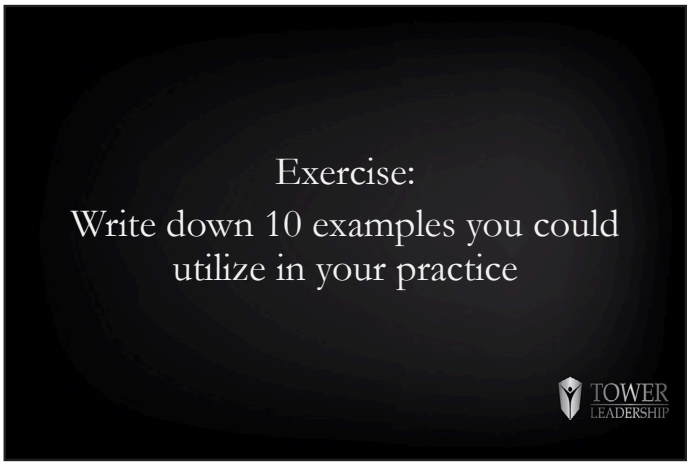

Who are you in your patient's eyes?
TOWER LEADERSHIP


You are not the HERO of the story, your patient is.
TOWER LEADERSHIP


You are simply the guide
TOWER
LEADERSHIP


Use key words
YOUR smile, OUR team,
WE will
TOWER
LEADERSHIP


Exercise:
Write phrases using these
key words
TOWER
LEADERSHIP


Exercise:
Write down 10 examples you could
utilize in your practice
TOWER
LEADERSHIP


"Would you have any objection..."
TOWER
LEADERSHIP


Let's bring it all together
TOWER
LEADERSHIP

1. Who is your patient? They must remain consistent
2. You are the guide, not the hero
3. We make concessions based on objections
4. We tell them what to do (With that said)
5. "Would you have any objections?"

TOWER LEADERSHIP

What happens after a patient leaves your office?

TOWER LEADERSHIP

Sales team and sales process

TOWER LEADERSHIP

This is not an admin function, this is a sales function

TOWER LEADERSHIP

Be curious, not judgmental

-Walt Whitman

TOWER LEADERSHIP

If someone did not buy and they are your ideal patient, you made a mistake

TOWER LEADERSHIP

Bringing concepts together

TOWER LEADERSHIP

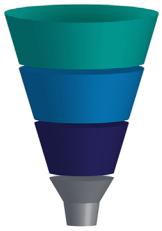
Back to the 4 key things:

1). Operating Structure in regard to sales
2). Before the patient comes in
3). What happens in the chair
4). After they leave

TOWER LEADERSHIP

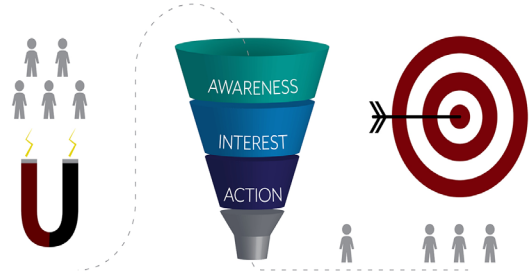
DENTAL OFFICE SALES FUNNEL

- Yes.... you have a sales funnel
- If you can master your sales funnel you can increase your revenue significantly



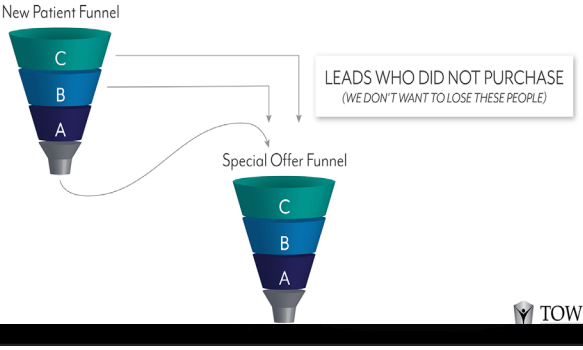
TOWER LEADERSHIP

DENTAL OFFICE SALES FUNNEL



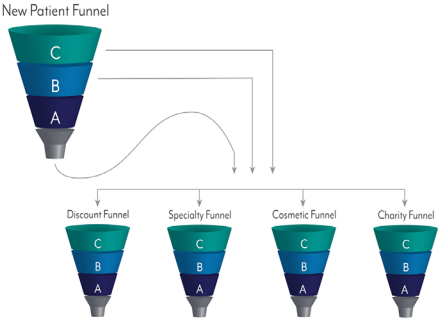
TOWER

DENTAL OFFICE SALES FUNNELS



TOWER

DENTAL OFFICE SALES FUNNELS



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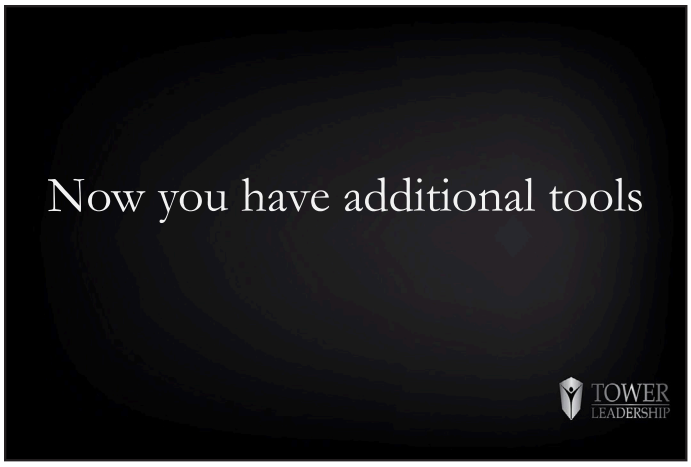
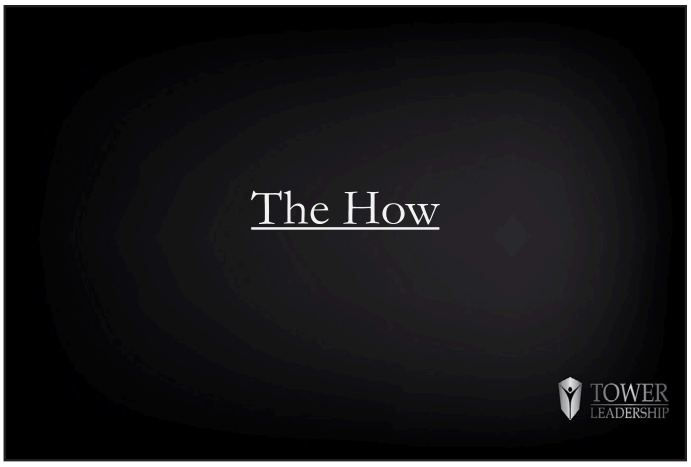
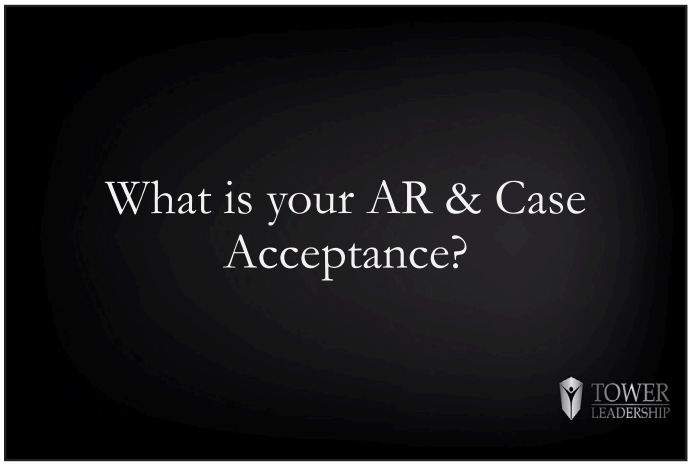
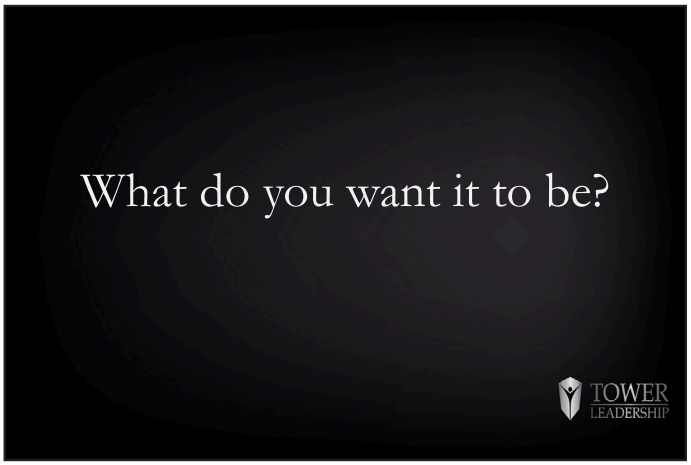

Now you have additional tools
TOWER
LEADERSHIP


The How
TOWER
LEADERSHIP


What is your AR & Case Acceptance?
TOWER
LEADERSHIP


What do you want it to be?
TOWER
LEADERSHIP


This is how we will accomplish it
TOWER
LEADERSHIP


Case Acceptance Tracker Spreadsheet
TOWER
LEADERSHIP

	A	B	C	D	E	F	G	H
1	Date	1/1/21	1/2/21	1/3/21	1/4/21	1/5/21	1/6/21	1/7/21
2	Treatment Scheduled							
3	Treatment Presented							
4	% Accepted	0%	0%	0%	0%	0%	0%	0%
5								
6								
7	% Accepted for the Month	0%						
8								
9								
10								
11								

TOWER LEADERSHIP

Month	% Accepted	Total Scheduled	Total Presented
Jan	0%	0	0
Feb	0%	0	0
Mar	0%	0	0
Apr	0%	0	0
May	0%	0	0
Jun	0%	0	0
Jul	0%	0	0
Aug	0%	0	0
Sep	0%	0	0
Oct	0%	0	0
Nov	0%	0	0
Dec	0%	0	0
Total	0%	0	0

TOWER LEADERSHIP

3 Takeaways

TOWER LEADERSHIP

Closing Thoughts

TOWER LEADERSHIP

For more information about Tower Leadership

Email: INFO@TOWERLEADERSHIP.COM

With the Subject Line: "Your Practice Name"

and a Tower Team member will reach out to you promptly

TOWER LEADERSHIP

SELF EVALUATION

The Dental Practice as a Sales Organization

1. What are the main functions of a business?

a. Sales and Marketing
b. Operations
c. Finance
d. All the above

2. T/F - The phoner in a dental practice is on the administrative team

3. What percentage do you want to have the patient sold on treatment before they walk in the door?

a. 80%
b. 20%
c. 75%
d. 90%

4. Which of the following are the keys to sales in your organization?

a. Confidence
b. Concessions
c. Low Price
d. The right team

5. T/F - In today's dental marketplace you must have a sales funnel

Answer Key: 1. D, 2. F, 3. A, 4. B, 5. T

Peachtree · Dunwoody
oral & facial surgey

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Diplomat, American Board of Oral and Maxillofacial Surgery
Fellow, American College of Surgeons

Amy Kuhmichel, D.M.D.
Diplomat, American Board of Oral and Maxillofacial Surgery

Erin Shariff, D.M.D.
Candidate, American Board of Oral and Maxillofacial Surgery

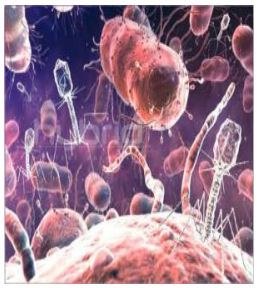
www.jawsoms.com

Infection Control in Dentistry: The New Normal

Glenn Maron, DDS, FACS

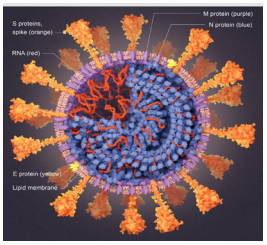
Overview

- **Infection Control**
- **SBE and Joint Prophylaxis**
- **Basic Microbiology Review**
- **The Bugs**
  - **Focus on Bacteria**
- **The Drugs**
- **Empiric Treatment**
- **Resistance Issues**



Food For Thought

"Microbes were the first organisms to evolve on the Earth and were its sole inhabitants for billions of years..... Only during the last 0.01 percent of Earth history have humans been around...bacteria may still dominate our biosphere today in number of species, number of organisms, or total mass"



March 2013 –Tulsa

- Rogue Dentist May Have Exposed 7,000 Patients to HIV, Hepatitis
- Harrington allegedly re-used needles, contaminating drugs with potentially harmful bacteria and trace amounts of other drugs

December 2016- Reading

- Patients of a Reading dental office are being advised by the Pennsylvania Department of Health that they should be tested for hepatitis B, hepatitis C and HIV.
- Dental office did not follow appropriate infection control procedures to properly clean, disinfect, or sterilize devices

2018

Dental patients at Texas clinic contracted HIV, hep C due to poor sterilization, lawsuit claims.

Inspectors uncovered poor sanitation and sterilization of equipment at the Coastal Health & Wellness clinics, which are operated by the Galveston County Health District.

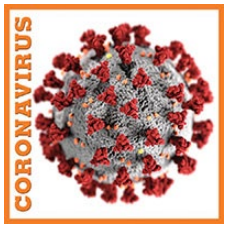
Officials determined that up to 9,500 dental patients could have been exposed to hepatitis B, hepatitis C and HIV.

The Elephant in the room!

January? February? March 2020?
Coronavirus

- Coronavirus Disease 2019 (COVID-19) Coronavirus Disease 2019(COVID-19) Situation Summary

Covid Overload



- There are known knowns; there are things we know we know.
- We also know there are known unknowns; that is to say we know there are some things we do not know.
- But there are also unknown unknowns—the ones we don't know we don't know.
- And if one looks throughout the history of our country and other free countries, it is the latter categories that tend to be the difficult ones

Donald Rumsfeld

Slavoj Žižek{ethicist}

- Beyond these three categories there is a fourth,
  - the unknown known, that which we intentionally refuse to acknowledge that we know:
- March 2021
  - dealing with Covid19 these last 2 categories are mostly, what we are currently grappling with.

COVID-19 :What we know "Known knowns"

- As coronavirus continues to spread across the globe, tens of thousands of people have been infected in dozens of countries.
- The disease, known as COVID-19
- Corona Virus ID in 2019
- now impacting every continent except Antarctica.

Incubation Period

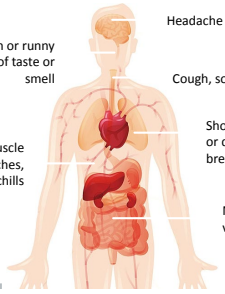
The "incubation period" means the time between catching the virus and beginning to have symptoms of the disease.

Most estimates of the incubation period for COVID-19 range from 1-14 days, most commonly around five days.

SOURCE: WHO

Primary Symptoms of COVID-19

"Symptoms may appear **2-14 days after exposure** to the virus"



Li. J Med Virol. 2020;92:577.
https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html

Slide credit: clinicaloptions.com

Symptoms of Covid-19

Common signs of infection include respiratory symptoms, fever, cough, shortness of breath and breathing difficulties.

In more severe cases, infection can cause pneumonia, severe acute respiratory syndrome, kidney failure and even death.

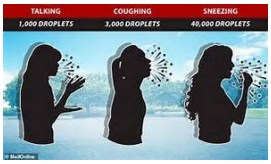
SOURCE: WHO

How does Covid-19 Spread

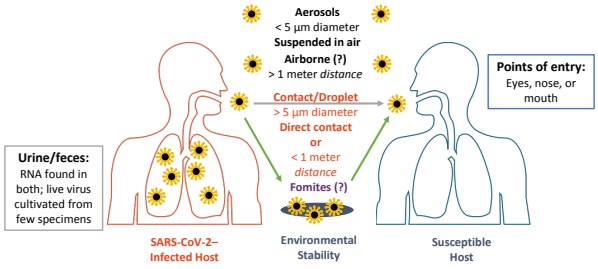
- People can catch COVID-19 from others who have the virus.
- The disease can spread from person to person through small droplets from the nose or mouth which are spread when a person with COVID-19 coughs or exhales.
- These droplets land on objects and surfaces around the person.

How does Covid-19 Spread

- Other people then catch COVID-19 by touching these objects or surfaces, then touching their eyes, nose or mouth.
  - initial spread among healthcare providers
- People can also catch COVID-19 if they breathe in droplets from a person with COVID-19 who coughs out or exhales droplets.



Proposed Routes of SARS-CoV-2 Transmission



People of any age with the following conditions are at increased risk of severe illness from COVID-19:

- Chronic kidney disease
- COPD (chronic obstructive pulmonary disease)
- Immunocompromised state (weakened immune system) from solid organ transplant
- Obesity (body mass index [BMI] of 30 or higher)
- Serious heart conditions, such as heart failure, coronary artery disease, or cardiomyopathies
- Sickle cell disease
- Type 2 diabetes mellitus

Based on what we know at this time, people with the following conditions might be at an increased risk for severe illness from COVID-19:

- Asthma (moderate-to-severe)
- Cerebrovascular disease
- Cystic fibrosis
- Hypertension or high blood pressure
- Immunocompromised state (weakened immune system) from blood or bone marrow transplant, immune deficiencies, HIV, use of corticosteroids, or use of other immune weakening medicines
- Neurologic conditions, such as dementia
- Liver disease
- Pregnancy
- Pulmonary fibrosis Smoking
- Thalassemia (a type of blood disorder)
- Type 1 diabetes mellitus

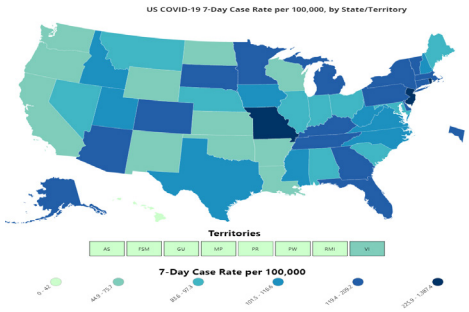
Children

- Children who are medically complex, who have neurologic, genetic, metabolic conditions, or who have congenital heart disease are at higher risk for severe illness from COVID-19 than other children.

Situation in U.S.

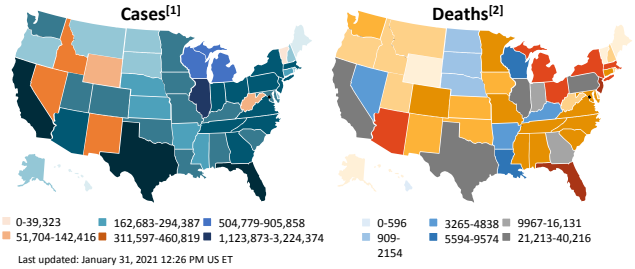
- **Person-to-person spread of COVID-19 was first reported among close contacts of returned travelers from Wuhan.**
- **During the week of February 23, CDC reported community spread of the virus that causes COVID-19 in California (in two places), Oregon and Washington.**
- **Community spread in Washington resulted in the first death in the United States from COVID-19, as well as the first reported case of COVID-19 in a health care worker, and the first potential outbreak in a long-term care facility.**

Situation in the U.S.



CDC: COVID Data Tracker

Updated



Current Covid-19 Cases in U.S.

- Confirmed cases in U.S.
  - **35,283,075**
  - **626,658** deaths

Super Spreaders

- The events known as a coronavirus "super spreader," in which one person infects an exceptionally high number of people.
- And as the world begins to reopen, it's pivotal to be aware of the kinds of activities that are putting you at the highest risk.

Known Unknowns

- Cure-??
  - There is no cure
- Vaccine-??
  - How long will immunity last?
  - Can you still spread virus after vaccine?
  - Can we socialize with other vaccinated people?
  - Booster shots?

What are the benefits of getting a COVID-19 vaccine?

- COVID-19 vaccination will help keep you from getting sick from COVID-19.
- All COVID-19 vaccines available in the U.S. have been shown to be very effective.
- Wearing masks and social distancing help lower your chance of getting the virus or spreading it to others, but these measures are not enough.
- The combination of getting vaccinated and following CDC's recommendations to protect yourself and others will offer the best protection from COVID-19.
- The more people who get vaccinated, the faster we can get back to our normal lives.

What vaccines are available?

- Two vaccines have received Emergency Use Authorization from the Food and Drug Administration from companies named Pfizer and Moderna.
- Both vaccines are 95% effective at protecting people from getting sick from COVID-19.
- The Pfizer vaccine requires 2 doses given at least 21 days apart.
- The Moderna vaccine requires 2 doses given at least 28 days apart.
- These vaccines were not studied for use as a single dose. People should get both doses to be fully vaccinated in order to be effective.

How is it safe if it happened so fast?

The timeline was sped up but never cut corners on safety. Here is how:

- **We already had helpful information** about coronaviruses, so we weren't starting from scratch.
- The United States and other governments **invested a lot of money** to support vaccine companies with their work.
- A lot of people participated in clinical trials, and **we didn't need to spend time finding volunteers.**
- Manufacturing happened **at the same time as safety studies,** so vaccines were ready to be distributed once they were approved.

Additional Vaccine Data and SARS-CoV-2 Variants

New

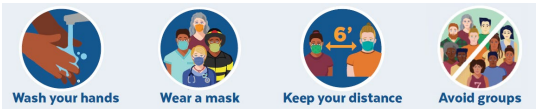
Study	Vaccine	N	Primary Endpoint	Efficacy
Johnson & Johnson phase III ENSEMBLE trial[1]	Single-dose AD26.COV2.S	43,783	Preventing moderate to severe COVID-19 at 28 days post-vaccination	▪ 66% overall ▪ 72% in US ▪ 57% in South Africa (95% of COVID-19 cases were due to B1351 variant) ▪ 85% effective in preventing severe disease overall ▪ Complete protection against hospitalization and death
Novovax phase III trial in UK[2]	Protein-based NVX-CoV2372	> 15,000	Preventing symptomatic COVID-19 at 7 days post-vaccination	[illegible]
Novovax phase IIb trial in South Africa[2]	Protein-based NVX-CoV2372	> 4400	Preventing symptomatic COVID-19 at 7 days post-vaccination	▪ 60% in persons without HIV ▪ 49.4% efficacy in population including PWH (92.6% of confirmed cases were B1351)

1. Johnson & Johnson. Press Release. January 29, 2021. Press release only, not peer reviewed. 2. Novovax. Press Release. January 28, 2021. Press release only, not peer reviewed.

Can I get COVID-19 from the COVID-19 vaccines?

No. The vaccines do not contain the live virus that causes COVID-19. This means that you can't catch COVID-19 from the vaccine.

- Yes. Experts continue to learn more about the protection that COVID-19 vaccines provide under real-life conditions.
- Until then it will be important for everyone to continue using all the tools available to us to help stop this pandemic, like:
  - Covering your mouth and nose with a mask
  - Washing hands often
  - Staying at least 6 feet away from others.



Known Unknowns

- When will we reach herd immunity?

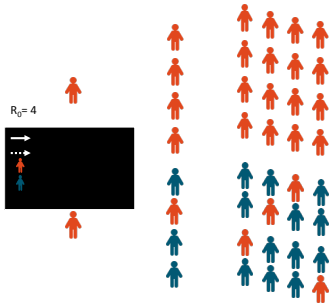
What is Herd Immunnity?

Herd Immunity Definitions

Term	Definitions
Herd immunity	▪ The indirect protection of susceptible individuals from infection when a sufficient portion of the population is immune
Herd immunity threshold	▪ The point at which the proportion of a population that is susceptible falls below the level needed for transmission
R_0	▪ The average number of secondary infections caused by a single infectious individual in a completely susceptible population

Randolph. Immunity. 2020;52:737.

Herd Immunity Concept



Herd Immunity: Important Considerations

- Naturally occurring herd immunity from infection with significant mortality rate may occur only with a high number of deaths[1]
- If a disease is not uniformly lethal throughout a population and the population with lowest risk of mortality is the population with the highest contact rate, then herd immunity may occur naturally with a lower number of deaths[2]
- Strict nonpharmaceutical interventions decrease the ability to establish herd immunity[2]
- Vaccination resulting in long lasting-immunity in all populations is the most effective way of establishing herd immunity

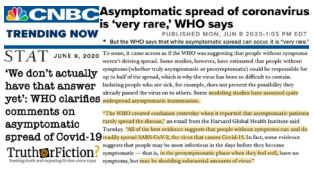
1. Bloom. NEJM. 2020;[Epub]. 2. Britton. Science. 2020;369:846.

Unknown Unknowns

- Is it safe to go to restaurant?
- Can you get it from food?
- Can you get it from touching an elevator button or door handle?
- Why is the U.S. doing worse than other 1st world countries ?

Unknown Unknowns

- The asymptomatic carrier?
- Dr Anthony Fauci, the top infectious diseases expert in the US, said the WHO's statement on asymptomatic spread "was not correct". Fauci said evidence shows 25-45 % of infected people do not likely have symptoms.
- And they theoretically, can spread the virus


CNBC TRENDING NOW

Asymptomatic spread of coronavirus is 'very rare,' WHO says

PUBLISHED MON, JUN 8 2020 1:05 PM EDT

STAT JUNE 9, 2020

'We don't actually have that answer yet': WHO clarifies comments on asymptomatic spread of Covid-19

TruthorFiction?

Unknown Knowns

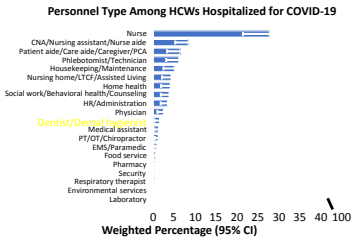
- People refusing to wear a mask
- People refusing to understand this is not a political issue, it is a health issue
- Opening the economy?
  - is a known risk, necessary and hugely important but people have Covid fatigue, and we have to do something

Dentistry- good news

- To this date there has not been a single cohort in the U.S. that can be traced back to being caused by exposure in the dental office

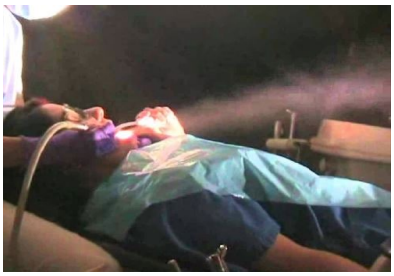
COVID-NET: Hospitalizations of HCW by Personnel Type

- 438 HCWs hospitalized with COVID-19
  - 67.4% in direct patient contact roles
  - 36.3% nurses or nursing aides
- Although HCWs with direct patient contact had higher rates of hospitalization, it remains unknown if exposed in the workplace or community



Kambhampati. MMWR. 2020;69:1576.

Aerosols in Dentistry



Christensen RP et al. Efficacy of 42 brands of face masks and 2 face shields in preventing inhalation of airborne debris. Gen Dent 1991; 39:414-421.

Aerosols in Dentistry

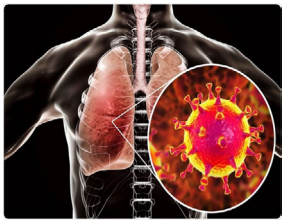
- Aerosols are differentiated based on particle size:
  - spatter (> 50 µm)
  - droplet (≤ 50 µm)
  - droplet nuclei (≤ 10 µm).

Aerosols in Dentistry

- **In dental settings, 90% of the aerosols produced are extremely small (< 5 µm)**
  - **Spatter-the larger particle, will fall until it contacts other objects (e.g., floor, countertop, sink, bracket, table, computer, patient or operator).**
  - **Droplets- remain suspended in the air until they evaporate, leaving droplet nuclei that contain bacteria related to respiratory infections. .**

Aerosols in Dentistry

- Droplet nuclei can contaminate surfaces in a range of three feet and may remain airborne for 30 minutes to two hours.
- If inhaled, the droplet nuclei can penetrate deep into the respiratory system.



Aerosols in Dentistry

- If aerosol-generating procedures are necessary for dental care, use four-handed dentistry, high evacuation suction and dental dams to minimize droplet spatter and aerosols.
- The number of DHCP present during the procedure should be limited to only those essential for patient care and procedure support.

Rapid Inactivation of SARS-CoV-2 Aerosols in Sunlight

- In vitro simulations suggest a 90% loss of infectivity in 8-19 min for SARS-CoV-2 aerosols exposed to mid to high intensity sunlight

Suspension Matrix at 20°C	Simulated Sunlight	Tests, n	Mean $k_{infectivity}$, min^{-1} (SD)	Mean Decay Rate, %/min (SD)
Simulated saliva	None	18	0.008 (0.011)	0.8 (1.1)
	Mid intensity	3	**0.121 (0.017)**	**11.4 (1.5)**
	High intensity	8	**0.306 (0.097)**	**26.1 (7.1)**
Culture medium	None	16	0.013 (0.012)	1.2 (1.2)
	Mid intensity	4	0.169 (0.062)	15.4 (5.3)
	High intensity	7	0.182 (0.041)	16.6 (3.3)

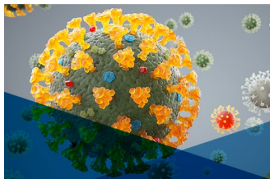
Schuit. J Infect Dis. 2020;222:564.

Aerosols in Dentistry

Device	Contamination
– Ultrasonic and sonic scalers	> amount of aerosol contamination
– Tooth preparation with air Turbine hand piece	> amount of aerosol contamination
– Air polishing	equal to the use of scalers
– Air-water syringes	

So how do we continue to practice? -

- Be Safe
- Be Smart
- This is not the time to let your guard down
- We must minimize the chance for exposure to both staff and patients



Minimize Chance for Exposures

- **Ensure facility policies and practices are in place to minimize exposures to respiratory pathogens including SARS-CoV-2, the virus that causes COVID-19. Measures should be implemented before patient arrival, upon arrival, and throughout the duration of the patient's presence in the healthcare setting.**
- **Before Arrival**
  - **When scheduling appointments, instruct patients and persons who accompany them to call ahead or inform HCP upon arrival if they have symptoms of any respiratory infection (e.g., cough, runny nose, fever1) and to take appropriate preventive actions (e.g., wear a facemask upon entry to contain cough, follow triage procedures).**

Minimize Chance for Exposures- Practical approach

- Request that dental staff call patients prior to the scheduled appointment to ask questions about their current health status.
- Require patients to wear a face covering when entering the dental practice.
- Limit the number of people who accompany a patient to the appointment. If possible, the patient should make the visit alone.

- Assess all patients upon arrival; temperature checks should be completed.
- move items in office waiting rooms such as toys or reading material to limit potential transmission through high touch surfaces.
- Encourage social distancing practices by minimizing the number of patients in the waiting room by spacing appointments thoughtfully and perhaps by asking patients to wait in their car until the dental staff is ready to treat the patient.
- Place hand sanitizer generously around the office for use, and ensure surfaces are cleaned regularly.

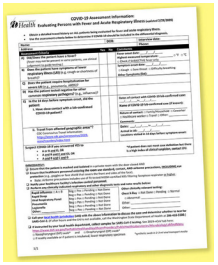
- Advise dental staff members to wear additional personal protective equipment (PPE) as appropriate, such as surgical masks or N95 masks, full face shields or goggles with side shields to ensure an environment that is as safe and healthy as possible for patients and the dental team.
- We will review this in a minute

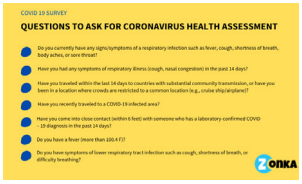
Upon Arrival and During the Visit

- **Post visual alerts (e.g., signs, posters) at the entrance and in strategic places (e.g., waiting areas, elevators, cafeterias) to provide patients and HCP with instructions (in appropriate languages) about hand hygiene, respiratory hygiene, and cough etiquette.**
- **Ensure that patients with symptoms of suspected COVID-19 or other respiratory infection (e.g., fever, cough) are not allowed to wait among other patients seeking care.**
- **Identify a separate, well-ventilated space that allows waiting patients to be separated by 6 or more feet, with easy access to respiratory hygiene supplies.**

Covid Questionaire

- Started out important
- Now kind of like the TSA screening
- But we must continue to ask





Covid-19 Frequently Asked Questions/"Pearls"

What if a patient or staff appear symptomatic?

- **Ensure rapid triage and isolation of patient/employee with symptoms of suspected COVID-19 or other respiratory infection (e.g., fever, cough):**
- **Identify patient/employee at risk for having COVID-19 infection before or immediately upon arrival to the healthcare facility.**
- **Implement respiratory hygiene and cough etiquette (i.e., placing a facemask over the patient's nose and mouth if that has not already been done) and isolate the PUI for COVID-19**
- **Additional guidance for evaluating patients in U.S. for COVID-19 infection can be found on the CDC COVID-19 website.**

Covid Frequently Asked Questions/"Pearls"

- What do we do if an employee tests positive?
  - Employers with more than 10 employees are required to report work-related COVID-19 illnesses.
  - Recording a COVID-19 illness does not, of itself, mean that the employer has violated any OSHA standard.
  - Employers with 10 or fewer employees have no recording obligations; but they do need to report work related COVID-19 illnesses that result in a fatality or an employee's in-patient hospitalization

Covid Frequently Asked Questions/"Pearls"

- **The employer's investigation into work-relatedness.**
- **Ask the employee:**
  - **how the employee believes the COVID-19 illness was contracted;**
  - **while respecting employee privacy, discuss with the employee any work and out-of-work activities that may have led to the COVID-19 illness;**
  - **review the employee's work environment for potential SARS-CoV-2 exposure.**

How long does that employee need to stay out of work?

Symptomatic HCP

- Symptom-based strategy. Exclude from work until:
  - At least 3 days (72 hours) have passed since recovery defined as resolution of fever without the use of fever-reducing medications and improvement in respiratory symptoms ; and,
  - At least 10 days have passed since symptoms first appeared
- Test-based strategy. Exclude from work until:
  - Resolution of fever without the use of fever-reducing medications and
  - Improvement in respiratory symptoms
  - Negative results of an FDA Authorized COVID-19 molecular assay for detection of SARS-CoV-2 RNA from at least two consecutive respiratory specimens collected ≥24 hours apart (total of two negative specimens)[1].

How long does that employee need to stay out of work?

Asymptomatic HCP

- **Time-based strategy. Exclude from work until:**
  - **10 days have passed since the date of their first positive COVID-19 diagnostic test assuming they have not subsequently developed symptoms since their positive test. If they develop symptoms, then the symptom-based or test-based strategy should be used.**
- **Test-based strategy. Exclude from work until:**
  - **Negative results of an FDA Emergency Use Authorized COVID-19 molecular assay for detection of SARS-CoV-2 RNA from at least two consecutive respiratory specimens collected ≥24 hours apart (total of two negative specimens).**

Do I have to close the office if an employee or patient tests positive?

- No, BUT, if an employee/patient tests positive for COVID-19 their employer must inform employees of their possible exposure to the virus in the workplace
- conduct deep cleaning of the general area where the infected employee worked, or patient may have been.

Do I have to notify patients if employee tests positive for COVID?

- If patients had no close contact with an employee with a suspected exposure, symptoms or positive test for COVID-19, patient notification is not required.
- Only inform individuals who have had close contact.

What should we do if we suspect a patient has COVID-19? Do we notify the local or state health department?

- Contact your local health department immediately if you suspect a patient has COVID-19. You can also contact your state health department.
- Do not treat unless a true dental emergency
- REALLY??

Should we have glass partitions between the front office staff and the waiting room, when possible, to decrease the risk of staff exposure?

- While physical barriers may reduce or eliminate exposure to coronavirus, installing glass partitions may not be feasible in all practices.
- Temporary Plexi glass is a good option

What if we do not have enough N95 masks?

- The ADA recommends N95's first, then "Equivalent" KN95's, then a surgical mask with a face shield.
- As always, please refer to your state dental association guidelines as well.

What about Air Purifiers?

- HEPA, which stands for high-efficiency particulate air, is the standard that describes most air purifier filters currently sold in the US.
- To meet the standard, a filter must remove 99.97% of particles in the air that are 0.3 micrometers in size (a particularly difficult size to filter).

What about Air Purifiers?

- **HEPA filters are usually more effective with particles larger and smaller than that size.**
  - **aerosol droplets that can transmit COVID can all be filtered out of the air with such a filter.**
- **That being said - a negative pressure sealed filtration room is still most effective way to prevent spread - but is impractical**
- **Bottom line- the filters help but are only part of the recommendations, can't hurt might help**

Respiratory Infections-Summary

RESPIRATORY INFECTIONS (COLDS AND FLU)

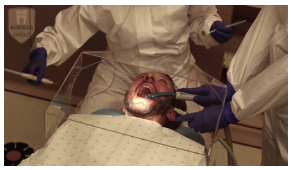
USE RESPIRATORY HYGIENE AND COUGH ETIQUETTE Cover your nose and mouth with a tissue when you cough or sneeze. Throw the tissue in the trash after you use it.
PERFORM HAND HYGIENE Wash your hands often with soap and water or an alcohol-based hand rub (easily accessible and very effective), especially after you cough or sneeze.
AVOID TOUCHING YOUR EYES, NOSE OR MOUTH UNTIL HAND HYGIENE IS PERFORMED Colds and flu viruses are readily spread this way.
AVOID CLOSE CONTACT WITH SICK PEOPLE Defer elective dental care on anyone presenting a fever, not related to oral/dental infection, and/or symptoms of influenza.
GET ANNUAL INFLUENZA VACCINE
STAY HOME IF YOU ARE SICK Wait at least 24 hours after you no longer have a fever (100°F) or signs of a fever (without the use of fever-reducing medicines, such as acetaminophen).
FOLLOW PUBLIC HEALTH ADVICE Community tactics that limit exposure, e.g.: temporary school closings, avoiding large crowds and other social distancing measures.

National Health Experts=Mantra

- WEAR A MASK!!!!!!!!!!!!!
- WASH YOUR HANDS
- GET VACCINE!!!!!!!!!!
- SOCIAL DISTANCE IN PUBLIC PLACES!!!!!!!!!!!!!!!!

  - This is not Rocket Science-

Let's move on .....



Reality

- **In a busy dental practice, one precious commodity that can never be wasted is time**
- **In 1748, Benjamin Franklin was credited with the saying "Time is money"**
- **This saying was accurate, and it is still true today for dental offices in 2021.**
- **Dental practitioners are always seeking ways to save time……..**

Reality

- **Barriers are not changed as recommended, surfaces/devices are not properly disinfected, instruments are not adequately cleaned and sterilized, and compliance with hand hygiene can often be poor.**
- **The results of such behavior lead to the transmission of infections in all healthcare settings.**
- **These infections—known as healthcare associated infections (HAIs)—are becoming a major public health threat.**

How serious is this problem?

- In the USA, the Centers for Disease Control and Infection (CDC) estimates that 1.7 million HAIs occur each year
- HAIs contributes to 99,000 patient deaths annually.
- HAIs kills more people per year than AIDS, breast cancer and auto accidents combined, which makes HAIs the fourth leading cause of death in the USA.

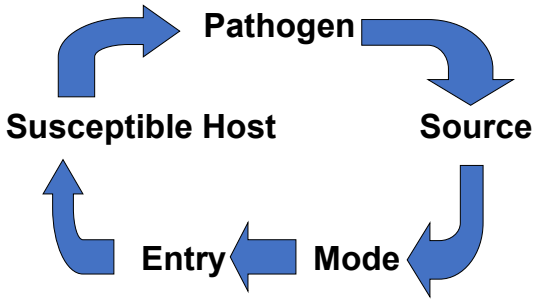
Why Is Infection Control Important in Dentistry?

- Both patients and dental health care personnel (DHCP) can be exposed to pathogens
- Contact with blood, oral and respiratory secretions, and contaminated equipment occurs
- Proper procedures can prevent transmission of infections among patients and DHCP

Modes of Transmission

- Direct contact with blood or body fluids
- Indirect contact with a contaminated instrument or surface
- Contact of mucosa of the eyes, nose, or mouth with droplets or spatter
- Inhalation of airborne microorganisms

Chain of Infection



What is the "Standard of Care"

- State Dental Boards consider the 2003 *CDC Guidelines for Infection Control in Dental Health Care Settings to be the standard of care in their communities.*
- *Updated October 2016*

Updated CDC Guidelines

- Reviewed cases from 2003 to 2015
  - Unsafe injection practices
  - Failure to heat sterilize handpieces
  - No spore monitoring of autoclaves
  - Water line issues

According to the CDC:

- "All healthcare settings, regardless of the level of care provided, must make infection prevention a priority and must be equipped to observe Standard Precautions".
- "Infection prevention must be made a priority in any setting where healthcare is delivered".

- "Those with primary administrative oversight of the ambulatory care facility/setting (including the dental office) must maintain infection prevention and occupational health programs".

- "This includes the availability of sufficient and appropriate equipment and supplies necessary for the consistent observation of Standard Precautions, including hand hygiene products, injection equipment, and personal protective equipment (e.g., gloves, gowns, face and eye protection)".

Personnel Health Elements of an Infection Control Program

- Education and training
- Immunizations
- Exposure prevention and post exposure management
- Medical condition management and work-related illnesses and restrictions
- Health record maintenance

Personnel Health Elements

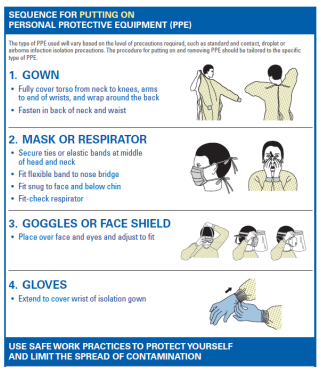
Standard Precautions

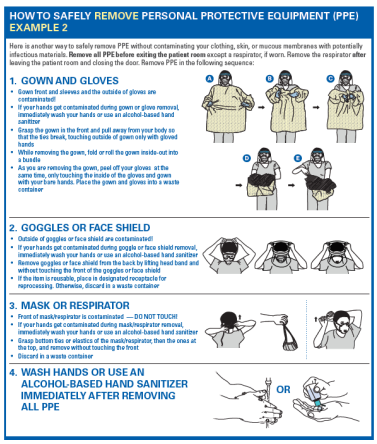
- Apply to <u>all</u> patients
- Integrate and expand Universal Precautions to include organisms spread by blood and also
  - Body fluids, secretions, and excretions except sweat, whether or not they contain blood
  - Non-intact (broken) skin
  - Mucous membranes

Elements of Standard Precautions

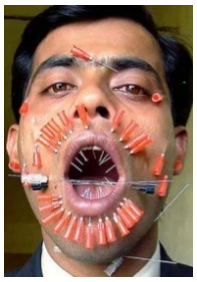
- Handwashing
- Use of gloves, masks, eye protection, and gowns
- Patient care equipment
- Environmental surfaces
- Injury prevention

Doning and Doffing PPE





Needle Stick Injury

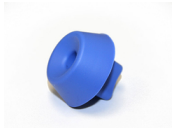


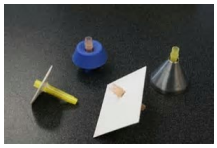
- Despite our best efforts, some occupational exposures are unavoidable.
- We work in an environment where we are at an increased risk of accidental needle stick injuries.

Safe Injection Practices

- Safe injection practice requires the use of a sterile dental anesthetic syringe (or a single use disposable device) with a new needle and anesthetic carpule for each patient.
- It is important to never use an anesthetic carpule on more than one patient (one needle, one syringe, one patient)

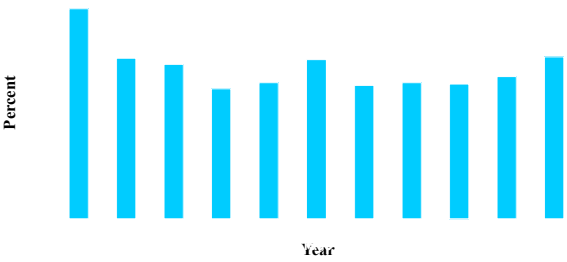
- Use of "blue bell" or another recapping device
- Wear gloves at all times handling burs and needles





HBV??

HBV Infection Among U.S. Dentists



Personal communication ADA, Chakwan Siew, PhD, 2005.

Transmission of HBV from Infected DHCP to Patients

- Nine clusters of transmission from dentists and oral surgeons to patients, 1970–1987
- Eight dentists tested for HBeAg were positive
- Lack of documented transmissions since 1987 may reflect increased use of gloves and vaccine
- One case of patient-to-patient transmission, 2003

- Between 2008 and 2011, a total of 31 outbreaks of viral hepatitis related to healthcare settings were reported to the CDC.
- HBV was involved in 19 of the 31 outbreaks (the other 12 were hepatitis C), causing a total of 155 outbreak-associated cases.
- Overall, 10,318 persons were notified for HBV screening.
- Almost all of these (94%) occurred in non-hospital settings, and one in an outpatient dental setting (Berkeley Springs, WV).

Hepatitis B Vaccine

- Vaccinate all DHCP who are at risk of exposure to blood
- Provide access to qualified health care professionals for administration and follow-up testing
- Test for anti-HBs 1 to 2 months after 3rd dose

Occupational Risk of HCV Transmission among HCP

- Inefficiently transmitted by occupational exposures
- Three reports of transmission from blood splash to the eye
- Report of simultaneous transmission of HIV and HCV after non-intact skin exposure

HCV Infection in Dental Health Care Settings

- Prevalence of HCV infection among dentists similar to that of general population (~ 1%-2%)
- No reports of HCV transmission from infected DHCP to patients or from patient to patient
- Risk of HCV transmission appears very low

2021

- HBV transmission very low – preventable with vaccine
- Hep C less of a risk than originally feared-
- Now treatment is available
- 99% (210 out of 213) of those who received HARVONI once daily for 12 weeks were cured.

Transmission of HIV from Infected Dentists to Patients

- Only one documented case of HIV transmission from an infected dentist to patients
- No transmissions documented in the investigation of 63 HIV-infected HCP (including 33 dentists or dental students)

2021

- HIV
- An estimated 13% of HIV-positive Americans are still not aware of their condition after a needlestick exposure to HIV-infected blood, the average risk of HIV transmission is approximately 0.3%.
- PEP
- Post exposure multi-antiviral prophylaxis

PEP

- PEP must be started within 72 hours after a recent possible exposure to HIV, but the sooner you start PEP, the better.
- Every hour counts.
- If you're prescribed PEP, you'll need to take it once or twice daily for 28 days.
- PEP is effective in preventing HIV when administered correctly, but not 100%.

HIV Postexposure Prophylaxis Regimens

- PREFERRED HIV PEP REGIMEN
- Raltegravir (Isentress®; RAL) 400mg PO Twice Daily
- Plus Truvada™,1 PO Once Daily[Tenofovir DF (Viread®; TDF) 300mg + emtricitabine (Emtriva™; FTC) 200mg]

Dental Handpieces

Handpieces

- According to the CDC
  - "Handpieces can be contaminated internally with patient material and should be heat sterilized after each patient."
  - "Handpieces that cannot be heat sterilized should not be used."

Handpieces

- According to the CDC
  - All dental handpieces, including high and low speed components, should be sterilized between each patient.
  - If the handpiece and/or handpiece component cannot be sterilized, it should be removed from any kind of patient care!!

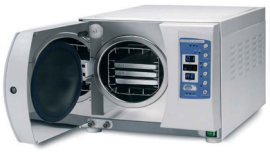
Chemical Indicators

- Chemical indicators, internal and external, use sensitive chemicals to assess physical conditions such as temperature during the sterilization process.
- Chemical indicators such as *heat sensitive* tape change color rapidly when a given parameter is reached.
- An internal chemical indicator should be placed in every sterilization package to ensure the sterilization agent has penetrated the packaging material and actually reached the instruments inside.
- An external indicator should be used when the internal indicator cannot be seen from outside the package.
- are available for steam, dry heat, and unsaturated chemical vapor.

Biologic Indicators

- Biological indicators (BIs) are the most accepted means of monitoring the sterilization process
- Because spores used in BIs are more resistant and present in greater numbers than are the common microbial contaminants found on patient care equipment, an inactivated BI indicates that other potential pathogens in the load have also been killed.

Autoclaves



How often should we perform biological monitoring (BI) (spore testing)?

- Correct functioning of sterilization cycles should be verified for each sterilizer once a week
- Users should follow the manufacturer's directions concerning the appropriate placement of the BI in the sterilizer

Dental Unit Water

"The dirtiest area in dental surgery."

Universal Precautions and Waterlines

Since disinfection does not = sterility, and dangerous pathogens have been found in DUWL's, the moment that biofilm contaminated water enters the *patient's mouth*, universal precautions are *compromised*

"The Dirtiest Area in Dental Surgery"

Bacterial colonization of dental water lines (DUWLs) was first reported in scientific literature in 1963.

Conventional DUWLs *expose patients and staff* to harmful microorganisms in the office in which you work.

Some Case Reports……..

"The temporal onset of asthma may be associated with occupational exposure to contaminated dental unit waterlines".

"Most of the organisms isolated from dental unit waterlines are Gram-negative bacteria, which contain cell wall endotoxin. A consequence of endotoxin exposure is the exacerbation of asthma."

Pankhurst, et al. Prim Dent Care. 2005 Apr;12(2):53-9.

"Dentists had the highest prevalence of L. pneumophila antibodies, followed by assistants and technicians, when compared with a control group of non-medical workers, *indicating that dental personnel are at an increased risk of legionella infection.*"

Reinthaler FF, et al. J Dent Res. 1988 Jun;67(6):942-3.

2012

- death from pneumonia associated with a dental unit waterline (DUWL) was reported in Italy.
- an 82-year-old woman was admitted to intensive care with respiratory distress and fever.
- The diagnosis of pneumonia caused by Legionella pneumophila (Legionnaires' disease) was made and despite immediate treatment with antibiotics, the woman died.

September 2015

- reported by a television station in Atlanta that a number of children developed infections that were traced back to a pediatric dental clinic in Jonesboro, Ga.
- Children's Health Care of Atlanta reported more than a dozen individuals who were found to have "open sores in their mouths"

September 2015

- Georgia Department of Public Health (G-DPH) stated, "cervical and/or submandibular lymphadenitis and/or osteomyelitis of the mandible."
- The dental office then voluntarily closed, installed a water-filtration system on each dental unit, and has since reopened based on resolution of the detrimental issues.

September 2015

- Since that report, the Georgia Public Health department has sent a letter to all providers stating that "the source of infection has been determined to be contaminated water in dental units"
- raising the awareness of all professionals in the state

The "Big Four" agree DUWL's are a problem.

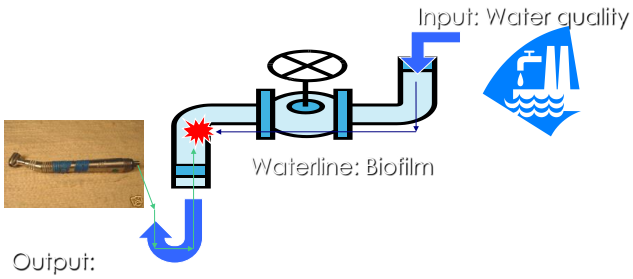
These organizations provide the primary opinions on standards of care in Dentistry.

All of them have issued many statements regarding DUWL contamination and infection control recommendations.

ADA OSAP Dentistry's Resource for Infection Control & Safety OSHA

CDC Department of Health and Human Services Centers for Disease Control and Prevention

DUWL Contamination Dynamics



Output:
Retraction and Backflow

Water Quality

Tap water is a reliable source of contamination.

You have no way of knowing exactly what is in it at any given time.

Distilled or sterile water is not good enough unless the reservoir and the DUWL are sterile.

Retraction and Backflow

Oral microflora have been recovered from DUWL's.

If retraction of patient fluids is not a problem, then *why are there anti-retraction valves built into the handpieces???*

How do you test a handpiece anti-retraction valve?

Eddies of backflow can travel through an open anti-retraction valve even during positive flow!

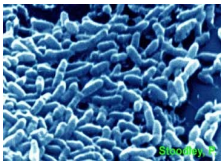
Waterline Biofilm

The small *diameter* and long *length* of the DUWL provides a *large surface area* for the adherence of microorganisms.

Microorganisms from water and patients combine in the DUWL and form a biofilm complex similar to dental plaque.

Bacteria in Biofilms

Bacteria in biofilms tend to be:
- more difficult to culture (for waterline testing)
- more resistant to control strategies (antibiotics and biocides) than when grown in the laboratory.



Their resilience has been related to physiology and protection by the EPS slime matrix that they produce.

Source: http://centerforgenomicsciences.org/research/biofilm.html

Changes in Biofilm Bacteria

Changes which occur in microorganisms incorporated in biofilms:

- *Become Chronic in Nature*
- *Become Culture Negative*
- *Poor Response to Antibiotics*
- *Greater Potential for Metastasis*

http://www.genomenewsnetwork.com /articles/06_02/biofilms.shtml

Sterilization Destroys Biofilms

Because of the highly resistant effect of biofilm and its ability to leech endotoxins and microorganisms into dental water *even after disinfection*,

it is critical to *sterilize the entire pathway* to eliminate the risk of contamination during dental procedures.

Disinfection is not Sterilization

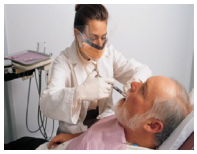
Disinfection: Destruction of pathogenic and other kinds of microorganisms by physical or chemical means. *

Sterilization: Use of a physical or chemical procedure to destroy *all* microorganisms including substantial numbers of resistant bacterial spores.

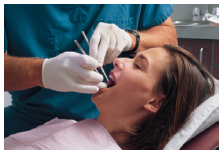
**Disinfection does not ensure the degree of safety associated with sterilization processes.*

Disinfection is less lethal than sterilization, because it destroys the majority of recognized pathogenic microorganisms, but not necessarily all microbial forms (e.g., bacterial spores).

Standard of Care



What does that mean for Dental Unit Water compliance in *your* office?



CDC Guidelines for Infection Control in DUWL's

"*Exposing* patients or dental health care personnel to water of *uncertain* microbiological quality,

is *inconsistent* with *generally accepted* infection control principles."

CDC Recommendations

1. Use water that meets EPA standards.
2. Consult with manufacturer to maintain water quality.
3. Monitoring of water quality
4. Maintenance of the anti-retraction mechanism.
5. Boil water advisories.
6. Eliminate the risk of DHCP non-compliance with disinfectant and water line monitoring.

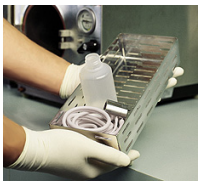
What can you do?

- How can you incorporate the recommendations of the CDC into your practice?
- How can you protect your patients and staff from the dangerous contaminants found in DUWL's?
- How can you prevent costly malpractice litigation due to contamination from your practice?

STERILE DELIVERY
is possible if you choose an
appropriate
delivery system…

AQUASEPT
Sterile Delivery

The AQUASEPT sterile delivery system can be retrofitted onto your existing unit to enable you to *meet or exceed* all of the CDC recommendations for water used in dental procedures.


Dentapure -elemental iodine

- The (I_2) isotopes interact with bacteria in the dental unit water controlling its growth for 365 days, or 240L of water if usage records are kept.
- The DentaPure Cartridge is EPA registered to ensure dental unit water quality having a maximum of 200 CFU/mL (Colony Forming Units).

Other options

SBE Prophylaxis

- Who needs it and who doesn't!
  - Not all pts. With heart murmurs
  - Guidelines have become much clearer

Cardiac Conditions Associated With Endocarditis

- High-risk category:
  - Prosthetic cardiac valves, including bioprosthetic and homograft valves
  - Previous bacterial endocarditis
  - Complex cyanotic congenital heart disease (e.g., single ventricle states, transposition of the great arteries, tetralogy of Fallot)
  - Surgically constructed systemic pulmonary shunts or conduits
  - Drug eluting stent– for 6 months after placement

Moderate risk?

- Antibiotic prophylaxis is NOW NOT generally recommended for people with moderate risk conditions.
  - People with the following conditions are considered to be at moderate risk of developing IE.
- *This is an important change from prior recommendations.

Moderate risk

- Valve repair without prosthetic material
- Hypertrophic cardiomyopathy
- Mitral valve prolapse with valvular regurgitation and/or valvular thickening
- Most other congenital cardiac abnormalities

Moderate Risk

- Unrepaired ventricular septal defect, unrepaired patent ductus arteriosus
- Acquired valvular dysfunction (eg, mitral or aortic regurgitation or stenosis)
- Atrial septal defect, ventricular septal defect, or patent ductus arteriosus that was successfully closed within the past six months

Low Risk- Prophylaxis Not Recommended

- Low risk — People with the following conditions are thought to have a low risk of IE.
- Antibiotics have never been recommended for people with these conditions:
- Physiologic, functional, or innocent heart murmurs
- Mitral valve prolapse without regurgitation or valvular leaflet thickening
- Mild tricuspid regurgitation

Prophylaxis Not Recommended

- Coronary artery disease (including previous coronary artery bypass graft surgery)
- Simple atrial septal defect
- Atrial septal defect, ventricular septal defect, or patent ductus arteriosus that was successfully closed (either surgically or with a catheter-based procedure) more than six months previously

Prophylaxis Not Recommended

- Previous rheumatic fever or Kawasaki disease without valvular dysfunction
- People with defibrillators

Current AHA Guidelines

- Dental procedures for which endocarditis prophylaxis is recommended
- Dental extractions
- Periodontal procedures including surgery, scaling, and root planing, probing, and recall maintenance
- Endodontic (root canal) instrumentation or surgery only beyond the apex
- Sub gingival placement of antibiotic fibers or strips

Current AHA Guidelines

- Initial placement of orthodontic bands but not brackets
- Intraligamentary local anesthetic injections
- Prophylactic cleaning of teeth or implants where bleeding is anticipated

***Prophylaxis is recommended for patients with high risk cardiac conditions

Current AHA Guidelines

- Prophylactic Regimens for Dental, Oral, Respiratory Tract, or Esophageal Procedures. (Follow-up dose no longer recommended.) Total children's dose should not exceed adult dose.

➢I. Standard general prophylaxis for patients at risk: Amoxicillin: Adults, 2.0 g (children, 50 mg/kg) given orally one hour before procedure.

➢II. Unable to take oral medications: Ampicillin: Adults, 2.0 g (children 50 mg/kg) given IM or IV within 30 minutes before procedure.

Current AHA Guidelines

- Allergic to penicillin
- Biaxin Immediate-release: 500 mg orally as a single dose 30 to 60 minutes before procedure
- Clindamycin 600mg po 30-60 minutes preop
- Zithromax 500 mg as a single dose given 30–60 minutes prior to the procedure

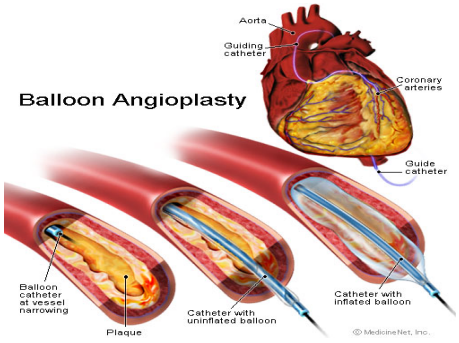
Current AHA Guidelines

- IV. Amoxicillin/ampicillin/penicillin allergic patients unable to take oral medications:
  Clindamycin: Adults, 600 mg (children 20 mg/kg) IV within 30 minutes before procedure. -OR-
  Cefazolin*: Adults, 1.0 g (children 25 mg/kg) IM or IV within 30 minutes before procedure.
- *Cephalosporins should not be used in patients with immediate-type hypersensitivity reaction to penicillins
- DO NOT USE E-MYCIN

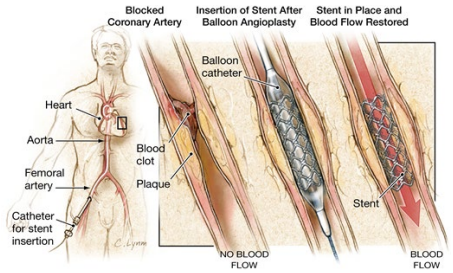
New Wrinkles

- Stent patients
- Pacemaker patients

Angioplasty

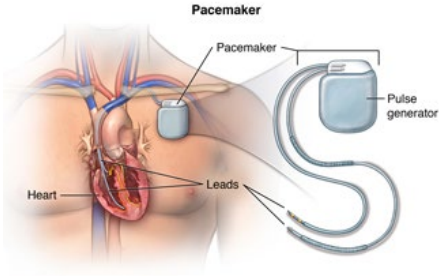


Percutaneous Coronary Intervention (PCI)
Coronary Artery Angioplasty and Stent



Bare Metal Stent (BMS)
Drug Eluting Stent (DES)

New Pacemaker



6 months!!????????????????

Risk factors for cardiac implantable electronic device infection: a systematic review and meta-analysis.
AU
Polyzos KA, Konstantelias AA, Falagas ME
SO
Europace. 2015 May;17(5):767-77.

- epicardial leads (OR = 8.09 [3.46-18.92])
- end-stage renal disease (OR = 8.73 [3.42-22.31])
- chronic obstructive pulmonary disease (OR = 2.95 [1.78-4.90])
- corticosteroid use (OR = 3.44 [1.62-7.32])
- history of the previous device infection (OR = 7.84 [1.94-31.60])

Preventing cardiac implantable electronic device infections.
Padfield GJ, Steinberg C, Bennett MT, Chakrabarti S, Deyell MW, Bashir J, Krahn AD
Heart Rhythm. 2015 Nov;12(11):2344-56. Epub 2015 Jun 30.

- Unfortunately, the rate of device-related infection (DRI) is increasing disproportionately to the rate of implantation

- These systematic reviews on risk factors for CIED infection may contribute to developing better infection control strategies for high-risk patients
- May also help risk assessment in the management of device revisions.
- Discuss with the treating Cardiologist
- Stay Tuned

Prosthetic Joint Replacements???

Prevention of Infections in Prosthetic Joints

- 1997: Advisory statement of ADA & AAOS: JADA, Jul;128(7):1004-8
  - 1997-Antibiotic prophylaxis is not routinely indicated
- 2003: AAOS-ADA Advisory statement update
  - All patients for all high risk dental procedures for the first 2 years
    dental extractions, periodontal procedures, dental implant placement and replantation of avulsed teeth, endodontic instrumentation or surgery only beyond the apex, initial placement of orthodontic bands, prophylactic cleaning of teeth or implants where bleeding is anticipated
  - After 2 years - high risk patients for high risk procedures
    (inflammatory arthropathies such as rheumatoid arthritis, systemic lupus erythematosus, drug- or radiation-induced immunosuppression, previous prosthetic joint infections, malnourishment, hemophilia, HIV infection, insulin-dependent type 1 diabetes)

Prevention of Infections in Prosthetic Joints

- **2009: Given the potential adverse outcomes and cost of treating an infected joint replacement, the AAOS recommends that clinicians consider antibiotic prophylaxis for all total joint replacement patients prior to any invasive procedure that may cause bacteremia."**
- **2010: The new AAOS statement should not replace the 2003 joint consensus statement. (**

Prevention of Infections in Prosthetic Joints

- **2012: Evidence insufficient to recommend routine antibiotics for joint replacement patients who undergo dental procedures (AAOS 12/2012)**
- **AAOS-ADA Evidence Based Clinical Practice Guideline**
  - **might consider discontinuing routine prophylactic antibiotics for patients with hip and knee prosthetic joint implants undergoing dental procedures (limited)**
  - **unable to recommend for or against topical oral antimicrobials in patients with prosthetic joints prior to dental procedures (inconclusive)**
  - **patients with prosthetic joint implants or other orthopaedic implants should maintain appropriate oral hygiene (consensus)**

2015: The Use of Prophylactic Antibiotics Prior to Dental Procedures in Patients with Prosthetic Joints

- **Evidence-based clinical practice guideline for dental practitioners—a report of the American Dental Association Council on Scientific Affairs**

JADA: January 2015 Volume 146, Issue 1, Pages 11–16

Results

- The 2014 Panel judged that the current best evidence *failed* to demonstrate an association between dental procedures and prosthetic joint infection (PJI).
- The 2014 Panel also presented information about antibiotic resistance, adverse drug reactions, and costs associated with prescribing antibiotics for PJI prophylaxis.

However……

- ”The practitioner and patient should consider possible clinical circumstances that may suggest the presence of a significant medical risk in providing dental care without antibiotic prophylaxis, as well as the known risks of frequent or widespread antibiotic use. ”

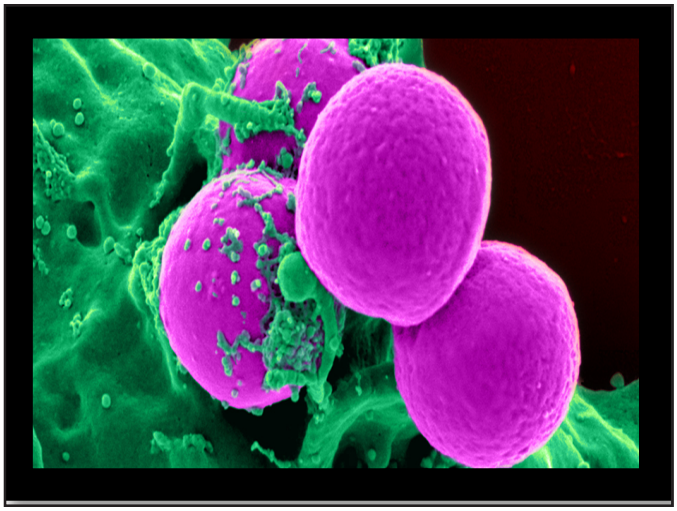
- “As part of the evidence-based approach to care, this clinical recommendation should be integrated with the practitioner’s professional judgment and the patient’s needs and preferences.”
- Discuss the individual case with pt. And Orthopedic surgeon

What does this all mean??

- Discuss *each* individual case with pt. and Orthopedic surgeon.
  - Diabetics
  - Prior Joint infection
  - Immunocompromised
  - Elderly?

Suggested Medications

- 2.0 gms- Cephalexin, Cephradine or Amoxicillin 1 hour prior
- 600 mg Clindamycin 30 minutes-1 hour prior



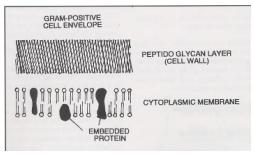
Basics Review of Microbiology "I promise!"

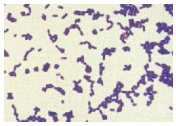
- Numerous classification systems
- One of the oldest and most reliable is the Gram stain
- 2 groups of bacteria:
  - Gram positive
  - Gram negative

Basics Review of Microbiology "I promise!"

- Oxygen spectrum/ environment
  - Aerobic
  - Anaerobic

Gram Positive (blue)





- 2 layers
- No cholesterol or other sterols in bacterial cytoplasmic membrane
- Teichoic acid in cell wall (antigenic determinant)

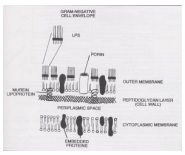
Gram Positives

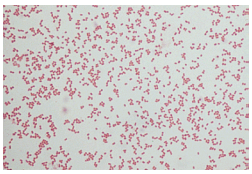
- 8 names to remember; basically, all others are gram negative
- Cocci:
  - *Streptococcus* (rows or chain)
  - *Staphylococcus* ('cluster of grapes')
- Rods: spore producing
  - *Bacillus*
  - *Clostridium*

Gram Positives

- Rods: non-spore producing
  - *Corynebacterium*
  - *Listeria* (only Gram + with endotoxin production)
- Branching/filamentous: mimic fungi
  - *Actinomyces*
  - *Nocardia*

Gram Negative (red)





- 3 layers
- Murein lipoprotein instead of teichoic acid
- Outermost LPS layer

Comparison

Gram-Positive Cells	Gram-Negative Cells
2 Layers: 1. Inner cytoplasmic membrane 2. Outer thick peptidoglycan layer (60-100% peptidoglycan)	3 Layers: 1. Inner cytoplasmic membrane 2. Thin peptidoglycan layer (5 - 10% peptidoglycan) 3. Outer membrane with lipopolysaccharide (LPS)
Low lipid content	High lipid content
NO endotoxin (except *Listeria monocytogenes*)	Endotoxin (LPS) - lipid A
NO periplasmic space	Periplasmic space
NO porin channel	Porin channel
Vulnerable to lysozyme and penicillin attack	Resistant to lysozyme and penicillin attack

Exceptions

- Mycobacteria: weakly Gram pos/ acid-fast stain (*Mycobacterium tuberculosis)*
- Spirochetes: gram neg but too small to be seen with light microscope (*Treponema pallidum)*
- Mycoplasma: lack a cell wall (*Mycoplasma pneumoniae)*

Oxygen Spectrum

- Major factor in their classification
- 4 groups:
  - * obligate aerobes
  - * facultative anaerobes (*'the faculty to be anaerobic')*
  - * microaerophilic (*aero-tolerant anaerobes)*
  - obligate anaerobes

(* = can utilize oxygen)

Oxygen Spectrum

	OBLIGATE AEROBES	FACULTATIVE ANAEROBES	MICROAEROPHILIC	OBLIGATE ANAEROBES
Gram-positive	*Nocardia* (weakly acid-fast) *Bacillus cereus*	*Staphylococcus* *Bacillus anthracis* *Corynebacterium* *Listeria* *Actinomyces*	*Streptococcus*	*Clostridium*
Gram-negative	*Neisseria* *Pseudomonas* *Bordetella* *Legionella* *Brucella*	Most other gram-negative rods	*Spirochetes* •*Treponema* •*Borrelia* •*Leptospira* *Campylobacter*	*Bacteroides*
Acid-fast	*Mycobacterium* *Nocardia*			
No cell wall		*Mycoplasma*		

Microbiology of the OMF region

- Type and Location of infection has its own characteristic flora
- Often mixed infections and numerous pathogens implicated
- For example…..

Common Pathogens

Necrotic pulp and apical abscesses

Obligate anaerobic bacteria

Gram negative rods

Prevotella & porphyomonas spp.
Fusobacterium spp.
Campylobacter rectus

Gram positive rods

Eubacterium spp.
Actinomycetes spp.

Gram positive cocci

Peptostreptococcus spp.

Facultative anaerobic bacteria

Gram positive cocci

Strep and Entercoccus spp.

Common Pathogens

- Periodontal Diseases
  Gingivitis
  Fuso, strep, & actinomycetes
  Adult peritonitis
  Bacteroides, porphyomonas, peptostreptococcus & prevotella
  Acute necrotizing ulcerative gingivitis
  Spirochetes, prevotella, fuso
  Localized juvenile periodontitis
  Actinobacillus

Common Pathogens

- Fungal Infections
  Candida spp.
  Mucorales spp.

Spread of Infection

- Direct Spread
- Lymphatics
- Blood stream

Factors governing spread of infection

- **Virulence of Micro-organism**
- **Number of invading Micro-organisms**
- **Resistance of the patient**
- **Position of the teeth in the alveolus**
- **Relation of tooth apices to muscle attachments**

I. Virulence of Micro-organism

The capacity of the micro-organism to produce pathogenic reactions or become injurious.

- Enzymes: hyaluronidase, fibrinolysin, collagenase & coagulase.
- Toxins
- Chemotaxis
- Mode of growth (mixed infection)

Resistance of the patient

- Nutritional status
- Immune System
  - Diabetic?
  - HIV?
  - Chronic Steroids?
  - Renal Disease?

Odontogenic Infections

- Usually, a combination of facultative streptococci and oral anaerobes
- Streptoccoci predominate during the first three days of clinical symptoms and the gram neg anaerobes appear thereafter
- Thought to be a synergistic relationship

Odontogenic Infections

- Proposed that aerobes provide suitable environment for anaerobes:
  - Essential nutrients: Vit K, hemin, succinate
  - Creation of favorable pH
  - Inhibition of competing strains
  - Consumption of O_2 for anaerobic environment

Odontogenic Infections

- Viridans Group Streptococci
  - S. salivarius
  - S. mutans
  - S. sanguis
  - S. mitis
  - * S. milleri group (SMG)
  - * S. anginous, S. intermedius, S. constellatus,

Odontogenic Infections

- Strep milleri group
  - Isolated 30- 52% of oral abscesses in several studies
  - Also associated with empyema, liver abscesses and endocarditis
  - Can be beta, alpha or gamma hemolytic
  - 97% of the strain's sensitive to penicillin; 95% to 3rd gen cephs

Odontogenic Infections

- Less common aerobes:
  - Group A beta hemolytic streptococci (*strep pyogenes*)
  - Strep pneumonia
    - Most resistant to penicillin
  - Staph aureus
    - Resistant to pen V
  - Eikenella corrodens
    - Fairly resistant to penicillin, resistant to clindamycin; use fluoroquinolones

Odontogenic Infections

- The Anaerobes:
- Gram pos Peptococcus (cluster of cocci) and Peptostreptococcus (chain of cocci)
  - Sensitive to penicillin
- Gram neg Prevotella and Porphyromonas (formerly Bacteroides melanogenicus)
  - Approximately 25% resistance to penicillin

Odontogenic Infections

- Fusobacterium sp
  - *F necrophorum* 1º etiologic agent of Lemierre syndrome (suppurative jugular thrombophlebitis)
  - Usually sensitive to penicillin
- Bacteroides fragilis
  - Rare but may confer resistance to more common oral anaerobes
  - Sensitive to metronidazole

Position of the teeth in the alveolus

Infection spread in way of least resistance - so depending on the position of the root apex in alveolus:

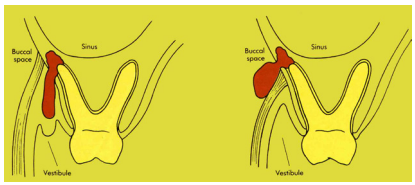
• Mandibular Central incisors	Labial
• Mandibular Lateral incisor	Lingual
• Mandibular Cuspids	Labial
• Mandibular Bicuspids	Buccal
• Mandibular Molars	Buccal

Position of the teeth in the alveolus

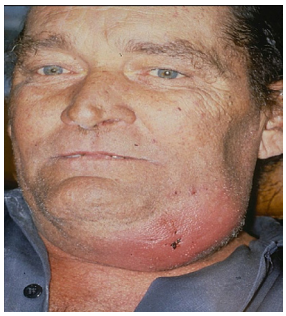
• Max Central incisors	Labial
• Max. Lateral incisor	Labial
• Max. Cuspids	Labial
• Max. 1st Bicuspids	Buccal (B.root)
	Palatal (P.root)
• Max. 2nd Bicuspids	Buccal (B.root)
• Max. Molars	Buccal (B.root)
	Palatal (P.root)

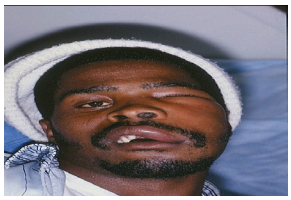
Relation of tooth apices to muscle attachment

- Muscles act as a barrier against spread of infection. Muscles direct the pathway of infection.



Patient Assessment





Patient Assessment

Directed History: duration, progression of symptoms. Previous therapy, PMH & ROS

PE: Is pt alert, in distress because of pain, airway compromise, is pt hydrated, is there any trismus.

Directed head & neck exam:

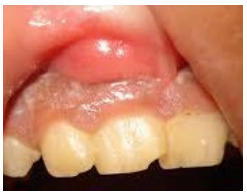
Inspection: areas of erythema, swelling or drainage

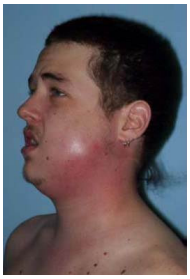
Palpation: assess induration, tenderness, fluctuance, regional lymphadenopathy

Patient Assessment

The big question:

Is it sub mucosal? Or is it deeper?





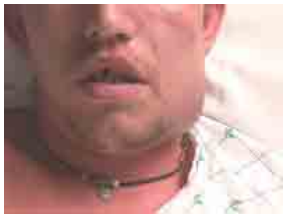
Patient Assessment

- E/O: document facial swelling, location, size,extension, erythema, induration, fluctuation, drainage, lymphadenopathy.
- I/O: Document I/O swelling, area, size, related teeth, fluctuance. Inspect condition of the FOM, palate, uvula, oropharynx, MIO

Patient Assessment

Mandibular infections:

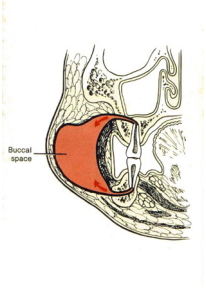
Is the swelling above or below the inferior border of the mandible?

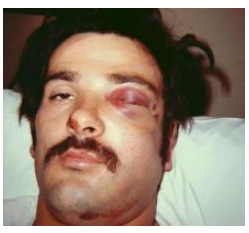


Patient Assessment

Maxillary infections:

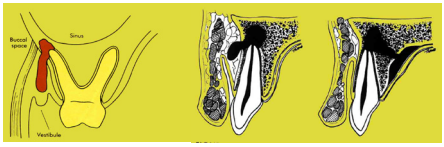
Is the eye involved?





Vestibular Space Infections

- Boundaries: Vestibular mucosa & underlying muscle of facial expression.
- Post: Buccinator muscle, ant: orbicularis oris & intrinisic muscles of the lip.



Imaging:

- Panoramic radiograph - standard to identify odontogenic origin / Periapical
- Water's, PA, lateral neck for sinus infection, airway displacement
- Contrast CT most practical study for a severe deep space infection. (abscess vs cellulitis)
- Scintigraphy with Tc99, Ga67 helpful in diagnosis of osteomyelitis but not in acute infections.

PRINCIPLES OF THERAPY

- TREAT WITH SURGERY
- Provide drainage
- Must be adequate!
- Remove the cause of infection
  - Pulpectomy
  - Extraction
- Remove foreign body
- Debride non-viable bone
- Culture when possible??

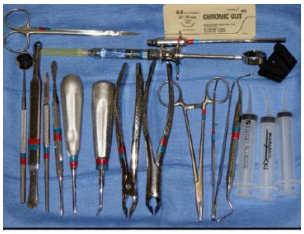
INCISION AND DRAINAGE

- The foundation of good care Like a tracheostomy, "do it when you think of it and earlier, rather than later"

Culture & Abx sensitivity:

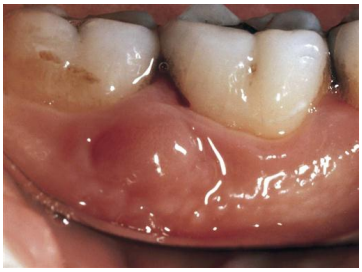
- Superficial, minor infection treated with I & D + Empiric Abx.
- Extensive, deep infections / recurrent / not responding to Abx / hospital acquired infections, unusual presentation tissue necrosis or gas production / compromised pt. require culture and sensitivity
- Specimens obtained by swabs / Aspiration / Excised tissue.

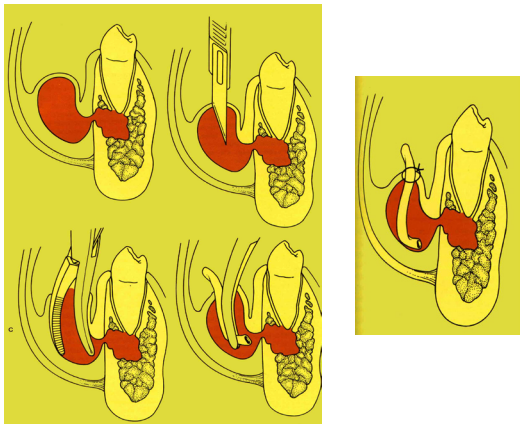
Surgical Tray Setup



Drainage: incision through oral mucosa parallel to & in the depth of vestibule

Except over mental n. Vertical incision parallel to course of nerve. Followed by blunt dissection

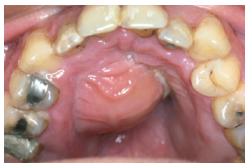


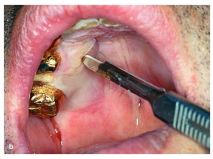


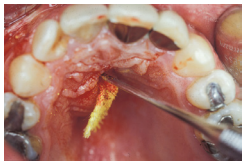
Palatal abscess:

infection from lateral incisor or palatal root of post. Teeth.

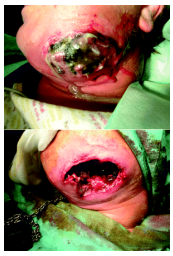
Essentially: subperiosteal space of the palate







- Dilution is the solution to pollution
  - Irrigate to the depth of the abscess with copious NS



Sinus Infections

- Acute rhinosinusitis
  - Odontogenic origin: cover oral microflora
  - Non-odontogenic origin:
    - *Strep pneumonia*
    - *Hemophillus influenza*
    - *Moraxella catarrhalis*
    - *Other Strep sp*
    - *Staph aureus* (only 4% of infections)
    - Possibly viral etiology

Sinus Infections

- Chronic rhinosinusitis
  - Flora becomes more anaerobic including *B. fragilis*, Peptostreptococci, *Fusobacterium*, *Prevotella*, *Porphyromonas*
  - May require surgical intervention along with antibiotics

Sinus Infections

- Nosocomial/ Intubated patients
  - Aforementioned flora implicated
  - Be aware of enterobacteriaceae (especially *E. coli, Pseudomonas, Klebsiella, and Acinetobacter*)
  - *Staph aureus*
  - Fungal

Pharyngitis

- Oral microflora implicated
- Group A beta hemolytic Streptococci (*Strep pyogenes*)
  - Concern with antibody mediated Rheumatic Fever or post-streptococcal glomerulonephritis
  - Prompt treatment decreases severity of infection and lessens chance of ominous sequalae

Wound Infections

- Almost exclusively either *Strep pyogenes* or *Staph aureus*
  - Can be a combination of the 2 groups
- Staphylococcus epidermidis
  - Normal flora, Coagulase negative
  - Rarely causes infection
  - Often contaminates blood cultures
  - Associated with infections of prosthetic devices (valves, joints, peritoneal dialysis catheters) due to polysaccharide capsule

The Drugs

The Drugs

- Choice of antibiotic depends on both host-specific factors and pharmacologic factors
- Host factors
  - Usual pathogens
  - Allergy/ intolerance
  - Immune status compromise
  - Previous antibiotic therapy

The Drugs

- Pharmacologic factors
  - Antimicrobial spectrum
  - Tissue distribution
  - Pharmacokinetics
  - Toxicities

Penicillins

- Most widely used for OMF infections
- Member of beta-lactam group of antibiotics (penicillins, cephalosporins, monobactams, carbapenems)
- All are bactericidal

Penicillins

- MOA:
  - Binds to penicillin binding protein (PBP's) beneath the cell wall
  - These enzymes, known as transpeptidase, carboxypeptidase and endopeptidase, are responsible for cross linkage of peptide chains in the wall
  - Cell wall synthesis is arrested; cell lyses

Penicillins

- Resistance to penicillin/ beta-lactams occurs in one of 3 ways:
  - Beta-lactamase enzymes that cleave the C-N bond in the beta-lactam ring (penicillinase if enzyme is secreted by bacteria)
  - Altered structure of the PBP's that resists penicillin binding
  - Gram neg alter porin channels inhibiting penicillin from entering cell

Penicillins

- 4 generations with different spectrum of activity
- 1st Gen:
  - Pen G (IV) / Pen V
  - Strep A, B, C, G, Viridans, SMG, beta-lactamase neg enterococcus, oral anaerobes
  - Strep pneumoniae showing increased resistance
  - Ineffective versus beta-lactamase producing organisms

Natural penicillins

- **Pen VK and Pen G**
  - **MOA: Inhibit cell wall synthesis**
  - **Dose: 250-500 mg qid x 7-10 days**
  - **Contraindications:**
    - **Allergies**
    - **Poor renal fxn**
  - **Adverse events: GI upset**
  - **Drug interactions: oral contraceptives**

Penicillins

- 2nd Gen:
  - Cloxacillin
  - Penicillinase resistant antibiotic
  - Gain *S. aureus* coverage but lose enterococcus, some anaerobic coverage
  - Pen G more effective versus *Strep sp*

Penicillins

- 3rd Gen:
  - Ampicillin/Amoxicillin,
  - Better gram neg penetration; extends spectrum slightly (*E. coli, H. influenza, Proteus mirabilis*)
  - Better enterococcus coverage
  - Inhibited by penicillinase

Penicillins

- 3rd Gen con't
  - amoxicillin-clavulanate, ampicillin-sulbactam
  - Clavulanic acid, sulbactam, tazobactam all inhibit beta-lactamase enzyme
  - extended spectrum to encompass *Staph sp*, gram negatives, anaerobes

3rd Generation

- Amoxicillin, ampicillin
- MOA: Inhibit cell wall synthesis
- Dose: 250-500 mg q 8 h x 7-10 days
- Contraindications:
- Allergies
- Poor renal FXN
- Adverse events: GI upset
- Drug interactions: oral contraceptives
- Amoxicillin and clavulanic acid (Augmentin)

Augmentin-

- Amoxicillin and Clavulanic Acid
- Clavulanate potassium is a form of clavulanic acid, which is similar to penicillin.
- Clavulanate potassium fights bacteria that is often resistant to penicillins and other antibiotics.
- Adult Dosing
- 875mg po BID

Penicillins

- 4th Gen:
  - Ticarcillin, piperacillin, Ticar/clav, pip/tazo
  - Extended spectrum
  - Similar to amox/clav except that *pseudomonas aeruginosus* covered
  - Pen G more efficatious for *Strep sp.* coverage

Penicillins

- 4th Gen con't:
  - Certain organisms now produce extended spectrum beta-lactamases (ESBL's)
  - Hydrolyze all penicillins, beta-lactamase inhibitors, virtually all cephs and monobactams…Yikes!
  - Carbepenems (meropenem) last line of defense

Penicillins; Interesting Facts

- Beta-lactams are time dependant killers
- Necessary to maintain a serum blood level above a given mean inhibitory concentration (MIC) for at least 40% of the dosing interval

Penicillins; Interesting Facts

- Pen G half-life = 0.5 hrs
  - By 5 half-lives (2.5 hrs), only 3% peak serum level remains
  - 2 mil units gives an initial peak of 20 ug/ml
  - *S. viridans* MIC-90 = 0.2 ug/ml for Pen G
  - Serum conc Pen G after 8 half-lives (4hrs) = 0.15ug/ml
  - Therefore, serum level down below MIC-90 for only about 15% of dosing interval (q 4hrs)
  - ***4hr dosing highly effective for infections***

Penicillins; Interesting Facts

- Amoxicillin half-life = 1.2 hrs
  - 500 mg PO gives a peak serum level of 7.5ug/ml
  - MIC-90 of *S viridans* = 2 ug/ml for amoxicillin
  - 8 hr dosing, serum levels fall below MIC-90 at 5 half-lives (2.5hr)
  - Therefore, only at appropriate serum concentration for 31% of the dosing interval

Cephalosporins

- 4 generations with different spectrum of activity; bactericidal
- In general, as generations increase, the gram neg coverage increases but the gram-positive efficacy diminishes
- Only 10-15% cross-sensitivity with Pen…can be prescribed unless anaphalactoid reaction with Pen

Cephalosporins

- 1st Gen:
  - Cefazolin, cephalexin: good Staph , Strep, E. coli, Klebsiella (little broader with Cefazolin)
  - Oral gram neg rods fairly resistant to ceph family
  - Oral anaerobe coverage but due to cephalosporinase, may not be the best choice

Cephalosporins

- 2^{nd} Gen:
  - Part I: cefaclor, cefuroxime
  - Similar to 1^{st} Gen but *H. Influenza* covered
  - Part II: cefotetan, cefoxitin (cephamycins)
  - Similar to 1^{st} Gen but *B. fragilis* covered

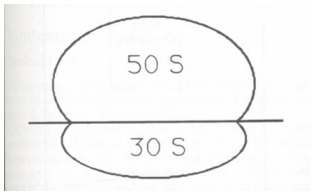
Cephalosporins

- 3rd Gen:
  - Part I: Ceftriaxone, cefotaxime
  - Poor anti-pseudomonal but better pneumococcal coverage
  - Ceftriaxone (inc "biliary sludge")
  - Part II: ceftazidime has anti-pseudomonal

Cephalosporins

- I only use cephalosporins for skin infections or prophylaxis for skin incisions

Anti-ribosomal Antibiotics



Bacterial ribosome

Clindamycin

- Anti-ribosomal antibiotic of the lincosamine family
- Binds to the 50S component of the 70S bacterial ribosomes
- Shuts down protein translation
- Usually, bacteristatic but bactericidal at higher doses
- Adult dose
  - 300mg po QID

Clindamycin

- Excellent gram-positive cocci and oral anaerobic coverage; Gram pos inhibited at 0.5-5ug/ml
- 150-300mg PO give serum levels of 2-3 ug/ml (10-20mg/kg/d peds)
- 600 mg IV yields 5-15ug/ml serum conc
- Good penetration into abscesses
- Abscess levels reach 33% of serum level

Clindamycin

- No gram negative aerobic (the enterics) coverage
- Associated with diarrhea, nausea and skin rashes
- Several cases of *C. difficile* colitis but presumably no worse than other broad spectrum abx (interestingly most cases Pen induced)- Will discuss later!

Erythromycin

- Macrolide; anti-ribosomal vs 50S subunit
- Bacteriostatic
- Bad GI effects; increases motility
- Hepatotoxicity (acute cholestatic hepatitis)
- Cytochrome P450 inhibitor
- Poor anaerobic coverage

- Don't waste your time; Azithromycin a better choice but it too showing resistance

Azithromycin-Zithromax

- Sinusitis, pharyngitis or tonsillitis caused by susceptible *Streptococcus pyogenes* (group A β-hemolytic streptococci) when first-line therapy cannot be used.
- As a 3 day or 5-day pack
- Once a day dosing helpful

Clarithromycin-Biaxin

- Clarithromycin is used to treat many different types of bacterial infections affecting the skin and respiratory system
- In general, this drug effectively eradicates Streptococcus pyogenes
- Usual adult dosing
  - 500mg Bid x 10 days

Metronidazole

- Originally an anti-parasitic but also has great anaerobic coverage
- Disrupts DNA and protein synthesis
- Bactericidal
- Serum levels of 2-6 ug/ml after 250mg PO dose
- Used in combination for OMF infections; not as single agent

Metronidazole

- Used also for *C.difficile* pseudomembranous colitis

- Avoid in pregnancy; teratogenic in animal studies

- Disulfuram effect when combined with alcohol

Metronidazole

- Dosing
  - 500mg po QID
- Guideline is 40g lifetime dose
  - colloquial guideline
  - practically, stop immediately if develop neuropathy symptoms regardless of dose

Vancomycin

- Cell wall inhibitor
  - Inhibits mucopeptide synthesis
- Bactericidal to gram pos at conc of 0.5- 3 ug/ml
  - MRSA killed at 10 ug/ml

Vancomycin

- 0.5 g IV gives serum conc of 10-20 ug/ml
  - Not absorbed orally
  - Orally used to treat *C. diff* colitis
  - Poor oral anaerobic coverage
  - Pen a better choice in Pen susceptible bugs
  - VRE and VISA becoming more of a concern

Vancomycin

- Adverse effects:
  - Ototoxicity (mild)
  - Nephrotoxicity (mild)
  - "Red Man Syndrome" probably due to release of histamine and can be avoided with slow infusion and antihistamines

Fluoroquinolones

- Inhibit nucleic acid synthesis
  - Block DNA gyrase
- Early generation (Cipro):
  - good gram neg, no gram pos and good pseudomonal
- Later gen (Levaquin):
  - Better gram pos, less gram neg and less pseudomonal

Fluoroquinolones

- Used for respiratory infections;
- Leva showing inc *Strep pneumoniae* resistance
- Be wary of blood glucose changes
- "Black Box Warning"

Levaquin Black Box Warning

- Fluoroquinolone Antibiotics Deaths/ Adverse Events
- • FDA MedWatch data for Levaquin, Cipro, Avelox:
  - • November 1, 1997, to February 3, 2011:
  - • 210,705 AE's
  - • 2,991 Death outcomes by case
  - • It is estimated that only 1% to 10% of actual Adverse Events (AEs) are reported to the FDA. Actual estimated FQ AEs/Death outcomes: much higher
    - Moore TJ, Benne[CL. 2012 Nov;38(8):905-7. doi: 10.1055

Cipro and Levaquin

- basic science research documented:
  - Brain damage
  - Liver damage
  - Tendon damage- especially Achilles

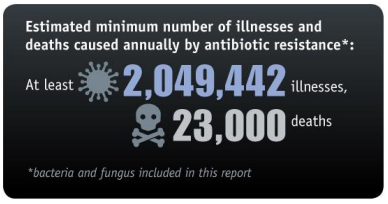
Antifungals

- Nystatin
  - MOA: inhibit cell wall synthesis
  - Dose: 5 ml swish and swallow q 4 h x 10-14 d
  - GI upset
  - Drug interactions: minor

Antifungals

- Clotrimazole (Mycelex), ketoconazole (Nizoral), fluconazole (Diflucan)
  - MOA: inhibit cell wall synthesis
  - Dose: 200-800 mg qd x up to 1 month
  - Mycelex- One 5x day x10 days
  - GI upset
  - Drug interactions: major p-450 enzyme inhibitor, interactions with many drugs

Let's Talk About Resistance



Antibiotic Resistance

- A growing concern
- In 2010, over $4 billion spent on resistant infections

Antibiotic Resistance

- Generally acquired in 1 of 4 ways:
  - Alteration in drug target
  - Inability to reach target
  - Inactivation of antimicrobial agent
  - Active elimination of drug from cell

Penicillin Resistance

- Resistance to Penicillin is rising with Strep viridans
- Flynn (2003) quotes rates of 19-65% resistance from various studies
- Flynn et al (2010)
  - Prospective study 34 hospitalized patients
  - 26% clinical failure with penicillin therapy
  - 60% penicillin resistance

Penicillin Resistance

- Fortunately, Most oral aerobes still highly sensitive to Pen
- Oral anaerobes show roughly 25% resistance (most often *Prevotella* and *Porphyromonas sp*)

Resistance and Side Effects

- The development of antibiotic resistance and negative effects of inappropriate antibiotic use has created a tremendous burden on infection management

Clostridium difficile

- Recurrent C. Diff cases which are resistant to treatment
- 250,000 cases/year
- 14,000 deaths
- 1 billion in medical costs

MRSA-

- Methicillin Resistant Staph Aureus
  - 80,000 new cases last year
  - 11,285 deaths
  - Some now resistant to Vancomycin
  - Only drug available is Zyvox

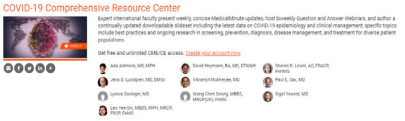
Antibiotic Stewardship

- a coordinated program that promotes the appropriate use of antimicrobials (including antibiotics)
- improves patient outcomes
- reduces microbial resistance
- decreases the spread of infections caused by multidrug-resistant organisms

Conclusions

- There is no magic guidebook for any of this
- We have to use our best judgement combined with data available and appropriate consultations
- Document all medical recommendations and risk, benefit, option for each patient

Check out more coverage on these topics in the Resource Center!



MedicalMinute	Topic/Studies Covered	MedicalMinute	Topic/Studies Covered
1 Remdesivir EUA	ACTT-1 trial	11 Vaccines in Phase 3	Moderna, Oxford, CanSino trials
2 SARS-CoV-2 serology	Ab: detection, neutralizing; POC testing	12 Viral transmission	Droplets, aerosols, phys dist, air circ, masks
3 COVID-19 diagnosis	Ab, RNA, chest CT, diagnosis timeframe	13 Pregnancy	Labor/delivery, transmission, remdesivir
4 Clinical presentation	Incubation, symptoms, disease severity	14 Diagnostics, Epi	Tests: antibody, antigen, RT-PCR for RNA
5 Mild/Mod COVID-19	ACTT-1, SIMPLE-moderate, SIMPLE-severe	15 Coagulopathy	Anticoagulation, thromboprophylaxis
6 Racial disparities	Incidences, hospitalizations, deaths	16 Adaptive immunity	IgG durability, memory T-cells, reinfection
7 Sev/Crit COVID-19	Def, management, NIH and IDSA guidelines	17 Convalescent plasma	Li study in JAMA, conCOVID, FDA EUA
8 Dexamethasone data	RECOVERY trial, recommendations, caveats	18 Herd Immunity	R_0, pop heterogeneity, immune duration
9 Immunocompromise	HIV, malig, organ tx, immunomodulators	19 Long-term sequelae	Pulmonary and extra-pulmonary sequelae
10 COVID-19 in children	Incidence, severity, MIS-C, remdesivir EUA	20 Corticosteroids	

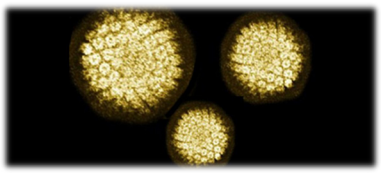
https://www.clinicaloptions.com/infectious-disease/programs/covid19-resources

ALWAYS check with CDC and ADA

Special Considerations

- Osteomyelitis
- Fungal
- Necrotizing fasciitis
- Actinomycosis
- Bites
  - Animal
  - Human
- HPV

HPV



HPV

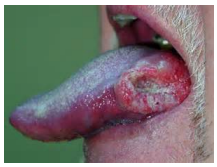
- The human papilloma virus (HPV) is a double-stranded DNA virus that infects the epithelial cells of skin and mucosa.
- The CDC says that up to 80% of Americans will have HPV infections in their lifetime
- 99% will clear these infections without consequence, or even knowing that they had the infection, as it produces no symptoms they will notice.

HPV

- While it is established now that sexual contacts, both conventional and oral, are means of transferring the HPV virus through direct skin to skin contact, it is still poorly understood what other transfer pathways may exist.
- It is highly unlikely that the virus can live for long on inanimate objects outside of a cell.

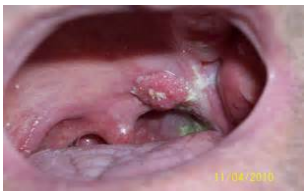
HPV

- Publications now existing in peer-reviewed medical journals establish HPV as a more important causative agent than tobacco in oropharyngeal cancers
- its impact will certainly be significantly larger than the 25% of what was previously described as “other causes.”



HPV

- A number closer to 70% would more accurately describe its impact
- Most recently there was a study published in Sweden that looked at their current population of oral cancer patients and in that group, 60% were HPV positive



HPV

- CDC now recommends 11- to 12-year-olds get two doses of HPV vaccine—rather than the previously recommended three doses—to protect against cancers caused by HPV.
- The second dose should be given 6-12 months after the first dose

SELF EVALUATION

Infection Control in Dentistry: The New Normal

1. Covid vaccine became available quickly because all of the following except.

a. We already had helpful information about coronaviruses, so we weren't starting from scratch.
b. The United States and other governments invested a lot of money to support vaccine companies with their work.
c. A lot of people participated in clinical trials and we didn't need to spend time finding volunteers.
d. Manufacturing happened at the same time as safety studies, so vaccines were ready to be distributed once they were approved.
e. Animal studies were already being done in the US .

2. Which of the following statements about healthcare acquired infections is/are true.

a. In the USA, the Centers for Disease Control and Infection (CDC) estimates that 1.7 million HAIs occur each year
b. HAIs contribute to 99,000 patient deaths annually.
c. HAIs kill more people per year than AIDS, breast cancer and auto accidents combined, which makes HAIs the fourth leading cause of death in the USA.
d. All of the above

3. Dental office standard of care includes which of these requirements

a. Cold sterilizing handpieces
b. Spore monitoring of autoclaves
c. Use of PPE for surgery only
d. Eye protection only required for aerosol producing procedures

4. The use of antibiotics in dentistry has been associated with

a. Development of resistant bacteria
b. GI disorders including C. Diff enteritis
c. Excess cost to patients
d. All of the above.

5. Infections spread in the path of least resistance – Which is the correct path of spread

a.	Mandibular Central incisors	Lingual
b.	Mandibular Lateral incisor	Lingual
c.	Mandibular Cuspids	Lingual
d.	Mandibular Bicuspids	Lingual
e.	Mandibular Molars	Lingual

Answer Key: 1. E, 2. D, 3. B, 4. D, 5. B

Tonya Womack

Tonya Womack, of Pontiac, Michigan, is a Community Outreach Facilitator at Care House of Oakland County, an organization devoted to caring for victims of domestic and sexual abuse. Ms. Womack educates the community on sexual abuse prevention an area in which she spent seven years prior to joining CARE House with the knowledge that community education is a critical piece of the effort to eradicate unhealthy and abusive behavior in our society. She is a certified trauma practitioner and holds a bachelor's degree in Human Development and Family Studies from Bowling Green State University. In 2019 Ms. Womack was selected to receive advanced training from the Michigan Human Trafficking Task Force and has since facilitated over 150 workshops and presentations to the healthcare and educational communities.

You may contact Ms. Womack at 248-332-7173, or via email at TWomack@CareHouse.org

40 YEARS OF HELPING CHILDREN.
CARE HOUSE OF OAKLAND COUNTY
44765 Woodward Ave.
Pontiac, MI 48341
(248) 332-7173
www.carehouse.org

Tonya Womack
Community Education Facilitator

Recognizing and Responding to Human Trafficking

Care House of Oakland County

HUMAN TRAFFICKING

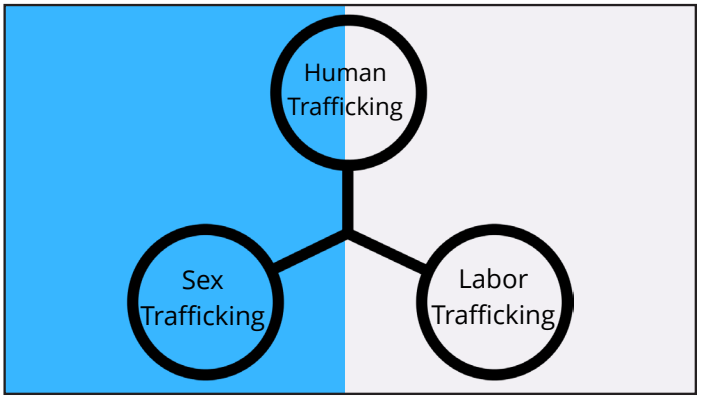
40 YEARS OF HELPING CHILDREN.
CARE HOUSE OF OAKLAND COUNTY

CARE HOUSE

- Child Advocacy center for Oakland County
- Services
  - Intervention & Treatment
  - Prevention
  - EHS
  - CASA

OBJECTIVES

- Learn the definition of Human Trafficking.
- Describe the factors that make individuals or populations "at risk" of victimization.
- Understand the role oral health professionals play in recognizing, responding to, and reporting a suspicion.



Myth or Fact

It's always or usually a violent crime.

Myth or Fact

Traffickers target victims they don't know.

Myth or Fact

Only women and girls can be victims and survivors of sex trafficking.

Myth or Fact

All human trafficking involves sex

WHAT IS SEX TRAFFICKING?

The recruitment, harboring, transportation, provision, or obtaining of a person for a commercial sex act, in which a commercial sex act is induced by force, fraud, or coercion (18 or over).

Top Forms of Force, Fraud, and Coercion

- Induces/exploits substance abuse issues
- Sexual Abuse
- Emotional Abuse
- Physical Abuse
- Intimidation- Displays/threatens Weapons

COMMERCIAL SEXUAL EXPLOITATION OF CHILDREN

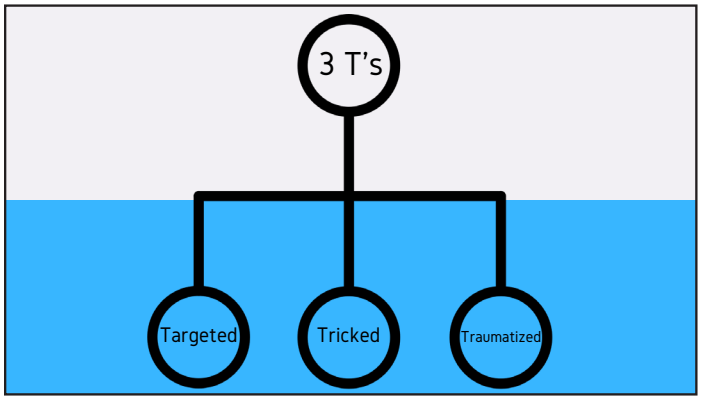
STOP THIS TRAFFIC

Risk Factors

- Unstable Home Life
- Poverty
- Truancy
- Minimal Social Support
- Natural Disaster
- Marginalization and Discrimination
- Drug and Alcohol Addiction
- Citizenship/Documentation Status

Recruitment

- **MALLS**
- **PARTIES**
- **HOME**
- **SCHOOLS**
- **SOCIAL MEDIA**



METHODS OF CONTROL

- Gas Lighting
- Physical Violence
- Occasional Indulgences
- Exhaustion
- Intimidation
- Manipulation
- Economic
- Blackmail
- Sexual Violence
- Threats
- Chemical Dependency

Indicators

- **DOES NOT KNOW THEIR PERSONAL INFORMATION**
- **IS NOT ALLOWED OR ABLE TO SPEAK FOR THEMSELVES**
- **ALWAYS ACCOMPANIED BY A "HANDLER".**
- **DOES NOT KNOW THEIR LOCATION OR DATE**
- **HAVE ORAL OR FACIAL INJURIES**
- **BRANDING MARK/TATTOOS**

Clinical Strategies

Separate the patient from the 3rd party individual to conduct basic screening questions.

Example Screening Questions

- Are you living and working in a safe place?
- Where and when do you sleep?
- Are you able to come and go freely from home and work?
- Do you have access to the money you earn?
- Do you have days off from work? What do you do with your time off?
- What happens of you leave or talk about leaving your work or home?
- Has your communication with others been cut off? Do you have a phone and/or computer?
- If you are not feeling well, are you able to take time off from work?
- Has someone ever controlled your access to food, medication, or health care?
- Has someone ever taken your identification papers or other personal documents?

Clinical Strategies

Keep detailed documentation of craniofacial injuries and other identified injuries including description, locations, duration, and other information pertaining to the abuse.

Clinical Strategies

Respect an adult victims decision on whether or he or she is ready to self-report and attend to the individuals immediate needs and safety.

Clinical Strategies

Use a trauma-informed approach to ensure victims feel in control and respected.

HT in Michigan

Quick Stats

- $99 BILLION GLOBAL INDUSTRY
- 88% OF VICTIMS ARE SEEN BY MEDICAL PERSONNEL AND ARE MISSED
- AVERAGE LIFE EXPECTANCY OF A VICTIM IS 7 YEARS

PolarisProject.com, 2019

Sex Trafficking

How To Help a Victim

- **HAVE A VICTIM-CENTERED APPROACH**
- **REMAIN NON JUDGMENTAL**
- **KNOW THE RESOURCES IN YOUR COMMUNITY**
- **CALL HUMAN TRAFFICKING HOTLINE**
  1(888)373-7888

RESOURCES

Polarisproject.com

Michigan Human Trafficking Task Force
MHTTF.org

40 YEARS OF HELPING CHILDREN.
CARE HOUSE OF OAKLAND COUNTY

NHTRC | NATIONAL HUMAN TRAFFICKING RESOURCE CENTER
1-888-373-7888

Identifying Victims of Human Trafficking:
What to Look for in a Healthcare Setting

Healthcare providers may come into contact with victims of human trafficking and have a unique opportunity to connect them with much needed support and services. Anyone in a healthcare setting may be in a position to recognize human trafficking – from clerical staff to lab technicians, nursing staff, ambulatory care, radiology staff, security personnel, case managers, and physicians.

The following is a list potential red flags and indicators that medical providers may see in a patient who may be a victim of human trafficking. Please note that this list is not exhaustive. Each indicator taken individually may not imply a trafficking situation and not all victims of human trafficking will exhibit these signs. However, the recognition of several indicators may point to the need for referrals and further assessment.

Red Flags and Indicators

General Indicators of Human Trafficking	
☐ Shares a scripted or inconsistent history ☐ Is unwilling or hesitant to answer questions about the injury or illness ☐ Is accompanied by an individual who does not let the patient speak for themselves, refuses to let the patient have privacy, or who interprets for them ☐ Evidence of controlling or dominating relationships (excessive concerns about pleasing a family member, romantic partner, or employer) ☐ Demonstrates fearful or nervous behavior or avoids eye contact ☐ Is resistant to assistance or demonstrates hostile behavior ☐ Is unable to provide his/her address ☐ Is not aware of his/her location, the current date, or time ☐ Is not in possession of his/her identification documents ☐ Is not in control of his or her own money ☐ Is not being paid or wages are withheld	
Labor Trafficking Indicators	**Sex Trafficking Indicators**
☐ Has been abused at work or threatened with harm by an employer or supervisor ☐ Is not allowed to take adequate breaks, food, or water while at work ☐ Is not provided with adequate personal protective equipment for hazardous work ☐ Was recruited for different work than he/she is currently doing ☐ Is required to live in housing provided by employer ☐ Has a debt to employer or recruiter that he/she cannot pay off	☐ Patient is under the age of 18 and is involved in the commercial sex industry ☐ Has tattoos or other forms of branding, such as tattoos that say, "Daddy," "Property of…," "For sale," etc. ☐ Reports an unusually high numbers of sexual partners ☐ Does not have appropriate clothing for the weather or venue ☐ Uses language common in the commercial sex industry

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Health Indicators and Consequences of Human Trafficking*[i]

Physical Health Indicators

- ☐ Signs of physical abuse or unexplained injuries
  - — Bruising
  - — Burns
  - — Cuts or wounds
  - — Blunt force trauma
  - — Fractures
  - — Broken teeth
  - — Signs of torture
- ☐ Neurological conditions
  - — Traumatic brain injury
  - — Headaches or migraines
  - — Unexplained memory loss
  - — Vertigo of unknown etiology
  - — Insomnia
  - — Difficulty concentrating
- ☐ Cardiovascular[ii]/respiratory[iii] conditions that appear to be caused or worsened by stress, such as:
  - — Arrhythmia
  - — High blood pressure
  - — Acute Respiratory Distress
- ☐ Gastrointestinal conditions that appear to be caused or worsened by stress[iv], such as:
  - — Constipation
  - — Irritable bowel syndrome
- ☐ Dietary health issues
  - — Severe weight loss
  - — Malnutrition
  - — Loss of appetite
- ☐ Reproductive issues
  - — Sexually-transmitted infections
  - — Genitourinary issues
  - — Repeated unwanted pregnancies
  - — Forced or pressured abortions
  - — Genital trauma
  - — Sexual dysfunction
  - — Retained foreign body
- ☐ Substance use disorders
- ☐ Other health issues
  - — Effects of prolonged exposure to extreme temperatures
  - — Effects of prolonged exposure to industrial or agricultural chemicals
  - — Somatic complaints

Mental Health Indicators

- ☐ Depression
- ☐ Suicidal ideation
- ☐ Self-harming behaviors
- ☐ Anxiety
- ☐ Post-traumatic stress disorder
- ☐ Nightmares
- ☐ Flashbacks
- ☐ Lack of emotional responsiveness
- ☐ Feelings of shame or guilt
- ☐ Hyper-vigilance
- ☐ Hostility
- ☐ Attachment disorders[v]
  - — Lack of or difficulty in engaging in social interactions
  - — Signs of withdrawal, fear, sadness, or irritability
- ☐ Depersonalization or derealization[vi]
  - — Feeling like an outside observer of themselves, as if watching themselves in a movie
  - — Emotional or physical numbness of senses
  - — Feeling alienated from or unfamiliar with their surroundings
  - — Distortions in perception of time
- ☐ Dissociation disorders[vii]
  - — Memory loss
  - — A sense of being detached from themselves
  - — A lack of a sense of self-identity, or switching between alternate identities
  - — A perception of the people and things around them as distorted or unreal

Social or Developmental Indicators

- ☐ Increased engagement in high risk behaviors, such as running away or early sexual initiation if a minor
- ☐ Trauma bonding with trafficker or other victims (e.g. Stockholm syndrome)
- ☐ Difficulty establishing or maintaining healthy relationships
- ☐ Delayed physical or cognitive development
- ☐ Impaired social skills

**This list of physical and mental health indicators of human trafficking is not exhaustive. Trafficking survivors may experience one or more of these indicators, none of these indicators, or health indicators not on this list. This list is intended to help you assess if a patient's condition may be a result of a trafficking-related trauma and should be considered in context.*

Victim Identification and Response

How do I conduct an assessment or exam with a potential victim of human trafficking?
Victims of trafficking do not often disclose their trafficking situation in clinical settings.[viii] Therefore, it is critical for medical practitioners to be thoughtful about engaging patients, employing trauma-informed practices, and creating a space that is conducive for discussing human trafficking. Before beginning any conversation with a patient, assess the potential safety risks that may result from asking sensitive questions of the patient. Recognize that the goal of your interaction is not disclosure or rescue, but rather to create a safe, non-judgmental place that will help you identify trafficking indicators and assist the patient.

Recommendations for Assessments:

- Allow the patient to decide if they would feel more comfortable speaking with a male or female practitioner.
- If the patient requires interpretation, always utilize professional interpreters who are unrelated to the patient or situation.
- If the patient is accompanied by others, find a time and place to speak with the patient privately.
- Take time to build rapport with potential victims, or if you do not have the time yourself, find someone else on staff who can develop rapport with the patient.
- Ensure that the patient understands confidentiality policies and practices, including mandatory reporting laws.
- Use multidisciplinary resources, such as social workers, where available
- Refer to existing institutional protocols for victims of abuse/sexual abuse.
- You may contact the National Human Trafficking Resource Center (NHTRC) hotline for assistance in conducting an assessment and determining next steps if you have not already developed a protocol to respond to victims of human trafficking.

What should I do if I believe I have identified a victim of human trafficking?
Every situation of human trafficking is unique; it is important to use a victim-centered response. Not all victims of trafficking will be comfortable disclosing their situation, nor will all victims be ready to seek assistance from service providers, law enforcement, or even medical providers. Medical providers, however, have a unique opportunity to provide potential trafficking victims with information and options, while supporting them through the process of connecting with advocates or service providers if they are ready to report their situation.

If a patient has disclosed that they have been trafficked:

- Provide the patient with the NHTRC hotline number and encourage him/her to call if he/she wants help or wants to talk to someone. If the patient feels it is dangerous to have something with the number written on it you can have them memorize the number.
- In situations of immediate, life-threatening danger, follow your institutional policies for reporting to law enforcement. Whenever possible, make an effort to partner with the patient in the decision to contact law enforcement.
- Provide the patient with options for services, reporting, and resources. Ensure that safety planning is included in the discharge planning process.
- If the patient is a minor, follow mandatory state reporting laws and institutional policies for child abuse or serving unaccompanied youth.
- Ensure that any information regarding the patient's injuries or treatment is accurately documented in the patient's records. While documentation of abuse may be helpful in building a case against a trafficker, information about the victim can also be used against them in a court proceeding.

Am I obligated to report situations of human trafficking? If so, who should I contact?
Legal requirements regarding mandatory reporting of human trafficking may differ from state to state, and situations may require mandatory reporting under related statutes even if the situation is not human trafficking (e.g. child abuse or domestic violence). Refer to your local or state requirements regarding mandatory reporting. While contacting the NHTRC will not fulfill mandatory reporting requirements, the NHTRC can facilitate a report to specialized law enforcement trained to handle human trafficking cases.

When working with adults who have been trafficked, it is important to gain permission and consent from the patient before disclosing any personal information about the patient to others, including service providers. Furthermore, medical providers should be aware of how HIPAA regulations impact the ability to report potential trafficking situations on behalf of a patient. When contacting the NHTRC or connecting with local service providers, keep in mind any confidentiality obligations.

How can I utilize the National Human Trafficking Resource Center hotline to assist victims of trafficking?
The NHTRC offers confidential round-the-clock access to a safe space to report tips, seek services, and ask for help. The NHTRC is operated 24/7 and has access to over 200 languages through a tele-interpreting service. All communications with the NHTRC are strictly confidential to the extent permitted by law and callers need not disclose personal information in order to access services through the NHTRC. The NHTRC is also an excellent resource for healthcare institutions to help identify and connect with existing resources in their area as they begin the process of developing a response protocol for victims of human trafficking. Healthcare professionals can access the NHTRC for the following services:

> Service Referrals: The NHTRC has a referral network of over 3,200 referral contacts, including anti-trafficking organizations, legal service providers, shelters, law enforcement, and local social service agencies that can assist victims of human trafficking.
>
> Tip Reporting: The NHTRC has specialized local and national response protocols across the country for law enforcement and service providers. The NTHRC can facilitate a report to law enforcement contacts who are trained on trafficking and designated to respond to NHTRC hotline.
>
> Training and Technical Assistance: The NHTRC also provides training and technical assistance on a wide range of human trafficking topics through calling the hotline and visiting the NHTRC's website. The NHTRC can also guide clinicians through an assessment with a potential victim.

The National Human Trafficking Resource Center (NHTRC) maintains a database of service providers and resources throughout the United States, along with extensive training resources on a variety of topics related to human trafficking.

Report Online or Access Resources & Referrals: www.traffickingresourcecenter.org
Call: 1-888-373-7888 (24/7) **Email: nhtrc@polarisproject.org**

Additional Resources

- SOAR to Health and Wellness, U.S. Department of Health and Human Services
- HEAL Trafficking, Health Professional Education, Advocacy, and Linkage
- Understanding & Combating Human Trafficking as a Health, Social, & Economic Issue, Child Family Health International
- Child Sex Trafficking Webinar Series for Healthcare Professionals, Children's Healthcare of Atlanta
- Confronting Commercial Sexual Exploitation and Sex Trafficking of Minors in the U.S., Institute of Medicine/National Research Council Report
- Human Trafficking: Guidebook on Identification, Assessment, and Response in the Healthcare Setting, Massachusetts General and Massachusetts Medical Society
- Caring for Trafficked Persons: A Guide for Health Providers, The International Organization for Migration and UN Global Initiative to Fight Human Trafficking
- The Role of the Nurse in Combatting Human Trafficking, Donna Sabella in the *American Journal of Nursing*
- Online Educational Modules for Healthcare Professionals: Christian Medical Dental Associations

[i] Caring for Trafficked Persons: Guidance for Health Providers, International Organization for Migration (IOM)
[ii] Conditions, American Heart Association
[iii] All Diseases, American Lung Association
[iv] Diseases and Conditions, Cleveland Clinic
[v] Reactive Attachment Disorder: Symptoms, Mayo Clinic
[vi] Depersonalization-derealization Disorder: Symptoms, Mayo Clinic
[vii] Dissociative disorders: Symptoms, Mayo Clinic; Dissociative Disorders, National Alliance on Mental Illness
[viii] Human Trafficking: Guidebook on Identification, Assessment, and Response in the Health Care Setting, Massachusetts General and Massachusetts Medical Society

PROTOCOL TOOLKIT

for Developing a Response to

Victims of Human Trafficking in Health Care Settings

HEAL TRAFFICKING

HOPE FOR JUSTICE

ABOUT HEAL TRAFFICKING

OUR VISION

A world healed of trafficking

OUR MISSION

Mobilizing interdisciplinary professionals to shift the anti-trafficking paradigm toward approaches rooted in public health and trauma-informed care

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INTRODUCTION

PURPOSE OF THE TOOLKIT

> This toolkit is designed to help professionals working in health care settings such as emergency departments, hospitals, clinics, private offices, or school based health centers develop a protocol to respond to potential victims of human trafficking (HT) who present to their facility. Research studies have demonstrated that between 28 and 88% of trafficked persons interact with health care providers while they are still within a trafficking situation.[1,2,3,4]

We have outlined an ambitious, comprehensive approach to protocol development, portions of which may be adopted for particular contexts based on capacity. While we currently lack data to support evidence-based approaches to patients who have been trafficked, we created this toolkit based on existing guidelines and recommendations from experts in this field.[5,6,7,8,9,10]

The toolkit serves to mobilize an interdisciplinary response to HT that respects patient autonomy. While ultimately we hope that the implementation of anti-trafficking protocols at the local level will enable the identification of victims of labor and sex trafficking so that they may be brought to safety, the goal of protocol implementation in health care settings is not to foster disclosure by trafficked persons. Rather, we aim to guide health care facilities through the process of creating safe procedures and spaces where professionals can provide exploited adults and minors not only the health services they need, but also education about their options and empowerment to seek assistance.

INTRODUCTION

As health care institutions develop protocols to respond to HT, it is important to recognize that the landscape of national and state laws is dynamic; laws and regulations regarding mandated reporting of HT and the training of medical professionals on this topic are evolving.[11] In addition, the local picture of trafficking is ever changing. A successful response to HT in health care settings therefore requires an ongoing commitment; the protocol must be maintained and staff trained on a regular basis.

This toolkit complements detailed guidance on the care of trafficking victims in health care settings, such as the International Organization for Migration's *Caring for Trafficked Persons: Guidance for Health Providers*;[12] the Massachusetts Medical Society's *HT Guidebook on Identification, Assessment, and Response in the Health Care Setting*;[13] the American Professional Society on the Abuse of Children's *The Commercial Sexual Exploitation of Children: The Medical Provider's Role in Identification, Assessment and Treatment;*[14] the Human Trafficking Foundation's *Trafficking Survivor Care Standards*;[15] and Shared Hope International's *I:Care A Health Care Provider's Guide to Recognizing and Caring for Domestic Minor Sex Trafficking Victims*.[16]

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INTEGRATION WITH EXISTING POLICIES AND PROCEDURES

The majority of health care institutions already have protocols in place that address various forms of violence including intimate partner violence, child abuse, elder abuse, and sexual assault. Review and update those protocols as you begin to develop your response to the patients at risk for human trafficking. Consider incorporating your human trafficking response into existing protocols to streamline training, treatment, and referral processes.

TENETS OF TRAUMA-INFORMED CARE

Base your trafficking protocol on principles of trauma-informed care. Trauma-informed care recognizes the pervasive effects of traumatic experiences on an individual's life and behavior, on their perceptions of themselves and their bodies, and on their relationships with others.[17] Trauma-informed care is non-judgmental and patient-centered care that prioritizes physical, psychological and emotional safety for all involved, including staff. The goal of a clinical encounter is not for the patient to disclose victimization, but for providers to treat, educate, and empower the patient.

TIP: SUGGESTED RESOURCES FOR A TRAUMA-INFORMED WORKFORCE

Workplaces Respond to Domestic & Sexual Violence: A National Resource Center: workplacesrespond.org

International Society for Traumatic Stress Studies: istss.org/treating-trauma/self-care-for-providers.aspx

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INTRODUCTION

BENEFITS OF PROTOCOL DEVELOPMENT

Development of a human trafficking response protocol requires an investment of time and effort, but will allow you to:

- **Clarify procedures, responsibilities, and roles around identification, response, and reporting of suspected or confirmed HT**
- **Enhance staff training to adopt a victim/survivor-centered approach**
- **Optimize patients' interaction with health care personnel**
- **Improve staff's condience in their ability to recognize patients at risk for human trafficking and appropriately treat and refer them**
- **Maximize preparedness to meet needs identified by the patients such as housing, emotional support, short and long term medical, mental health, sexual health, dental, and substance abuse treatment**
- **Maximize patient/victim and personnel safety**
- **Optimize support for trafficked patients not ready or able to disclose victimization or accept assistance**
- **Prepare proactively for situations in which a trafficker presents an immediate threat to patients, providers, or staff**
- **Integrate efforts with the many outside agencies essential to the HT response such as local direct service providers; child protective services; and local, state, and federal law enforcement agencies**
- **Collect data to improve understanding of the prevalence of trafficked persons within U.S. health care settings and the health issues they present with**
- **Provide anonymized data to law enforcement and service providers for intelligence-driven approaches to addressing HT at the local and national level**

Health care facilities vary in size, capacity, geography, and availability of community resources. Please adapt the steps and components in the protocol toolkit as they best fit your facility's needs and abilities.

STEPS FOR PROTOCOL DEVELOPMENT

1. IDENTIFY COMMUNITY MULTIDISCIPLINARY RESPONDERS

- **Consider creating a database of the multidisciplinary responders in your location**
- **Identify local anti-trafficking organizations and service providers that can assist both labor and sex trafficking victims**
  - Contact the National HT Hotline for a list of local service agencies via their phone number (888-373-7888) or website (humantraffickinghotline.org)
  - Contact providers to determine services provided, populations served and how to make referrals
  - Identify HT survivor leaders in your area: nationalsurvivornetwork.org
- **Check the Department of Health and Human Services (DHHS) website for local Rescue and Restore coalitions: acf.hhs.gov/orr/resource/contact-information-for-coalitions**
- **Determine if there is a Department of Justice-funded local Task Force in your area: ovc.ncjrs.gov/humantrafficking/map.html**
- **Identify local health care professionals involved in anti-trafficking work**
  - Contact HEAL Trafficking: HEALtrafficking.org
  - Contact agencies providing free or low cost health care including Federally Qualified Community Health Centers
  - Contact providers to determine services offered, populations served, how to make referrals
- **Identify free or low cost legal service providers**
  - Consider working with multiple legal organizations to meet the diverse legal needs of trafficking victims

TIP: GUARDIANS AD LITEM

When a person can not adequately represent their own interests, the court may appoint a Guardian ad Litem who is legally responsible for protecting that person.

Courts and Child Protection Agencies may appoint Guardians Ad Litem for minors in both family court and in adult court, where they may serve as witnesses.

STEPS FOR PROTOCOL DEVELOPMENT: STEP 1

- Types of legal service providers
  - » Attorneys recommended by local Rescue and Restore Coalitions or HT Task Forces, if available
  - » Local legal aid
  - » Immigration attorneys
  - » Local court-appointed special advocate or Guardians Ad Litem
  - » Legal clinics at local law schools
  - » The HT Pro Bono Center: htprobono.org

- **Assess organizational experience working with trafficking victims**
  - Do they have experience assisting foreign-born survivors in the process of obtaining a "T" visa?
  - Have they represented survivors in court?
  - Are they familiar with the process to vacate charges incurred while their client was trafficked?
  - What other legal assistance have they provided trafficking survivors?
- **Contact the local U.S. Attorney's office for the contact information of the Assistant U.S. Attorney with oversight of HT cases and/or the HT Task Force**
- **Contact the local branch of the Department of Labor (DOL), which can investigate labor violations, including cases of labor trafficking and exploitation**
  - Wage and Hour Division: dol.gov/whd/; 1-866-4US-WAGE
  - Information for workers available in multiple languages
  - Office of Inspector General (DOL OIG): oig.dol.gov
- **Contact Federal law enforcement and victim specialists**
  - Homeland Security (DHS) at 866-347-2423 to identify local federal officials such as FBI and Homeland security agents working on trafficking
  - Local Homeland Security agent

TIP: MISSION OF DEPARTMENT OF LABOR (DOL) WAGE AND HOUR DIVISION (WHD)

The WHD enforces federal minimum wage, overtime pay, recordkeeping, and child labor requirements of the Fair Labor Standards Act. WHD also enforces the Migrant and Seasonal Agricultural Worker Protection Act, the Employee Polygraph Protection Act, the Family and Medical Leave Act, wage garnishment provisions of the Consumer Credit Protection Act, and a number of employment standards and worker protections as provided in several immigration related statutes.

Even workers who are in the U.S. illegally are entitled to labor protections under law.

1-866-4US-WAGE

  - » Clarify when DHS agent should be called (as opposed to local law enforcement)
  - » Identify resources available for international victims (interpreters, immigration services, etc.): dhs.gov/blue-campaign/resources-available-victims

- FBI's Innocence Lost Task Force focuses on domestic minor sex trafficking (DMST) and can assist in contacting Homeland Security and local Task Force Officers: 1-800-CALL-FBI
- Local FBI agent
  - » Inquire about a local federal anti-trafficking Task Force (if information not yet obtained from other sources)
  - » Note that the FBI sometimes has agents who focus solely on Domestic Minor Sex Trafficking (DMST), while other agents investigate trafficking of foreign minors and other forms of HT. Therefore, there may be multiple personnel within the FBI, including victim specialists, with whom contact may be warranted
  - » Clarify when and how FBI should be contacted

► **Contact and coordinate with local (police, county, parish, district, sheriff) law enforcement**

- Determine presence of and involvement with local anti-trafficking Task Force
- Ascertain whether they have a trained officer dedicated to investigate HT cases
- Ascertain level of training on HT of their patrol officers
- Ascertain any integration with federal agencies such as
  - » FBI
  - » Department of Homeland Security (DHS)
  - » Department of Labor
  - » Immigration and Customs Enforcement
  - » Department of State Diplomatic Security Service
- Ascertain their policy on arrest and detention of victims for crimes related to their victimization or past crimes where victims may have an open warrant for their arrest
  - » Common crimes include prostitution-related offenses, theft, giving false information, running away, loitering, and truancy

TIP: WORKING WITH LAW ENFORCEMENT

Be aware that law enforcement may arrive to interview a potential victim only to find out that the victim has been charged with a previous crime (e.g. prostitution, burglary, etc.) and has a warrant out for their arrest. Law enforcement may be required to arrest the patient based on state or local laws.

STEPS FOR PROTOCOL DEVELOPMENT: STEP 1

- » Note that some trafficked persons will have committed violent crimes while they were in trafficking situation

- ► **Contact ther state or local government entities**
  - Child protective/foster care services
  - Services for developmentally delayed persons
  - Public defender offices
  - District Attorney's office
  - Criminal justice system
    - » Juvenile justice system
      - › Juvenile court judges or magistrates
        - Inquire about their engagement in the issue of child trafficking
        - Inquire about staff working specifically with CSEC
          - Assess their involvement working with both boys and girls, GSM, foreign born youth, and unaccompanied minors
          - Ascertain their policies and procedures for runaway youth
      - › Local truant officers
      - › Juvenile detention medical clinic and staff
        - Identify services provided to high-risk juveniles (STI testing, behavioral health assessments, screening for commercial sexual exploitation, etc.)
        - Identify providers' level of training on HT
    - » Adult justice system
      - › Federal, state, city, and municipal court judges
      - › Jail/prison/detention health officers
      - › Immigration and asylum staff
      - › Courts that deal with women, men, and trans-persons arrested for prostitution, loitering, or begging

TIP: WORKING WITH CHILD WELFARE AGENCIES

In many jurisdictions, child protective services do not maintain jurisdiction over child trafficking cases unless a parent or legal guardian, and not a third party, is exploiting the minor.

- Inquire about their engagement in the issue of sex and labor trafficking, and any services provided to these populations, such as diversion programs, educational programs, and mental health programs
- Assess their experience working with men, women, GSM (particularly transgendered persons), and foreign-born persons

› Diversion programs (usually community-based)

- For victims facing criminal charges, these programs divert defendants from incarceration to special programs that result in dismissal of charges upon completion
- These programs may offer counseling, substance abuse treatment, youth development, vocational training, etc.

► **Contact other local agencies working with vulnerable populations**

- It is important to maximize networking among all agencies working with populations at risk for trafficking in order to engage them in the work of prevention, or if they are already engaged, to synergize and not duplicate efforts
- Networking also provides an educational opportunity for agencies still learning about HT
- For all agencies determine services provided, populations served, training resources utilized, and how to make referrals. Engage agencies working with
  - » Runaway youth
  - » Homeless populations
  - » Gender and Sexual Minorities (GSM)
  - » Immigrants (documented and undocumented)
  - » Refugees
  - » Children in foster care, juvenile justice systems, and transitional aged youth (TAY)
  - » Young single mothers
  - » Domestic violence victims
  - » Sexual assault survivors
  - » Agricultural workers
  - » American Indians and Alaskan Natives
  - » Migrant laborers
  - » Domestic workers (household workers)
  - » Employees of businesses in ethnic communities
  - » Populations with limited English proficiency

STEPS FOR PROTOCOL DEVELOPMENT: STEP 1

- Persons with disabilities
- Rural populations
- Populations with mental illness
- Populations with substance abuse

- **Contact the following other potential community partners**
  - Nearby professional schools
    - Medicine
    - Nursing
    - Mental/behavioral health
    - Dental
    - Public health
    - Social work
    - Allied health
    - Law
    - Criminal justice
    - Occupational health
  - Local racial and ethnic medical societies
  - Local integrative medicine providers, massage therapists, chiropractors, Chinese medical practitioners, etc.
  - Local faith-based organizations

As you complete this first step, you should acquire a general understanding of the experience and engagement of community resources regarding HT including:

- **Commitment to or interest in anti-trafficking work by local government agencies**
- **Number of community-based agencies involved or interested in supporting efforts to prevent HT and serve survivors**
- **Depth of local expertise around HT**
- **Level of cooperation among agencies**
- **Level of cooperation between service agencies and law enforcement**
- **Level of engagement with adult and pediatric vulnerable populations (e.g. runaways, throw-away, homeless youth; GSM; individuals with disabilities; foreign-born persons)**
- **Proportion of organizations working on labor and/or sex trafficking**
- **Availability and quality of current training resources being used in the community**

2. ENGAGE NON-MEDICAL COMMUNITY STAKEHOLDERS

- **Importance of relationship building**
  - As you find partners within the local anti-trafficking community, build formal relationships and leverage those relationships
    - » Partnering will save you significant time and effort; you may identify local organizations willing to help with protocol development and implementation
    - » Partners (such as local anti-trafficking organizations) will already have relationships with other anti-trafficking organizations
    - » Partners may have a staff person who can assist you with other necessary contacts
    - » Partners may have resources or trainings you can use
    - » As you build relationships with these partners, collect the following information:
      - › Whether services provided are HT specific, or to a variety of different populations
      - › To whom they provide services
        - Adults, minors, or both
        - Males, females, gender and sexual minorities (GSM)
        - Victims of sex trafficking, labor trafficking, or both
        - Victims of domestic trafficking, international trafficking, or both
      - › Types of services provided
        - Housing
          - Emergency
          - Short term
          - Long term
          - Transitional
        - Case management
        - Mental health services
          - Trauma-specific counseling and other therapies
          - Behavioral health assessments
          - Drug therapy with or without psychiatric support

- Substance abuse treatment
- Educational assistance
- Vocational assistance
- Immigration assistance
- Legal assistance
- Medical services

› Capacity to serve victims
- Number of beds (for housing, rehabilitation, inpatient treatment)
- Current openings
- Wait list process
- Financial sustainability, including overall sense of costs, grants, contracts

› Referral process

› Current outreach activities to victims

› Their availability to participate in the protocol development and implementation

3. ENGAGE MEDICAL STAKEHOLDERS WITHIN YOUR COMMUNITY

- **Identify champions and collaborators among those working on refugee or migrant health, or forms of intentional violence including child abuse, intimate partner violence, community or gang violence, elder abuse, and/or sexual assault**
- **Understand mandatory reporting guidelines for your state (see page 21)**
- **Create a working group within your institution to assist in the development of the protocol**
  - Engage multidisciplinary individuals including administrators, advanced practice clinicians, behavioral and mental health specialists, medical and nursing assistants, nurses, pharmacists, physicians, and social workers
  - Identify local survivor(s) of HT to serve as advisor(s)
- **Identify institutional administration advocates**
  - Gain their support
  - Outline the processes for finalization of institutional processes and protocols
  - Engage necessary resources for creation and implementation of a protocol:

- Legal department
- Physician and nursing staff
- Registration/Admitting
- Security
- Social work/case management
- Other institution administration

- **Identify a protocol facilitator (champion) who has the following characteristics**
  - Authorized person within facility to oversee organizational protocol development
    - Note that an administrative assistant is very helpful for completing necessary tasks
  - Ability to facilitate smooth implementation and monitor compliance and effectiveness
  - Passion to drive the process forward
  - Understanding of both labor and sex trafficking
  - Basic understanding of organ trafficking and forced drug trafficking (a person may be forced to carry illicit drugs within their body as a "drug mule")
  - Understanding of the mental and physical health care needs of HT victims
  - Authority to make contact on behalf of the health care organization with local agencies such as law enforcement and child protective services
  - Ability to assemble and work collaboratively with a multi-disciplinary team
  - Ideal, but not absolutely necessary
    - Strong written and oral communication skills
    - Understanding of clinical and administrative processes in the emergency department, primary care clinics, obstetrics and gynecologic offices/labor and delivery, dental services, and other clinical venues where HT survivors are more likely to present, OR clear, effective communication channels with providers in these arenas

- **Explore commitment from organization leadership for fiscal and human resources needed for development, implementation, monitoring, and evaluation of the protocol**
- **Invite a broad range of leaders and staff to provide input, but do not be discouraged if only a portion are able to participate**
- **Reach out to the following diverse personnel to achieve multi-specialty and multi-disciplinary involvement from health care partners**

STEPS FOR PROTOCOL DEVELOPMENT: STEP 3

- Hospital, clinic, and/or departmental administration
- Medical staff representation
  - Emergency medicine
  - Family medicine
  - Obstetrics/gynecology
  - Pediatrics
  - Internal medicine
  - Orthopedics
  - Behavioral medicine/addiction medicine
  - Psychiatry
  - Clinical psychology
  - Trauma surgery
- Dental staff representation
- Nursing staff representation
- Social work representation
- Hospital and/or clinic security

4. UNDERSTAND HUMAN TRAFFICKING AND HEALTH GENERALLY AND LOCALLY

- **Educate stakeholders on health and trafficking. Consider online educational programs, some of which offer free CME/CEUs**
  - Futures without Violence Introduction to Labor and Sex Trafficking: A Care and Human Rights Challenge: futureswithoutviolence.org/14599-2/
  - Essential Access Health Learning Exchange On-Demand Webinar: Improving our Response to Trafficked People in Health Settings: essentialaccesstraining.org/ets/store/item/?%20id=eb8d79df-fc10-11e5-a43e-005056a048ff
  - Christian Medical and Dental Association online educational series: cmda.org/tip
  - Children's Health Care of Atlanta child sex trafficking computer-based learning series: choa.org/cseecwebinars
  - Physicians Against the Trafficking of Humans/American Medical Women's Association: doc-path.org/path
  - National HT Hotline: humantraffickinghotline.org/resources/recognizing-and-responding-human-trafficking-healthcare-context

- Fraser Health HT-Help Don't Hinder: learninghub.phsa.ca/Courses/6427/human-trafficking-help-dont-hinder
- Consider resources in footnotes 12-16
- For a listing of educational resources and articles on HT, see the HEAL Trafficking compendium at healtrafficking.org/education

- **Research your state anti-trafficking and mandatory reporting laws with local legal or policy experts for up-to-date information**
  - State government websites
  - Local District Attorney's Office responsible for the enforcement of the state laws
  - Other local legal and policy experts
  - Shared Hope: sharedhope.org/what-we-do/bring-justice/reportcards/
  - Polaris: polarisproject.org/what-we-do/policy-advocacy/national-policy/state-ratings-on-human-trafficking-laws
  - For information current through May 2016, see reference 11
- **Characterize the local HT problem**
  - This can be done by those who regularly encounter victims of trafficking such as law enforcement and service providers
  - Check sources such as the National Center for Missing and Exploited Children (missingkids.org) and the National HT Hotline (humantraffickinghotline.org) for general indicators of trafficking
  - Generate a list incorporating the following information
    - » Industries in which known (previously identified) local trafficking of domestic and international victims has occurred
    - » Locally observed brands and tattoos including those featuring pimp markings
    - » Past cases of local trafficking
      - › Federal cases can be obtained from the HT Pro Bono Legal Center at htprobono.org/resources/

TIP: LOCAL TRAFFICKING TRENDS

Lists that describe local networks, known trafficker names, and characteristic tattoos or brands should not be displayed in waiting rooms or other areas visible to trafficker—these are for provider and staff education and guidance purposes only.

TIP: REMEMBER LABOR TRAFFICKING

While the focus by law enforcement and many social service agencies on sex trafficking may lead to the appearance that all trafficking in your area is sex trafficking, labor trafficking also exists in most jurisdictions around the U.S. and often has dire health consequences for its victims. It is important to learn about the signs of labor trafficking and the industries in your area that may be exploiting workers.

  - Note that while many local jurisdictions focus on sex trafficking, labor trafficking also occurs in all regions of the U.S.
- Other local trends in trafficking

5. CREATE AND CONVENE AN INTERDISCIPLINARY PROTOCOL COMMITTEE

- **Think of the development of a protocol as a process and not a task that can be completed in one meeting**
- **The committee should have a breadth of representation from the non-medical and medical stakeholders described above**
- **Plan to take 2-3 hours for the initial committee meeting**
- **Consider having a speaker present a lecture on the intersection between health and HT prior to the meeting or at the beginning of the meeting**
- **Convene the committee regularly to plan, implement, evaluate, and modify the protocol**

6. DEVELOP MULTIDISCIPLINARY TREATMENT AND REFERRAL PLAN

- **Compile a comprehensive list of internal and external resources for response to all forms of trafficking**
- **Develop a response algorithm that accounts for all forms of trafficking and all age groups of trafficking survivors**
- **See HEALtrafficking.org/protocols for examples of response protocols**
- **Consider creating MOUs with external partners**
- **Establish when and how quickly partners will be able to respond as well as ideal means of communication**
- **Establish procedures for HIPAA compliance, patient consent for information sharing with external partners**
- **Establish plan for safety of patients and staff**
- **Incorporate mandated reporting requirements**

PROTOCOL COMPONENTS

As you work through the process of developing your response protocol, keep in mind the following components that should be incorporated into the final version.

1. PROCESS FOR IDENTIFYING PATIENTS AT RISK FOR TRAFFICKING

- **Determine who will be assessing patients and whether assessment will occur for only high risk patients or all patients**
- **Assess patients based on general human trafficking red flags and also patients who are members of high risk populations**
- **When assessing patients, consider local trends in human trafficking (see Part II Step 4)**
- **While at the time there are no human trafficking screening tools validated in the healthcare setting, Polaris, Vera Institute, and the U.S. Department of Health and Human Services' Rescue and Restore Campaign have helpful tools**
- **Interview the patient outside the presence of the accompanying person (see page 26 for details)**

2. GUIDELINES FOR INTERVIEWING HIGH RISK PATIENTS

- **Designate specific staff to serve as interviewers of patients flagged as potential trafficking victims**
  - Social workers
  - Sexual assault nurse examiner (SANE) nurse or forensic nurse
  - Psychiatrist or clinical psychologist with expertise in trauma

TIP: VICTIM PRESENTATION

Keep in mind that trafficking victims may initially present with drug-related issues such as overdose or symptoms of addiction.

PROTOCOL COMPONENTS: 2

TIP: INTERVIEWING PATIENTS WHO HAVE EXPERIENCED TRAUMA

Patients who have experienced trauma often cannot recount memories in linear form or even remember certain events. Patients may also omit information about their circumstances or lie out of fear, shame, guilt, or to protect themselves, their trafficker, or others. Do not become frustrated with such patients, but understand that their inability to recount what has happened to them may be a symptom in itself.

Because patients may not provide an accurate medical history initially for a variety of reasons, you may wish to re-phrase or re-ask certain questions. Your desire to acquire a more complete medical history must be balanced against the possibility of frustrating or embarrassing patients with repeated questioning.

Patients' accounts may change as they tell and retell their history during a visit or over time. When stories change, do not assume that patients are intentionally giving inaccurate information. The change in medical history could be an effect of exposure to trauma.

- Nurses or other health care providers trained in HT patient care
- Consider asking the patient their preference for the gender of the interviewer

► **Interact with the high risk patient or suspected victim in patient-centered, trauma-informed manner**

- Use first moments alone with the patient to inform them that you are available to help if needed, and that your clinic/office/hospital is a safe space
- Assess an individual's literacy level to ensure information is conveyed in understandable ways
- Minimize retraumatization of the patient during interview by only asking the questions necessary to determine next steps with the patient

► **Address interpretation issues**

- Look for in-person services through accredited agencies
- Interpreters should be screened for conflicts of interest (e.g. political)
- Patients should be told that they can refuse a particular interpreter if they are not comfortable speaking in front of them

TIP: CULTURAL DIFFERENCES

Cultural and social norms can vary greatly between people from different backgrounds; conditions that we consider exploitation or trafficking under U.S. law may be regarded as normal by foreign national victims as well as by domestic minor trafficking victims. Victims of HT typically do not recognize that a crime has been committed against them.

- Interpreters should utilize a trauma-informed approach, and monitor for signs of stress in patient
- Interpreters should translate verbatim all questions and answers
- Phone translation is not ideal, but may be better than a translator from within the local immigrant community, depending on the situation
- Consider the National HT Hotline translation services: trained interviewers are available in over 200 languages (1-888-373-7888)
- Decisions about interpretation systems may vary on a case-by-case basis depending on the availability of resources and the specific potential victim
- State Department fact sheet on interpreters at state.gov/j/tip/rls/fs/2015/245185.htm

TIP: INTERPRETERS

Victims often feel shame about their experiences and may fear physicians, immigration, and law enforcement authorities as well as their traffickers. They may resist sharing their experience through someone from the same culture, particularly if they are from a small or close-knit immigrant community.

3. STRATEGIES FOR INTERVIEWING PATIENT ALONE

- **Assess power dynamics between patient and accompanying person(s)**
- **Assess patient's ability or desire to speak freely about things that may be bothering them**
- **Whenever controlling dynamics are suspected and the patient is accompanied by someone else, including family members, have them wait elsewhere**
- **Family-originated trafficking is common in the U.S. Therefore, options regarding the process of separating minors from family members who are potential traffickers should be discussed in advance with officials from child protective agencies**
- **Decide who is to do the separation**
- **Reasons to give for separating**
  - Diagnostic test in another area
  - "Clinic or hospital policy to interview patient alone"

TIP: ASK ONLY WHAT YOU REALLY NEED TO KNOW

Be judicious with the information you request from patients, particularly about traumatic events and from patients who may also undergo a forensic interview (more information about forensic interviewing follows in Component 8).

PROTOCOL COMPONENTS: 3

- Ask the potential controlling person to step outside of the examination/labor and delivery room to assist with paperwork, a phone call to schedule a laboratory visit or medical referral, etc.

- **What to do if the person accompanying the patient refuses to separate and threatens to leave with the patient**
  - If the accompanying person refuses to separate from the patient, the decision of whether or not to continue to push for separation should include the following:
    - Evidence of aggression on the part of the controlling person
    - An assessment of the health and safety of the patient
    - A realization that calling security or law enforcement may not be in the best interest of the patient or their ability to return for another visit
    - A desire not to raise suspicion within the potential trafficker thus jeopardizing the future safety of the patient
    - Presence or absence of indicators of prior assaults and abuse

TIP: WORKING WITH PATIENTS — WHAT IF THE SUSPECTED TRAFFICKER WON'T LEAVE?

It is best to interview the patient alone but if a patient refuses to be separated from an accompanying person, it may be safer for the patient to allow the companion to remain. The benefits vs. harms of working with a patient in the presence of a potential exploiter must be evaluated on a case-by-case basis. If the trafficker thinks there is a threat to them because they are excluded from your conversation, you may risk the opportunity to provide the patient medical treatment or risk potential harm to the patient after the visit.

TIP: SAFETY PLANNING

Safety planning varies greatly depending on how the patient views their trafficking situation and whether the patient wants to stay in the situation, is in the process of leaving, or has left. Trafficked people may return to exploitative situations repeatedly before exiting permanently.

Do not take patients' decisions to stay in abusive situations or relationships as an indication that your efforts have failed; your supportive words and kind actions carry weight and may make a difference in the future.

4. SAFETY CONSIDERATIONS FOR THE CLINICAL SETTING

- **Consult with local, state, and federal law enforcement as well as hospital/clinic security regarding:**
  - On-going notification of dangerous trafficking individuals/organizations in the area
  - How to safely respond to a potentially dangerous situation or threatening individual
  - Safety assessment of physical facility
- **Questions to consider:**
  - Is the trafficker present?
  - What does the patient believe will happen if they do not leave with or return to "employer"/"boyfriend"/pimp/trafficker?
  - Does the patient believe anyone else (including family) is in danger?
  - Is the patient a minor?
- **Consider flagging the patient's record in the medical record system so that if someone inquires regarding their whereabouts all staff will deny the presence of the individual at that health facility**

TIP: SECURITY

Involve hospital security in training and preparations. HT involves many forms of criminal activity, and in most cases the presentation of a victim in your facility will not pose any danger. However, occasionally a situation may arise that requires involvement of security personnel to protect patients and staff. Risk management, security, and general administrative leadership should confer with local law enforcement regarding planning for emergency situations.

TIP: EXPERIENCES OF TRAFFICKING VICTIMS

In labor trafficking, sexual abuse is frequently used to coerce behavior and ensure continued compliance. Therefore, assessment of sexual health is indicated.

5. MULTIDISCIPLINARY TREATMENT AND REFERRAL PLAN

- **Develop patient-centered treatment plans based on available internal and external resources (see Part II, Step 6), guided by the patient**
  - Recognize and respect patient autonomy
  - Any suspected victim of labor or sex trafficking needs a thorough physical exam and mental health screening for acute psychiatric distress
  - Offer/provide comprehensive sexual health services, including STI and pregnancy testing, thorough anogenital examination, and HIV/STI/pregnancy prophylaxis

PROTOCOL COMPONENTS: 5

- Common services requested may include shelter/housing, food, legal services, case management, addiction treatment
- Do not focus on "rescue" since this is a rare event. Instead the goal of care should be to help the patient as much as possible and attempt to develop a relationship with them
- Do not make promises you cannot keep

- **Utilize close and careful, personal communication ("warm hand-offs") whenever possible when making referrals**
- **Consider employing survivor advocates to aid and guide potential trafficking survivors**
- **Address future safety planning for the patient**
  - Assess for potential future health risks
  - Identify strategies for avoiding or reducing the threat of harm when safety is threatened
  - Each patient is in the best position to determine their own level of safety; they know better than anyone how the planning should be tailored to meet their unique circumstances
  - Victims of sex or labor trafficking may have safety concerns that can be addressed with the help of the health care staff. Particular contexts in which developing a safety plan might be beneficial include
    - Isolation/abandonment
    - Changing locations
    - Lack of necessary resources (food, medicine, clothing, shelter, etc.)
    - Increased vulnerability to exploitation or abuse
    - Confiscation of money or identifying documents
    - Physical harm (be aware of reporting requirements)
    - Abduction, kidnapping, confinement, or restraint (be aware of reporting requirements)
  - Anticipatory guidance on preventing HIV, sexually transmitted infections, and unintended pregnancy may be very helpful
  - The National HT Hotline (1-888-373-7888) can assist in the development of safety plans

TIP: GIVING CONDOMS TO PATIENTS

Be aware that in some jurisdictions condoms can be used as evidence of prostitution in criminal cases. Patients may refuse to accept or carry condoms because they do not want to be implicated in a crime. Patients may also refuse condoms when threatened by intimate partner or trafficker violence. However, it is important to offer condoms to sexually active patients to prevent disease as well as to prevent unwanted pregnancy.

PROTOCOL COMPONENTS: 5

- **Routinize discharge planning**
  - Arrange for a follow-up appointment
  - Arrange for an outreach worker (public health nurse, community health worker/promatora, health educator, disease investigation specialist) to make a follow-up visit when possible
  - Provide resources verbally to patients as well as through discrete messaging without accompanying family member or "friend" in the room. Many patients will not be able to leave with written information. Examples of discrete resource sharing include writing assistance hotline number on Rx pad, labeled as "x-ray," or placing business card with follow up appointment reminder in sanitary napkin
  - Resources to consider sharing with potential victim of trafficking
    - Polaris number to text for help (BEFREE) and Hotline 1-888-373-7888
    - A contact number to call if the patient wants further assistance; include text contacts if available
    - Referral and resource list from community partners for such things as
      - Food banks
      - Housing
      - Social services
      - Legal services
      - Clothing donations
- **Request additional contact information from the patient, such as emergency phone numbers, electronic mail address, social media names/"also known as" (AKA) handles, and alternative living addresses/shelters, workplace address, and hangouts, to facilitate follow up with the patient**
- **Discuss with the patient the safest way to communicate with them and carefully consider whether it is safe to contact the patient for follow up**
- **If the patient is being discharged and there are potential liability concerns, contact administration or risk management**
- **If patient is a minor, and a potential trafficking victim, see unique considerations in the next section.**

PROTOCOL COMPONENTS: 6

6. STRATEGIES FOR WORKING WITH MINOR PATIENTS

- **Understand and train staff on state laws and health facility guidelines about evaluation and treatment without parental consent**
- **During protocol development determine:**
  - If your jurisdiction has immediate removal statutes* (see adjacent TIP box)
  - How to handle emancipated minor
  - Local CPS criteria for intervention
- **Explain limits of confidentiality to patient**
- **Individualize the response according to:**
  - Age of minor
  - Physical condition of minor
  - Emotional condition of minor
  - Ability to protect minor
  - What is known about trafficker
  - Ability to provide services to minor within protective custody
  - Ability to follow up at a later date
  - Other factors brought up in discussion
- **Prepare the minor for your report — explain what you have to do and why**
- **Health care workers are mandated reporters, not mandated interveners! Immediate removal from the situation is not always safe for the patient**

TIP: INDIVIDUAL STATE APPROACHES

Be aware that some states have passed statutes that allow for immediate removal of a minor from a situation that might present serious danger to the minor. When and how to engage these statutes requires advanced planning on the part of the institution and collaboration with child protective services.

**As an example, see Connecticut's statute on immediate removal detailed on page 26 of the state manual available at: jud.ct.gov/LawLib/Notebooks/Pathfinders/ChildAbuseand Neglect/childabuse.pdf*

7. STRATEGIES FOR RESPONDING TO PATIENTS WHO DECLINE ASSISTANCE

- **Respect the decisions and self-determination of the patient you suspect may be trafficked**
- **Provide patient-centered care, recognizing that victims know better than anyone the potential risks involved with seeking help or beginning the process of leaving the trafficking situation**
- **Utilize motivational interviewing techniques and the Stages of Change[18,19] model to engage and provide support**
- **Avoid damaging the relationship with the patient by pushing for a decision before the patient is ready**
    - Maintaining a good relationship can lead to a more positive outcome later
    - Remember the psychological coercion involved in trafficking often makes it difficult for a victim to disclose or exit their situation
    - Trafficked individuals may have well-founded reasons to avoid authorities; discuss viable options and gain consent for all actions
    - Victims may not be ready to accept help and may appear belligerent
    - Provide information and positive support whenever possible
    - Labeling patients as "not wanting help" could have a negative impact and prevent them from returning for care when they are ready for help
    - Encourage them to come back when they are ready and assure them that someone will be there to assist them—and ensure that someone is
    - Ensure the protocol plans for continuity of care and ability to follow up

TIP: VICTIM RESPONSE

Once a high risk patient or suspected victim is identified, with the patient's permission, health care personnel should contact a victims' advocate or outreach worker from a local community agency. It is best if that person specializes in working with these victims and arranges for connections to social, legal, and housing services based on the needs identified by the potential victim. However, such expertise may not exist in many communities, and funding for such essential resources and response programs remains scarce.

[18] Prochaska JO, Velicer WF. The transtheoretical model of healh behavior change. Am J Health Promot 1997;12(1):38-48

[19] Stages of change in CSEC counseling. In: Ending Commercial Sexual Exploitation of Children: A Call for Multi-system Collaboration in California. California Child Welfare Council. http://www.chhs.ca.gov/Child%20Welfare/Ending-CSEC-A-Call-for-MultiSystem_Collaboration-in-CA.pdf. Published 2013. Accessed January 15, 2017.

PROTOCOL COMPONENTS: 8

- Request additional contact information from the patient to facilitate follow-up
  - Any additional known addresses
  - Any additional phone numbers
  - Known email addresses or social media handles
  - Contact information for other acquaintances
- Discuss with patient the safest way to communicate
- See also, section "Address future safety planning for the patient" on page 29

8. PROCEDURES REGARDING DOCUMENTATION

- **During a clinical encounter, the role of the health professional is to diagnose and treat the patient. Collecting a medical history from a potential victim of trafficking may be difficult, and documentation of this information in the medical record may have legal ramifications. Because of the complexity of medical-legal issues around HT cases, and great variation in state and local laws, guidelines for optimal documentation practices with potential victims should be developed in consultation with local prosecutors, defense attorneys, and advocates. Depending on the legal climate, entering more or less information in the patient's chart can either be harmful or helpful.**
  - Information in the medical record can potentially be harmful to the patient when their case goes to trial (e.g., if a sex trafficking victim contracts HIV, in some states they could be criminalized for the transmission of HIV)
  - In many jurisdictions, crimes committed by trafficking victims while under the control of their trafficker will be prosecuted (e.g. a patient coerced to sell sex may still be charged with prostitution)
  - Inclusion of survivor quotes in the medical record is often advised in cases of injury or sexual assault, but such details about a survivor's story may not be helpful should he or she change their account later

TIP: DOCUMENTATION

It is difficult to balance our need for inclusive information with medico-legal discretion. Obtaining information about prior injuries, consensual sex, number of partners, and STIs may influence our workup, exam, and the anticipatory guidance we provide, but documentation of these data may be used against the paitent in certain legal circumstances. Consult local attorneys familiar with privacy and rape shield laws.

- Sensitive information in the medical record may or may not be redacted during a court hearing or trial depending on whether the state has a rape shield law, and if that state has determined that the rape shield law applies to trafficking victims*
- In certain situations, information gathered in the forensic examination, including photographs, may be shared with the defense attorney and sometimes with the traffickers themselves. The victim may also be re-traumatized by the display of their photographs during the trial
- Develop a system for flagging the medical record when providers become aware of the patient's status of potential HT victim, and train all providers in this methodology
  - » Documentation of resources provided to the patient can serve as an indicator to other providers that the patient could be a victim of trafficking (e.g., "Gave patient National HT Hotline number" or "Referred to community agency X")
  - » Balance flagging of record for communication and continuity with potential harms to patient resulting from traffickers viewing the record and from stigmatization of patients labeled as potential victims

**A rape shield law is a law that limits a defendant's ability to introduce evidence or cross-examine rape complainants about their past sexual behavior.*

TIP: SURVIVOR MINDSET

Many victims will not disclose a sexual assault or recognize they are a trafficking victim, particularly when intimate partner violence is part of the equation or the patient has survived commercial sexual exploitation. Many survivors will refuse a forensic exam to protect themselves or their abusers.

9. GUIDELINES FOR FORENSIC EXAMINATION

- **Forensic examination is conducted by specialized physicians and nurses for the specific purpose of collecting evidence for criminal investigation, civil prosecution, or immigration relief**
- **Forensic exams may incorporate documentation of physical injuries that may result from labor trafficking or physical abuse as well as sexual assault**
- **All aspects of the exam, sexual assault kit, testing, and treatment require patient consent**
- **Forensic interviewing by specialized psychiatrists, psychologists, and therapists complements the medical examination for suspected child trafficking victims and survivors seeking asylum in the U.S.**

PROTOCOL COMPONENTS: 9

- **Maintain a low threshold for referral to SANE/SAFE (Sexual Assault Nurse Examiner/Sexual Assault Forensic Examiner)**
- **Discuss with SANE/SAFE team the possibility of extending the exam window for this population**
  - One study shows viable DNA may be collected after 10 days *in vivo*[20]
- **Limit the number of questions posed to a patient being referred for SANE/SAFE exam**
- **Consult local authorities such as prosecutors and law enforcement to clarify:**
  - Will patient information only be released to the authorities with the consent of the patient, unless authorities subpoena records or get a court order?
  - Under which conditions will a sexual assault evidence kit will help prosecute the trafficker?
  - Under which conditions will a sexual assault evidence kit will help prosecute a buyer of sex?
    - Who raped or otherwise assaulted the victim?
    - Who purchased sex from a minor victim, a victim with an intellectual or developmental disability, or a possible victim of felony?
    - When should the facility to engage a SANE/SAFE nurse or refer for follow up exam by another provider with experience in sexual assault examinations, for example, at a child advocacy center?
- **Develop forensic documentation protocols**
  - Photograph all injuries, scars, brands, and tattoos if possible
    - Use rulers and other instruments to show size, location, and quality
    - If photography not possible, use drawings or diagrams
  - Include written documentation in case photos are lost

[20] *Speck P, Ballantyne J. Post-Coital DNA recovery study. Washington DC. National Institute of Justice. https://www.ncjrs.gov/pdffiles1/nij/grants/248682.pdf. Published online August 2014. Accessed December 7, 2016.*

TIP: LGBTQ MEDICAL NEEDS

Lesbian, gay, bisexual, transgender, and queer or questioning individuals (LGBTQ) individuals experience health disparities and often face stigma, discrimination, and bias in health care settings. Trafficking response protocols should encourage respect, curiosity, and empathy for all patients as part of cross-cultural interviewing. (Reference: thefenwayinstitute.org)

TIP: TRANSGENDER PATIENTS

Transgender individuals have unique medical needs that may require consultation with an expert, including risks associated with street hormone use and options for gender therapy and treatment.

- Document inflicted injury patterns: shape, distribution, size, pigmentation, placement
  - » Note qualities of scar: color, location, symmetry, raised edges, dimensions
- Note dental trauma
- Consider chain of evidence if facility has the capacity
- Consider collecting blood or urine to document a drug-facilitated sexual assault in suspicious situations; also consider risk to patient of a positive drug test for an illegal substance
- Consider purchasing the Physicians for Human Rights Guide to Examining Asylum Seekers: A Clinicians Guide as a resource at physiciansforhumanrights.org/library/reports/examining-asylum-seekers-manual-2012.html

10. PROCEDURES FOR EXTERNAL REPORTING

- **Develop external reporting procedures that include the following**
  - Ensure reporting is only occurring with the consent of the patient if the patient is an adult, except when reporting is required by law
  - Consult with law enforcement and prosecutors regarding what data may be lawfully reported without consent of patients in order to improve community-wide response to trafficking
  - Know whom to notify in cases where the possible victim is a minor
    - » If possible, alert staff to a specific phone number and person at the local child protective services agency who is familiar with child trafficking
  - Understand when to contact local law enforcement
    - » Identify specific law enforcement agents and phone numbers
    - » May need to contact different law enforcement agencies depending on the type and nature of trafficking

TIP: MANDATED REPORTING

As a mandated reporter, you must report to authorities even when children do not want to disclose to others. It is important to explain limits of confidentiality prior to a disclosure. If reporting is necessary based on a disclosure, explain to your patients why reporting is necessary and solicit their input into what information will be given to authorities. By engaging youth in the process, they may even want to be in the room during the call. Allow children as much involvement as possible, which may help ease the distress of reporting. In states where mandatory reporting extends to adults who have experienced abuse or assault, the same principles apply.

PROTOCOL COMPONENTS: 10

  - As necessary, check with legal and victim services for appropriate procedures to preserve the patient's agency and control, protect the patient, prioritize their safety and needs, while not undermining law enforcement priorities and needs
- Understand when and how to contact FBI and/or Department of Homeland security
  - May need to contact different law enforcement agencies depending on the type and nature of trafficking
- Know when and how to contact the Department of Labor Wage and Hour Division and Office of the Inspector General (see page 13)
  - The Wage and Hour division enforces several critical federal workplace laws, including the federal minimum wage and overtime laws. Many Wage and Hour investigations take place in industries that employ vulnerable workers
  - The DOL Wage and Hour Division can pursue financial damages for exploited workers, and can certify qualifying foreign national victims for T- and U-visas
  - The DOL Office of the Inspector General has criminal investigative authority in some HT cases
- Who to notify in jurisdictions with mandated reporting of adult abuse
- Legal services numbers to contact

TIP: MANDATORY POSTING OF HT INFORMATION — A PROMISING POLICY

California Civil Code requires emergency rooms and urgent care centers, along with certain public premises, to post signs with this information about HT:

"If you or someone you know is being forced to engage in any activity and cannot leave — whether it is commercial sex, housework, farm work, construction, factory, retail, or restaurant work, or any other activity — call the National HT Hotline at 1-888-373-7888 or the California Coalition to Abolish Slavery and Trafficking (CAST) at 1-888-KEY-2-FRE(EDOM) or 1-888-539-2373 to access help and services. Victims of slavery and HT are protected under United States and California law."

MOVING FORWARD

EDUCATION AND TRAINING

- **Types of specialized training needed by providers and staff may include**
  - HT 101 that covers both sex and labor trafficking
  - Commercial Sexual Exploitation of Children (CSEC) 101
  - Trauma-informed service delivery
  - Youth-friendly service delivery
  - Motivational interviewing
- **All staff that interact with patients should have basic understanding of HT and safe, trauma-informed service delivery**
  - Importance of establishing a safe environment for the patient
  - Cultural competence/cultural humility
  - Maintenance of nonjudgmental, respectful, open attitude
  - Patient confidentiality and HIPAA regulations
  - Mandatory reporting laws and guidelines
  - Definition of HT
  - General risk factors for and potential indicators of labor and sex trafficking
  - Hospital/clinic protocol
- **Identify key departments and types of personnel that should be trained**
  - Emergency medicine, obstetrics and gynecology, pediatrics, and family medicine
  - Eventually include all hospital/clinic personnel for training; even institutional custodial services are in a position to observe patient and family interactions

TIP: TRAUMA-INFORMED INTERVIEWING

After a patient at high-risk for trafficking has been identified, minimize the number of people interacting with the patient and asking additional questions regarding their trauma history, in order to avoid re-traumatizing the patient through the telling and re-telling of their history. Always offer the potentially trafficked patient the opportunity to speak with a social worker, counselor, or other trained staff who is familiar with community resources. Questions should be limited to those necessary to meet the patient's immediate medical needs and to arrange for referral and follow up.

MOVING FORWARD

- **Decide how information about trafficking will be shared with staff and partners**
  - Photographs of local tattoos and brands
  - Types of local industries in which trafficking has been identified or where workers may be at risk (dirty, degrading, or dangerous work)
  - Display anti-trafficking information at your facility, including the National HT Hotline number: 1-888-373-7888
  - Consider Joint Commission restrictions on sign posting in hospitals
  - Consider posting the Hotline number in waiting rooms and bathrooms
- **Staff designated as specialized interviewers of potential victims should receive additional training. These interviewers should understand**
  - The importance of obtaining assent from patients before an interview and ensuring patients are aware that they do not need to answer any or all questions
  - The importance of informing minors and others as applicable under state law that certain situations may trigger mandatory reporting
  - Strategies for conducting an interview while establishing trust and building rapport
  - The challenges one may face in obtaining an accurate medical history from a victim of HT
  - Utilization of an empowerment or strengths-based approach to engaging the patient
  - Screening questions for suspected victims of trafficking
  - Potential reasons why patient may not disclose victimization
  - Basic cognitive, emotional, social, and physiologic effects of trauma and complex trauma
  - How to monitor for signs of traumatic stress during interview and respond appropriately
  - Appropriate reactions to negative behaviors in a patient with a history of trauma
  - The phenomenon of trauma bonding
  - Street terms for sex trafficking
  - An understanding of the complicated relationship marginalized communities have with law enforcement

TIP: PLANNING HT TRAINING

In larger settings, you may wish to implement your response protocol in stages, so that training can be staggered. You can choose to do this by staggering departments or by types of staff. For example, you may consider starting with the emergency department then following with other departments or you may start with nurses and then train other staff.

- The importance of inquiring whether the patient is willing to speak to a HT-trained law enforcement officer

- **Identify options for trainers**
  - Local, regional, and national resources
  - HEAL Trafficking Speaker's Bureau at HEALtrafficking.org
  - Hire survivor leaders as trainers when possible
  - Web-based trainings
    - Resources at HEALtrafficking.org
    - See resource section on page 21

- **Consider**
  - Funding to support trainings
  - Format and frequency of trainings
  - Standards to maintain training on both sex and labor trafficking

DISTRIBUTION

- **Once a protocol has been developed and approved by your institution**
  - Disseminate information to all staff that will be impacted by the changes
  - Prepare and conduct trainings on the new protocol
  - Facilitate meetings regarding the subsequent changes in care
  - Inform the community partners identified earlier of your newly developed protocol
  - Ensure referral resources are up-to-date

MONITORING AND EVALUATION

- **The interdisciplinary protocol committee should develop monitoring and quality improvement efforts. This effort should include:**
  - Collaboration with your institution's Quality Assurance team to create a quality improvement process that incorporates:
    - Identification of key quality measures and outcomes of concern before implementation
    - Exploration of areas for improvement
    - Selection and implementation of an approach to change

    - » Re-evaluation at regular intervals
    - » Identification of new goals or problems in either outcomes or service delivery
  - Assessment of impact of protocol on staff
  - Ensuring self care for staff
    - » Working with trafficking victims and other survivors of violence can be difficult and traumatizing.
    - » Ensure efforts are made to maintain the mental health of the staff, especially those working closely with HT survivors
  - Development of an effective data collection process; data collected should include follow up from referrals
  - Creation of a quality improvement process that incorporates:
    - » Identification of new goals or problems in either outcomes or service delivery
    - » Exploration of areas for improvement
    - » Selection and implementation of an approach to change
    - » Re-evaluating the changes
- **Quality improvement efforts should be continuous and lead to improvements in services as well as patient experience**
- **Benefits to monitoring and evaluation efforts:**
  - Documentation that the program is meeting objectives and goals
  - Determination that the program is efficacious
  - Demonstration of value to potential funders
  - Documentation that patients are receiving quality care
  - Ability to contribute to the larger field of health care responses to HT by collecting and reporting on outcomes

ONGOING IMPLEMENTATION

- **Be prepared to adapt to changes within your health care institution and the changing picture of local trafficking by:**
  - Updating your protocol as necessary
  - Determining who will facilitate ongoing trainings
  - Training new staff on the protocol and HT in general

- Retraining staff as necessary to maintain competency
- Continually identifying new partners and potential collaborators
- Including survivor speakers and hiring survivors whenever possible
- Identifying potential training opportunities within the community
- Staying up to date on federal, state, and local laws and regulations and adjusting protocol when necessary
- Identifying opportunities to expand data collection efforts to gain a better knowledge and understanding of how trafficking impacts the community, or how programs work best together to improve outcomes

- **Community partners are essential for the health care response to trafficking and an invaluable source of information and ideas. Maintain strong connections with partners to improve and expand wrap-around services for patients and expand institutional knowledge and awareness of trafficking issues in the area. Invest in community resources to build and sustain collaborative partnerships.**

CONCLUSION

> People subjected to sex and labor trafficking often experience mental and physical health problems, and emerging evidence demonstrates that many people access health care while they are still in a trafficking situation.[1,2,3,4] Health care professionals, like law enforcement professionals, encounter trafficking people during the course of their work and serve as first responders. It is therefore our job to recognize patients at risk for trafficking, treat their health problems, and provide them appropriate resources and referrals. However, most health care institutions —whether emergency departments, community clinics, labor and delivery services, or pediatricians' offices — lack specific guidance or plans to address HT cases they may encounter.[5]

This toolkit is meant to aid health care providers and institutions as they create an interdisciplinary, organized response to best serve patients who have been trafficked. When health care providers create a safe space, respect patient autonomy, and empower patients, stronger relationships develop and providers can have a meaningful positive impact.

The recommendations in this toolkit are not prescriptive instructions; their applicability will vary greatly depending upon local circumstances. Health care facilities vary based on size, capacity, geography, legal-political climate, and availability of community resources. Therefore, the applicability of the recommendations above will vary greatly depending upon local circumstances.

CONCLUSION

It is imperative that the interdisciplinary protocol committee be aware of the evolving nature of the health sector's response to human trafficking. Specifically, the work does not end once a protocol is developed. Relationships with community partners must be maintained. Local, state, and federal laws will change. Most importantly, as research expands, protocols should be adjusted to reflect new evidence-based practices.

Because we currently lack an evidence base from which to craft the health care response to human trafficking, the guidance offered in this toolkit comes from the numerous experienced, talented professionals from around the U.S., including trafficking survivors, who contributed to this document. As more health care agencies and institutions formalize their response to patients who have been trafficked, HEAL Trafficking and Hope for Justice hope that you will share your approaches, your challenges, and your successes in protocol development and implementation. Sharing what we learn through our work in different settings and jurisdictions is essential for advancing efforts to develop effective, sustainable, trauma-informed response protocols in health care settings.

ADDRESSING HT IN HEALTH CARE AND PUBLIC HEALTH SETTINGS: WHAT CAN I DO?

1) Educate yourself, your colleagues, and your students about HT and other forms of intentional violence, and their impact on health

2) Create systems that deliver trauma-informed care

3) Advocate for health care funding streams and wrap-around services for trafficking survivors

4) Join HEAL Trafficking to stay informed, share best practices, expand the evidence base, and improve the system

Feedback and recommendations are welcome. Please email HEALtraffickingNow@gmail.com or refer to our website: HEALtrafficking.org.

THANK YOU.

PROTOCOL TOOLKIT

for Developing a Response to

Victims of Human Trafficking in Health Care Settings

HEAL TRAFFICKING

HOPE FOR JUSTICE

Polaris Freedom happens now.

2019 Data Report

The U.S. National Human Trafficking Hotline

More victims and survivors speaking for themselves

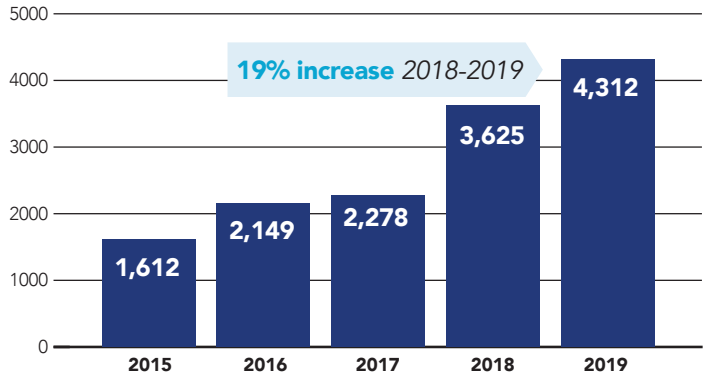
Data Highlights: January 1- December 31, 2019

Victims and survivors of sex and labor trafficking know their situations and needs better than anyone. For that reason - and with certain limited exceptions, such as situations involving children - the U.S. National Human Trafficking Hotline will not contact law enforcement or otherwise take action on behalf of the victim or survivor without that person's consent. **That's why the nearly 20 percent increase in victims and survivors who contacted us directly is so meaningful.** Hearing directly from the person affected gives the Trafficking Hotline the best information and avenue to provide help. That might mean putting together a safety plan, finding an attorney, a shelter bed or a trauma counselor, or, in some cases, seeking law enforcement intervention.

Also worth noting is the rapid growth of text as a means of communication with the Trafficking Hotline. More details available on pages 5 and 6 of this document

Contact from Victims and Survivors Themselves Has Grown Steadily Over Time

Individual Victims and Survivors Contacting Us



IMPACT AT A GLA

VICTIMS AND SURVIVORS IDENTIFI
22,326

VICTIMS AND SURVIVORS IDENTIFI BY TRAFFICKING FOR

Sex trafficking	14,5
Labor trafficking	4,93
Sex and labor	1,04
Not specified	1,74

TRAFFICKING SITUATIONS IDENTIFI
11,500

TRAFFICKERS IDENTIFIED
4,384

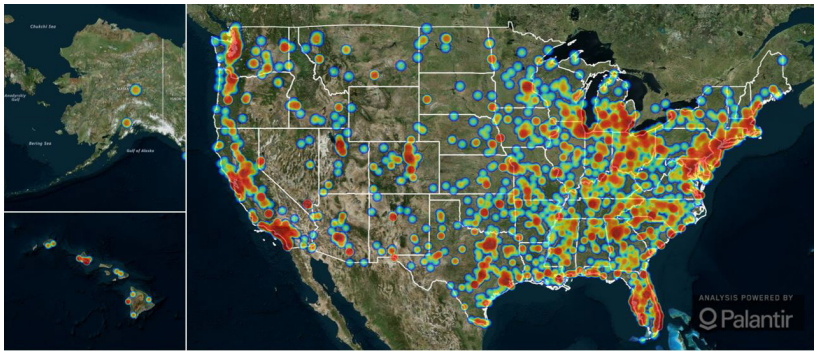
SUSPICIOUS BUSINESSES IDENTIFI
1,912

HUMAN TRAFFICKING SITUATIONS IDENTIFIED[1]

Who Are the Victims and Survivors?

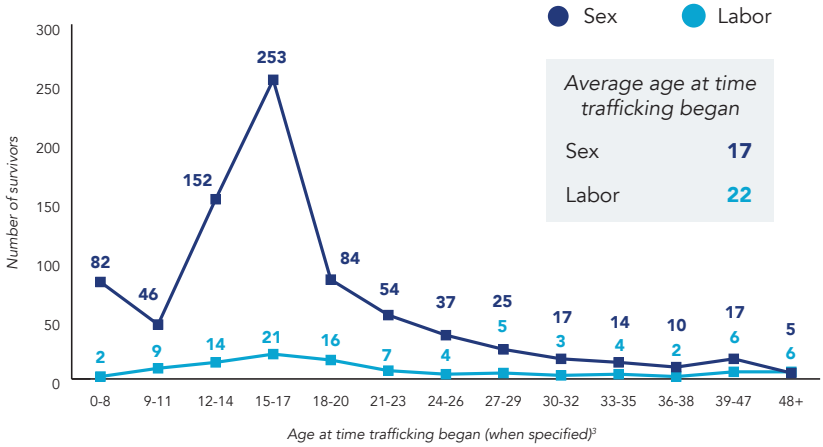
This information reflects only what we learn in the course of providing support. Individuals are never asked questions solely for the purpose of data collection.

Locations of Human Trafficking Situations in the U.S.[2]



[2]Situations of trafficking can involve more than one location.

Age at Time Sex or Labor Trafficking Began



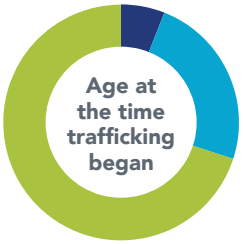
[3]Exact age at the time the trafficking began is known for only 4% of the trafficking victims and survivors in this data set.

ABOUT THIS DATA

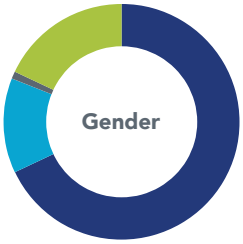
The Trafficking Hotline provides the largest known data set on sex and labor trafficking in the United States. The Trafficking Hotline exists first and foremost to provide support to trafficking victims and survivors. Data collection is secondary and information is only collected if it is necessary to provide that support. Trafficking situations learned about through the Trafficking Hotline likely represent only a small subset of actual trafficking occurring in the United States. Therefore, this data must not be confused with the prevalence of human trafficking in the United States.

The data in this document is based on information available at the time of review. Subsequent reviews/information added over time can lead to changes. Contacts are defined as individual telephone calls, text messages, web form submissions, emails and chat initiations. Note that situations of trafficking can involve one or more potential victims or survivors.

Age, Gender and Nationality



Adult	1,435
Minor	5,359
Unknown	15,532



Female	15,222
Male	3,003
Gender minorities	135
Unknown	3,966

U.S. citizen/Lawful permanent resident	1,388
Foreign national	4,601
Unknown	16,337

A Closer Look

SEX TRAFFICKING

Situations of sex trafficking:

8,248

Individual victims and survivors of sex trafficking:

14,597

Top 3 Identified Sex Trafficking Types

Escort services	**1,278**
Illicit massage, health, and beauty[4]	**1,247**
Pornography	**733**

LABOR TRAFFICKING

Situations of labor trafficking:

1,236

Individual victims and survivors of labor trafficking:

4,934

Top 3 Identified Labor Trafficking Types

Domestic work	**218**
Agriculture and animal husbandry	**108**
Traveling sales crews	**107**

SEX AND LABOR TRAFFICKING

Situations of sex and labor trafficking:

505

Individual victims and survivors of sex and labor trafficking:

1,048

Top 3 Identified Sex and Labor Trafficking Types

Illicit massage, health, and beauty[4]	**123**
Illicit activities	**81**
Bars, strip clubs, and cantinas	**43**

Vanessa* told the Advocate on the U.S. National Human Trafficking Hotline that she had finally decided it was time to get out. She and several other women were being held in a home and forced to engage in prostitution. If they refused or fought, their trafficker withheld food and water and threatened them with a firearm. Their trafficker had cameras placed throughout the house and monitored them at all times. At the time of her call to the Trafficking Hotline, Vanessa was with a buyer and requested that law enforcement be sent to remove her and the other victims from their situation. The Trafficking Hotline was able to report to trusted contacts who acted quickly and extracted Vanessa and the other women. In the course of their investigation, the Trafficking Hotline's law enforcement partners determined that Vanessa's situation was actually part of a larger network based in another city and state.

**Vanessa's name has been changed and details removed in order to protect her identity.*

[4]*Situations of trafficking occurring in Illicit massage, health, and beauty can involve either forced commercial sex or forced commercial sex and labor services and are therefore represented in both the sex trafficking and sex and labor trafficking sections.*

A Closer Look – Cont'd

Top 5

Top 5 Points of Access for Help

- Friends/Family **1,863**
- Law Enforcement/Criminal Justice **1,332**
- Health Services **917**
- Mobile Apps/Social Media **494**
- Child Welfare System **487**

0 500 1,000 1,500 2,000 2,500 3,000

Top 5 Risk Factors/Vulnerabilities for Trafficking Victimization

SEX TRAFFICKING

- Substance Use Concern **510**
- Runaway Homeless Youth **473**
- Recent Migration/Relocation **416**
- Unstable Housing **366**
- Mental Health Concern **334**

0 500 1,000 1,500 2,000 2,500 3,000

LABOR TRAFFICKING

- Recent Migration/Relocation **2,364**
- Unstable Housing **91**
- Criminal Record/Criminal History **90**
- Physical Health Concern **53**
- Substance Use Concern **32**

0 500 1,000 1,500 2,000 2,500 3,000

Top 5 Recruitment Tactics

SEX TRAFFICKING

- Intimate Partner/Marriage Proposition **1,067**
- Familial **981**
- Job Offer/Advertisement **515**
- Posing as a Benefactor **438**
- False Promises/Fraud **353**

0 500 1,000 1,500 2,000 2,500 3,000

LABOR TRAFFICKING

- Job Offer/Advertisement **2,557**
- False Promises/Fraud **805**
- Smuggling-Related **221**
- Familial **168**
- Posing as a Benefactor **132**

0 500 1,000 1,500 2,000 2,500 3,000

Top 5 Forms of Force, Fraud and Coercion

SEX TRAFFICKING

- Induces/Exploits Substance Abuse Issues **1,898**
- Physical Abuse **1,780**
- Sexual Abuse **1,184**
- Intimidation - Displays/Threatens Weapons **1,102**
- Emotional Abuse - Intimacy Related **1,019**

0 500 1,000 1,500 2,000 2,500 3,000

LABOR TRAFFICKING

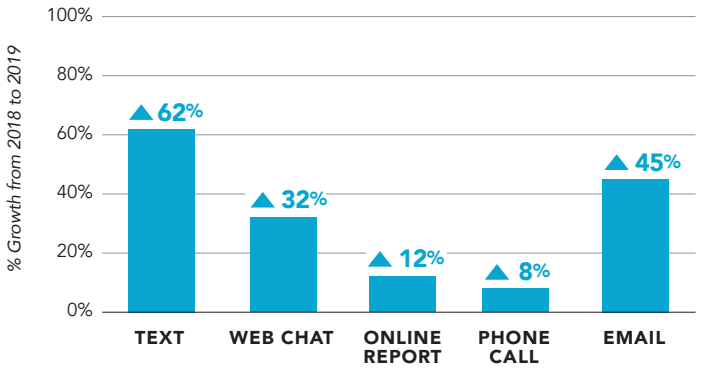
- Withholds Pay/Earnings **2,279**
- Excessive Working Hours **2,043**
- Threat to Report to Immigration **1,866**
- Verbal Abuse **1,640**
- Withholds/Denies Needs **1,254**

0 500 1,000 1,500 2,000 2,500 3,000

The Growing Importance of Texting for Help

The Trafficking Hotline received 48,326 individual trafficking-related contacts in 2019.

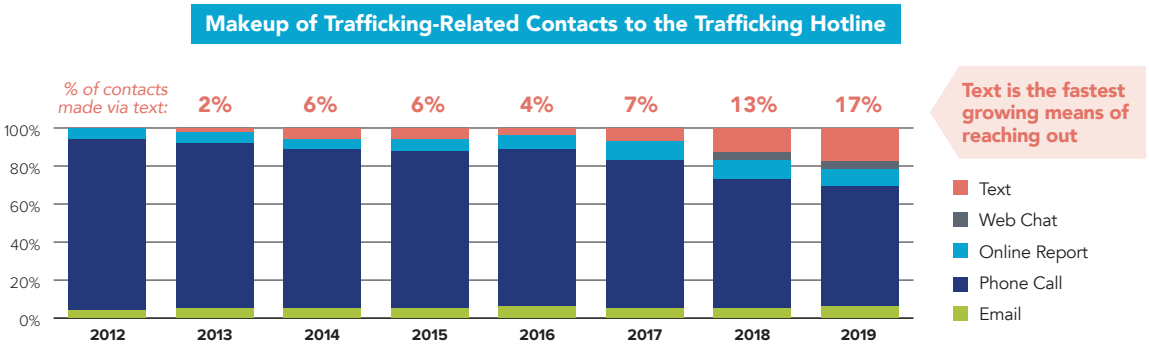
Here's how they came in and how they compare to last year:



Text	8,412
Web Chat	2,070
Online Report	4,508
Phone Call	30,506
Email	2,830

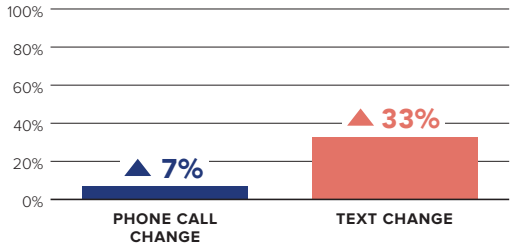
Texting makes up a substantially growing share of the methods used to contact the Trafficking Hotline.

As the Trafficking Hotline has made new methods of reaching out available, the way people chose to get in touch has diversified. The chart below shows the percent share of all contacts each method of contact has represented over the years. Text is the fastest growing means of reaching out and, in 2019 comprised 17% of the trafficking-related contacts made to the Trafficking Hotline.

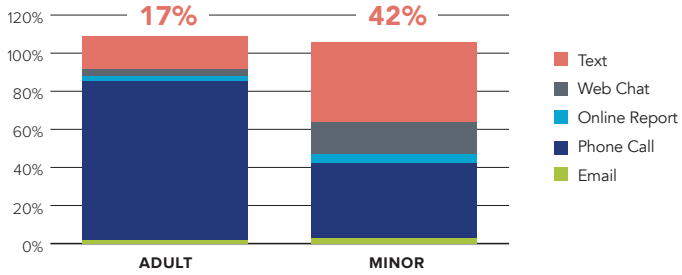


The Growing Importance of Texting for Help – Cont'd

Also worth noting:
In 2019, the number of identified trafficking situations that originated from text grew by 33% from the previous year (compared to 7% growth in identified trafficking situations originating from calls).



Minor survivors of trafficking utilize text more than adults.
In 2019, 42% of minor victims and survivors of trafficking contacted the hotline via text compared to 17% of adult victims and survivors.



Totals in the table can add up to more than 100% because individuals can use multiple forms of communication with the Trafficking Hotline.

Carolina* called the U.S. National Human Trafficking Hotline to report a scheme where a licensed contractor was using a network to recruit children in Central America and bring them to the United States to work. The children were supposed to be able to send money home to their families but most were not actually being paid, despite working very long hours. On the weekends, the minors were forced to do domestic work in the trafficker's home. Carolina was concerned about the children being physically abused as well. She wanted to report, but she was concerned about her own safety and asked to remain anonymous. The Trafficking Hotline was able to report the tip to local contacts who worked with the appropriate child welfare agency to investigate the situation.

**Carolina's name has been changed and details removed in order to protect her identity.*

Polaris Freedom happens now.

Sex Trafficking and LGBTQ Youth

Every year, children and young adults are compelled into sex trafficking in the United States. While trafficking affects all demographics, traffickers frequently target individuals who lack strong support networks, are facing financial strains, have experienced violence in the past, or who are marginalized by society. Without adequate community support, youth who identify as lesbian, gay, bisexual, transgender, queer, or questioning (LGBTQ) may be at particular risk for sex trafficking. Service providers who work with LGBTQ youth may be in a position to identify, support, and assist LGBTQ youth who have been trafficked.

WHAT IS SEX TRAFFICKING?

Sex trafficking is a form of modern slavery that exists throughout the United States and around the world. Sex traffickers use violence, threats, lies, debt bondage, and other forms of coercion to compel individuals to engage in commercial sex acts against their will. Under U.S. federal law, any minor under the age of 18 years induced into commercial sex is a victim of sex trafficking—regardless of whether or not the trafficker used force, fraud, or coercion.[1]

The situations that sex trafficking victims face vary dramatically. Some victims become romantically involved with someone who then forces or manipulates them into prostitution. Others are lured in with false promises of a job, such as modeling or dancing. Some are forced to sell sex by family members, while other are kicked out by their families, placing them in precarious financial situations in which they must trade sex to survive. Victims of sex trafficking may be involved in a trafficking situation for a few days or may remain in the same trafficking situation for years.

HOW DOES SEX TRAFFICKING AFFECT HOMELESS YOUTH?

Too many LGBTQ youth still face significant challenges during adolescence and early adulthood, fighting discrimination, misconceptions, and abuse by peers, family members, and others in their communities.

Up to 40% of homeless youth identify as LGBTQ. Of these:

46% ran away because of family rejection[2]

7.4x more likely to experience acts of sexual violence than their heterosexual peers[3]

3-7x more likely to engage in survival sex to meet basic needs,[4] such as shelter, food, drugs, and toiletries[5]

SAFE HARBOR LAWS

Safe harbor laws are designed to protect minors who are exploited for commercial sex. Safe harbor laws have two main components: legal protection and provision of services.[6]

As of 2015, 34 states had safe harbor laws on the books. These state laws varied greatly, offering immunity, affirmative defense, or pretrial diversion to minors engaged in commercial sex.[7]

Safe harbor also allows a pathway into specialized services, including medical and mental health treatment, housing, education assistance, job training, and legal services.

HOW ARE LGBTQ YOUTH MORE VULNERABLE?

LGBTQ youth face higher rates of discrimination, violence, and economic instability than their non-LGBTQ peers.[8] When faced with fewer resources, employment opportunities, or social supports, LGBTQ youth who are away from home must find ways to meet their basic needs and may therefore enter the street economy, engaging in commercial sex to meet these needs.

Others may then seek to exploit these vulnerabilities in order to compel youth into commercial sex. Traffickers may seek to meet the youth's needs as a way to build rapport and dependency. They may offer a sense of family, protection, or love to build a sense of relationship and loyalty. This bond may complicate the youth's understanding of their situation and prevent them from speaking out against their trafficker.

It is difficult for many individuals who have been trafficked to reach out for assistance, but this is especially true for individuals who fear that they will be mistreated or not believed because of their gender identity or sexual orientation. Studies have found that LGBTQ youth are overrepresented in detention for prostitution-related offenses and report higher levels of police misconduct than their straight peers.[9]

Furthermore, gay and transgender youth may not have access to anti-trafficking services because they are unaware of services in their area, the community lacks resources (e.g. bed space, funding), or they are concerned that providers are not LGBTQ friendly.

LGBTQ youth service programs may be in a unique position to support at-risk youth, identify youth who have experienced trafficking, connect them to needed services, and advocate on their behalf.

HOW DO I KNOW IF A YOUTH HAS EXPERIENCED SEX TRAFFICKING?

It may not be readily apparent that a youth has been trafficked, and every survivor's experience is unique. The red flags listed here signify common features associated with youth who have been trafficked. If you find that several of these red flags are present for a youth with whom you are working, we recommend you engage them in an honest, safe, and non-judgmental dialogue about their potential involvement in commercial sex.

RED FLAGS FOR SEX TRAFFICKING

- Is under the age of 18 and engaged in commercial sex, regardless of force, fraud, or coercion
- Feels they must provide commercial sex in exchange for food, housing, hormones, or other necessities
- Photos of the youth have been placed online for advertising purposes
- Movement or communications are monitored
- Is hesitant to answer questions; scripted responses
- Has been threatened with harm to self or loved ones, arrest, or deportation
- Demonstrates mental health concerns like PTSD, anxiety, self-destructive behavior, or depression
- Suffers from untreated medical concerns, particularly in relation to sexual or reproductive health
- Shows signs of physical or sexual abuse, neglect, malnourishment, or poor hygiene
- Has a debt they cannot pay off
- Earnings are confiscated or held by others
- Frequently moves or travels to new cities with new acquaintances

WHAT SHOULD I DO IF ONE OF MY YOUTH HAS BEEN TRAFFICKED?

It can be difficult for victims of trafficking to disclose their situation and reach out for help. Many victims do not identify as victims of trafficking, fear the repercussions of reporting their situation, or simply do not know that help is available. It is important to continue to build trust and rapport, while giving them the tools to stay safe. Survivors may need specialized anti-trafficking services, such as criminal justice advocacy, assistance vacating prior convictions, or trauma-informed mental health services.

If you believe you are working with a young person who may be a victim of trafficking, you can reach out to the National Human Trafficking Resource Center (NHTRC) for advice and referrals to local anti-trafficking services. The NHTRC is a national hotline serving survivors of human trafficking and the broader anti-trafficking community. The toll-free hotline is available to answer calls from anywhere in the country, 24/7, in over 200 languages.

The NHTRC and the Polaris BeFree Textline are confidential, non-judgmental places to seek assistance. Call 888-373-7888 or text 233733 to talk to a specially trained Hotline Advocate to get help, connect to local services, or get more information about human trafficking. For more information about these helplines, visit polarisproject.org/get-assistance.

National Human Trafficking Resource Center Hotline

Call 1-888-373-7888

Polaris BeFree Textline

Text HELP to BeFree (233733)

HOW CAN LGBTQ ORGANIZATIONS GET INVOLVED IN ANTI-TRAFFICKING EFFORTS?

1. **Join your local human trafficking task force or coalition.** A strong anti-trafficking response requires the expertise and skills of all professions. You have an important role to play in supporting LGBTQ youth in your community.

2. **Partner with local service providers and law enforcement on training efforts.** Peer-to-peer training not only provides an opportunity to build trust and relationships, but sharing expertise on LGBTQ cultural competency and human trafficking results in a stronger response network when youth do come forward.

3. **Engage your youth on issues of trafficking and exploitation.** Provide youth with safety planning tips, resources about trafficking, and information on how to get help for themselves or others in abusive or exploitative situations.

SELF EVALUATION

Recognizing and Responding to Human Trafficking

True/False

1.___ Individuals under 18 CAN consent to engaging in a commercial sex act.

2.___ Traffickers target victims they don't know.

3.___ Human trafficking includes sex trafficking, labor trafficking or both.

4.___ Orofacial injuries can be a sign of victimization.

5.___ Providers should separate the patient from any 3rd party individual to conduct basic screening questions.

Answer Key: 1. F, 2. F, 3. T, 4. T, 5. T