MANAGEMENT OF MEDICAL EMERGENCIES IN THE DENTAL OFFICE

Ted P. Raybould, D.M.D.
Professor, General Dentistry and Public Health
Director, General Practice Residency
and Adult Special Patient Care
University of Kentucky College of Dentistry

Neither I nor my immediate family have any financial interests that would create a conflict of interest or restrict my independent judgment with regard to the contents of this course.

Each participant should be aware of the potential risks of using limited knowledge about products and techniques that are discussed in this presentation.

UK CHANDLER MEDICAL CENTER
Special Patient Care
COURSE OBJECTIVES

At the conclusion of this presentation, each participant should be able to succeed at the following tasks:

- Review basic principles of reducing risk factors, identifying signs and symptoms which may be manifest during a dental appointment and take appropriate preventative measures for selected emergency situations
- Recall related legal issues associated with medical emergencies

COURSE OBJECTIVES, CONT.

- Recognize what should be included in your basic emergency kit

This course is intended for general dentists, specialists, hygienists, and members of the dental team.

DENTAL OFFICE DEATHS

Most commonly
- Myocardial Infarction
- Cerebrovascular Accident
- Drug Allergy

SUMMARY OF MEDICAL EMERGENCIES OVER 12 YEAR PERIOD AT USC SCHOOL OF DENTISTRY

<table>
<thead>
<tr>
<th>Emergency</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperventilation</td>
<td>34</td>
</tr>
<tr>
<td>Convulsive seizure</td>
<td>31</td>
</tr>
<tr>
<td>Hypoglycemia</td>
<td>20</td>
</tr>
<tr>
<td>Syncope</td>
<td>19</td>
</tr>
<tr>
<td>Angina pectoris</td>
<td>11</td>
</tr>
<tr>
<td>Allergic reaction</td>
<td>10</td>
</tr>
<tr>
<td>Acute asthma</td>
<td>6</td>
</tr>
<tr>
<td>Acute MI</td>
<td>1</td>
</tr>
</tbody>
</table>

USC DENTAL SCHOOL EMERGENCIES

<table>
<thead>
<tr>
<th>Site of Occurrence</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient during treatment</td>
<td>85</td>
</tr>
<tr>
<td>Patient before or after treatment</td>
<td>26</td>
</tr>
<tr>
<td>Dental personnel</td>
<td>16</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
</tr>
</tbody>
</table>

COMPPLICATIONS: WHAT CAN AND DOES HAPPEN IN DENTISTRY
"We look for medicine (& dentistry) to be an orderly field of knowledge and procedure. But it is not. It is an imperfect science, an enterprise of constantly changing knowledge, uncertain information, fallible individuals, and at the same time lives on the line. There is science in what we do, yes, but also habit, intuition, and sometimes plain old guessing. The gap between what we know and what we aim for persists. And this gap complicates everything we do."


COMPLICATIONS...

“An element that introduces, usually unexpectedly, some difficulty, problem, or change.”

EMERGENCY VS URGENCY....

Emergency: “a sudden, generally unexpected occurrence demanding immediate action.”

Urgency: “calling for haste, immediate action.”

COMPLICATIONS IN DENTISTRY

The only way NOT to have complications is ...

- NOT to see patients,
- NOT to practice dentistry!

URGENCY / EMERGENCY

EMERGENCY / URGENCY
How we manage our complications will in most cases determine the success or failure of the treatment.

BOY DIES DURING DENTAL PROCEDURE
May 17, 2010

TREATED UNDER GENERAL ANESTHESIA AT VIRGINIA COMMONWEALTH UNIVERSITY
Died of cardiac arrest
Was cleared by his pediatrician the day before the procedure

TONSILLECTOMY – RELATED FATALITIES NOT UNCOMMON
1 in every 30,000
530,000 tonsillectomies done on children under 15 years of age, per year
17.6 deaths per year
Dental Sedation Responsible For At Least 31 Child Deaths Over 15 Years

The Huffington Post
7/13/2012

Poorly trained dentists are killing U.S. kids: report

A joint investigation by FRONTLINE and the Center for Public Integrity

Death, Greed at the Dentist: American Children at Risk

July 12, 2012

Dentist the Menace

Children Killed Undergoing Procedures at the Dentist – Blog with a Bite

DON'T JUDGE TOO QUICKLY!

OMSNIC has over 11,000 closed claims since it's inception in 1988!
Every open and closed case is an opportunity to learn and make things better...especially in regards to anesthesia
In the Risk Management world, this is known as "The Culture of Safety"
11 YEAR MORBIDITY AND MORTALITY

Anesthesia Morbidity and Mortality as reported by Oral Surgeons Insurance Claims from 2000-2011 (5,300 Oral Surgery policy holders in the United States)
Average # of anesthetics administered per OMS = 671
Total number of Office Anesthetics = 33,191,562 (over 11 years)
General Anesthetics = 71%; Moderate Sedation = 29%

DEATH AND BRAIN DAMAGE CASES

Office = 91
Hospital = 33
Total = 124
OMSNIC from 2000-2011

INCIDENCE OF IN-OFFICE ANESTHESIA DEATHS AND BRAIN DAMAGE CASES

91 out of 33,191,562 cases
~ 1 out of 364,742 insured years
1 in every 545 OMS will experience an office anesthetic death per year
In a 30 year practice life, 1 in 18 OMS will experience an office anesthetic death

O.S. ANESTHESIA CLAIMS BY PREVALENCE*

<table>
<thead>
<tr>
<th>#</th>
<th>Condition</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Respiratory distress</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>Seizures</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>Excitation</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>Chest pain - SOB</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>Aspiration</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>Allergic reaction</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>Tachycardia</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>Slow emergence</td>
<td>6</td>
</tr>
<tr>
<td>9</td>
<td>Nausea &amp; vomiting</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>Myocardial infarction</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>Stroke</td>
<td>11</td>
</tr>
<tr>
<td>12</td>
<td>Pulmonary emboli</td>
<td>12</td>
</tr>
<tr>
<td>13</td>
<td>Hypertension</td>
<td>13</td>
</tr>
<tr>
<td>14</td>
<td>Hypotension</td>
<td>14</td>
</tr>
<tr>
<td>15</td>
<td>Laryngospasm</td>
<td>15</td>
</tr>
<tr>
<td>16</td>
<td>Swelling from ACE inhibitor</td>
<td>16</td>
</tr>
<tr>
<td>17</td>
<td>Congestive Heart Failure</td>
<td>17</td>
</tr>
<tr>
<td>18</td>
<td>Methadone withdrawal</td>
<td>18</td>
</tr>
<tr>
<td>19</td>
<td>Death after local anesthesia</td>
<td>19</td>
</tr>
</tbody>
</table>

* Requiring transferring patient from office to Emergency Room

ADDITIONAL O.S. ANESTHESIA CLAIMS

<table>
<thead>
<tr>
<th>#</th>
<th>Condition</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inadequate anesthesia</td>
<td>19</td>
</tr>
<tr>
<td>2</td>
<td>Phlebitis</td>
<td>17</td>
</tr>
<tr>
<td>3</td>
<td>Nerve injuries (needle stick =9, and positioning =2)</td>
<td>11</td>
</tr>
<tr>
<td>4</td>
<td>Recovery room falls</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Deaths after taking post-up pain meds at home</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>Inappropriate anesthesia</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>Billing disputes</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>Stormy induction, restraint (physical abuse)</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>Ocular injuries</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>Traumatic intubation</td>
<td>10</td>
</tr>
<tr>
<td>11</td>
<td>Not licensed to administer</td>
<td>11</td>
</tr>
<tr>
<td>12</td>
<td>Molestation</td>
<td>12</td>
</tr>
<tr>
<td>13</td>
<td>Burn from ventilator</td>
<td>13</td>
</tr>
<tr>
<td>14</td>
<td>Broken needle</td>
<td>14</td>
</tr>
<tr>
<td>15</td>
<td>Reuse of I.V.</td>
<td>15</td>
</tr>
<tr>
<td>16</td>
<td>Death after local anesthesia</td>
<td>16</td>
</tr>
</tbody>
</table>

NOT requiring transferring patient from office to E.R.
KEY TO GOOD TREATMENT IS
“Assessment”!

MEDICAL HISTORY QUESTIONNAIRE
A moral and legal necessity in the practice of medicine and dentistry

- Those who know and tell
- Written and oral review
- Those who know and don’t tell
- Those who don’t know

NEVER TREAT A STRANGER!
PHYSICAL EXAMINATION

Visual presentation
Blood pressure
Heart rate and rhythm
Respiratory rate and rhythm
Temperature
Height and weight

VISUAL PRESENTATION

Overall impression
Posture
Movements (gait, coordination)
Speech
Dialogue (responses to Q&A)
Skin

PHYSICAL EVALUATION

Medical history
Written dialogue and history
Physical examination

Minimum physical evaluation:
- Monitor vital signs
  - Blood pressure
  - Pulse
- Visual inspection of the patient
**BLOOD PRESSURE**

<table>
<thead>
<tr>
<th>Systolic</th>
<th>Diastolic</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;120</td>
<td>and &lt;80</td>
<td>Normal</td>
</tr>
<tr>
<td>120 – 139</td>
<td>or 80 – 89</td>
<td>Pre-hypertension</td>
</tr>
<tr>
<td>140 – 159</td>
<td>or 90 – 99</td>
<td>Stage I hypertension</td>
</tr>
<tr>
<td>&gt;160</td>
<td>or &gt;100</td>
<td>Stage II hypertension</td>
</tr>
</tbody>
</table>

**HEART RATE AND RHYTHM**

- **Rate (beats per minute)**
- **Newborns (0-30 days old):** 70-190 bpm
- **Infants (1-11 months old):** 80-120 bpm
- **Children 1-10 years:** 70-130 bpm
- **Children over 10 and adults:** 60-100 bpm
- **Well-trained athletes:** 40-60 bpm

- **Rhythm (Regular or irregular)**
  - PVC’s may occur
  - Stress, caffeine, smoking, medicine
  - If 5 or more PVC’s occur within a minute without any obvious cause, need a consult

- **Quality**
  - Weak, thready, bounding, strong

**RESPIRATORY RATE**

- **Adult:** 12 – 20
- **Children:** 15 – 30
- **Infant:** 25 – 50
- Is it labored, irregular, or rapid?

**TEMPERATURE**

- **Average:** 98.6°F (37°C)
- **Temperature of 100.4°F (38°C)** Indication of infection or illness

**ASA CLASSIFICATION**

The ASA classification is an assessment of the patient’s pre-operative status

On its own, the ASA classification of physical status is not a predictor of operative risk
### ASA PHYSICAL STATUS CLASSIFICATION SYSTEM

<table>
<thead>
<tr>
<th>Category</th>
<th>Preoperative</th>
<th>Health Status</th>
<th>Comments, Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASA PS 1</td>
<td>Normal health</td>
<td>Normal healthy patient</td>
<td>No organic, physiologic, or psychiatric disturbance; excludes the very young and very old; healthy with good exercise tolerance.</td>
</tr>
<tr>
<td>ASA PS 2</td>
<td>Patients with</td>
<td>A patient with a mild systemic disease</td>
<td>No functional limitations; has a well-controlled disease of one body system; controlled hypertension or diabetes without systemic effects, cigarette smoking without chronic obstructive pulmonary disease (COPD); mild obesity, pregnancy.</td>
</tr>
<tr>
<td>ASA PS 3</td>
<td>Moribund patients</td>
<td>A moribund patient who is not expected to survive without the operation</td>
<td>Not expected to survive &gt;24 hours without surgery; imminent risk of death; multi-organ failure; sepsis syndrome with hemodynamic instability, hypothermia, poorly controlled coagulopathy.</td>
</tr>
<tr>
<td>ASA PS 4</td>
<td>A declared brain-dead patient whose organs are being removed for donor purposes</td>
<td>Has at least one severe disease that is a constant threat to life; unrelated angina, symptomatic COPD, symptomatic CHF, hepatic failure</td>
<td></td>
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</table>

### ASA PHYSICAL STATUS CLASSIFICATION

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</tr>
</tbody>
</table>

### ASA I
- Normal healthy
- Medical history negative
- Walk up 1 flight of stairs or 2 city blocks without distress
- No dental phobia

### ASA II
- Mild systemic
  - Medical history significant for well controlled NIDDM, Asthma, HBP, etc.
  - Healthy patient with significant dental fear
  - Healthy, over age 60
  - Healthy and pregnant
ASA III
- Severe systemic disease that limits activity but not incapacitating
- May be able to go up 1 flight of stairs or 2 city blocks, but distress enroute forces them to stop
- Stable angina
- S/P Myocardial infarction
- IDDM
- COPD
- BP 160/95 or greater

ASA IV
- Incapacitating systemic disease that is constant threat to their lives

ASA V
- Moribund and not expected to survive more than 24 hours

OPERATIVE RISK
Operative risk is a combination of:
- Physical status of the patient
- The physiologic challenge the procedure will cause
- The skill and experience of the operator
- The support service in the perioperative period

HEALTH HISTORY
21 years old
Healthy
No Medications
No Allergies

HEALTH HISTORY
61 years old
Hypertension
Heart Disease S/P CABG
Angina
Hepatitis C
COPD, 35 year Pack/day history

Medications
- Norvasc
- Lipitor
- Lopressor
- Plavix
- Aspirin

Allergies
- PCN

PREPARATION
If not prepared, those few serious emergencies may become office catastrophes!

BLS

Train all staff in recognition and management of life-threatening and medically urgent situations

Maintain BLS Certification
WHY SHOULD I LEARN CPR?

- At least 650,000 people will die of heart attacks this year
- At least 350,000 of these will die OUTSIDE the hospital – Usually within 2 hours of the onset of symptoms

CORONARY HEART DISEASE

- Angina Pectoris
- Sudden Cardiac Death
- Myocardial Infarction
- Angina Pectoris
- Asymptomatic Coronary Heart Disease

Progressive Atherosclerotic Buildup on Artery Walls

Year's heart-disease toll dwarfs tally of major wars

BOONEVILLE — William M. Brown, 39, of Route 1, Oneida, husband of Mrs. Frances Brown, died Friday at his home, apparently of a heart attack. Services 11 a.m. Monday at Searcy & Strong Funeral Home. Visitation 5 to 9 p.m. today.

WARSAW — Mrs. Helen C. Warfield of Carlisle Avenue, an employee of Dayton Walther Co., wife of George Warfield, was dead on arrival Friday at Booth Memorial Hospital in Florence of an apparent heart attack. Services 11 a.m. Tuesday at Carlton-Lowder Funeral Home. Visitation after 4 p.m. Monday.
EMERGENCY CARDIAC CARE
BASIC LIFE SUPPORT

Prevention of Circulatory or Respiratory Arrest
• Prompt Recognition
• Intervention
• Early entry into EMS system

Cardiopulmonary Resuscitation

CHANGES
Change in the recommended sequence for the lone rescuer to initiate chest compressions before giving rescue breaths
• C-A-B rather than A-B-C
• Begin with 30 compressions rather than 2 ventilations
• Compression rate should be at least 100/min rather than “approximately” 100/min.

ADULT BASIC LIFE SUPPORT

SIMPLIFIED ADULT BLS ALGORITHM
The EMS System – Call 911

Community wide, coordinated means of responding to sudden illness or injury

Activate the EMS System

Emergency Cardiac Care

Advanced Cardiac Life Support

Components

- Basic Life Support
- Use of adjunctive equipment
- Establishment of IV line

Drug Administration

Cardiac rhythm monitoring

Defibrillation

Control of dysrhythmias

Post resuscitative care

* Requires physician supervision
EMERGENCY CARE

CARDIAC ARREST FROM ABNORMAL HEART RHYTHM

<table>
<thead>
<tr>
<th>Survival Rate as Related to Promptness of Initiation of CPR and ACLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiation of CPR, min.</td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>0-4</td>
</tr>
<tr>
<td>0-4</td>
</tr>
<tr>
<td>8-12</td>
</tr>
<tr>
<td>8-12</td>
</tr>
<tr>
<td>12+</td>
</tr>
</tbody>
</table>

Every minute that passes without CPR and defibrillation, survival rate decreases 7-10%

AED ATTACHED TO PATIENT BY DEFIBRILLATOR PADS

Steps for operation of all AEDs:
- Turn on power
- Attach device to patient
- Initiate analysis of rhythm
- Deliver shock, if indicated

TEAM APPROACH TO MANAGEMENT

Everyone knows their jobs
- Who activates EMS (calls 911)
- Who brings oxygen and emergency drugs
- Who manages airway
- Who does compression
- Who administers drugs

Regular office emergency drills
EMERGENCY DRUGS

- Oxygen (100% O₂)
- Aromatic Ammonia
- Epinephrine
- Diphenhydramine (Benadryl)
- Glucose or Sucrose
- Naloxone (Narcan)
- Diazepam (Valium)
- Nitroglycerin
- Bronchodilator (metaproterenol or epinephrine inhaler)
- Atropine
- Hydrocortisone (Solu-cortef)

NON-INJECTABLE DRUGS

- Oxygen
- Nitroglycerin
- Aromatic Ammonia
- Carbohydrate (sugar)
- Abuterol Inhaler

OXYGEN

- Increases arterial oxygen
- Improves tissue oxygenation
- Used in all emergencies except possibly:
  - Stroke
  - COPD
  - Hyperventilation
OXYGEN DELIVERY

- Passive
  - Mask
  - Cannula
- Positive Pressure
  - Pocket mask
  - Ambu bag / Pulmonary Manual Resuscitator

OXYGEN DELIVERY

Positive-pressure/demand valve
- Robert Shaw valve or Elder Valve

DELIVER ADEQUATE OXYGEN

- 10 – 12 liters/minute
- Adult – 1 breath every 5 seconds
- Child and Infant – 1 breath every 3 seconds
AROMATIC AMMONIA

- Respiratory stimulant
- Silver gray vaporole
- Crushed and placed under patient’s nose
- Used for syncope
- Most commonly used emergency drug, next to oxygen
AROMATIC AMMONIA

NITROGLYCYERIN

- Relaxes smooth muscle
- Dilates venous system
- Inhibits venous return
- Decreases ventricular volume
- Decreases ventricular pressure
- Decreases ventricular wall stress

NITROGLYCYERIN INDICATORS

- Drug of choice for angina
- Effective for exertional and rest angina

SIGNS & ACTIONS FOR SURVIVAL

- With known coronary disease:
  - Chest pain unrelieved by 3 Nitroglycerin tablets over a 10-minute period

- Without previously known coronary heart disease:
  - Pain lasting for 2 minutes or longer
  - Systolic BP should minimally be 100 before administering nitroglycerin

NITROGLYCYERIN SIDE EFFECTS

- Headache
- Lowered blood pressure
- Nausea
- Syncope
- Take sitting or lying down

- Used with caution in patients suspected of acute MI
- May induce hypotension
NITROGLYCERIN PRECAUTIONS
- Do not administer if systolic blood pressure is less than 100
- Take sitting or lying down
- Used with caution in patients suspected of MI

Drug interactions
- Viagra
- Cialis

NITROGLYCERIN DOSAGE AND ADMINISTRATION
- .3 or .4 mg tabs / one second spray
- Under tongue
- Repeat at 5-minute intervals
- Maximum dosage: 3 tablets over 10 minutes

NITROGLYCERIN

BRONchodilator INHALERS
- Albuterol (Proventil/Ventolin)
- Epinephrine (Adrenalin)
- Isoproterenol (Isuprel)
- Metaproterenol (Alupent)
- Antagonist of beta-2 receptors
- Relax smooth muscle
- Produce dilation
BRONchodilator inhalers

- Supplied in metered dose inhalers
- Delivery: 2 inhalations every 5 minutes as needed

aspirin

For suspected MI
- Aspirin
  - Tablets 162 mg or 325 mg

Carbohydrate / Sugar

- For acute hypoglycemia
- Replenishes plasma glucose
  - Non-diet cola, 8-12 oz
  - Glucola
  - Glucostat
  - Fruit juice
  - Tube of cake icing
CARBOHYDRATE DELIVERY
- I.V. or P.O.
- P.O. if conscious
- I.V. if unconscious
- Slowly inject 1 amp D-50 (30-50ml)
- D25 for children
- Glucagon 0.5 – 1.0 mg subcut., I.M., or I.V.

PARENTERAL ADMINISTRATION OF DRUGS
- Sub-Q
- I.M.
- I.V.
- Endotracheal

Note: for any drugs you keep available, you must also keep available the means to administer them

SUB-CUTANEOUS
- Skin prep (alcohol swab)
- Syringe – 1 cc
- Needle to draw up the drug
- Needle for injection
- (25 g or 27 g 5/8”)

I.M.
- Skin prep (alcohol swab)
- Syringe
- Needle to draw up the drug
- Needle for injection
  - 20 gauge 1” – 1.5”

I.V.
- Skin prep (alcohol swab)
- Syringe
- Needle to draw up the drug
- Needle for injection
- Tourniquet
- IV catheter or butterfly
- IV fluid and line
- IV pole
- Tape
INJECTABLE DRUGS FOR EMERGENCY KIT
- Ephedrine
- Epinephrine
- Benadryl
- Valium/Versed
- Narcan
- Morphine Sulfate
- Hydrocortisone
- Atropine

EMERGENCY DRUGS & EQUIPMENT
- Drugs checked weekly
- Oxygen checked daily

Consider placing emergency drugs in baggies labeled for the emergency they are to be used for, and have index card in each bag with directions of when and how to administer the drug for the given emergency.

FOR EXAMPLE: ALLERGIC RESPONSE

<table>
<thead>
<tr>
<th>Bag Contents</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epinephrine 1mg/1ml</td>
<td>0.3 - 5mg Sub Q or IM</td>
</tr>
<tr>
<td>Benadryl</td>
<td>(may repeat q 5-10 min)</td>
</tr>
<tr>
<td>Solucortef 100mg/2ml</td>
<td>Benadryl 50mg/IM</td>
</tr>
<tr>
<td></td>
<td>Solucortef 100mg IM</td>
</tr>
</tbody>
</table>

FOR DETAILS
- **Google**: California Association of Maxillofacial Surgeons
  - Member resources
    - Forms
    - Medical Emergency Forms and Templates
  - Dr. Richard Roberts
    - Medical Emergency Preparedness Packet

VASOPRESSORS
- Ephedrine 50 mg/ml
- Epinephrine 1mg/ml
EPHEDRINE
- Useful in management of hypotension in which the status of the heart is unknown and the intent is to raise the blood pressure without cardiac stimulation.

Ephedrine 50mg/1ml
- 25 mg IM or IV
- Response time up to 1 hour

EPINEPHRINE
- Catecholamine with alpha and beta adrenergic activity
- Causes Increased:
  - Systemic vascular resistance
  - Arterial blood pressure
  - Heart rate
  - Cerebral & coronary blood flow
  - Myocardial requirement
  - Automaticity

PRIMARY BENEFICIAL EFFECTS OF EPINEPHRINE
- Increased peripheral vasoconstriction
- Increased coronary & cerebral perfusion
- Prevents arterial collapse
- Prevents shock
- Antihistamine properties
- Precaution: Tachyarrhythmias may develop

EPINEPHRINE INDICATIONS
- Acute allergic reaction
- Symptoms within 1 hour of drug administration
- Acute asthmatic episode
- Effective for both respiratory and cardiovascular manifestations
EPINEPHRINE ADMINISTRATION

- Sub-Q
- I.M.
- I.V.
- Endotracheal

- 1 mg in 1 cc = 1:1000
- 1 mg in 10 cc of 1:10,000
- Give .3 - .5mg Sub-Q IM
- May repeat every 5 minutes

ATROPINE - MECHANISM OF ACTION

- Anticholinergic
- Parasympatholytic drug enhances sinus node automaticity
- Enhances atrioventricular conduction
- Direct vagolytic action

- Side effects:
  - Urinary retention
  - Hallucinations or confusion
  - Dry mouth

ATROPINE ADMINISTRATION

- 1 mg/ml vial
- (.1 mg/ml)
- Delivery 0.5 – 1.0 mg I.M. or I.V.
- May repeat 5 min. to maximum of 2 mg

ATROPINE INDICATIONS

- Symptomatic bradycardia
- HR < 60 with hypotension
MORPHINE SULFATE

- Narcotic analgesic
- For intense prolonged pain and/or anxiety
- Indicated for acute myocardial infarction
- 10 mg/1 cc
- 5 – 15 mg sub-Q / I.M.
- Respiration rate should not go below 12 / min
- Meperidine 50 – 100 mg may be substituted

OPINION ANTAGONIST

NALOXONE (NARCAN)

- Narcotic antagonist
- Reverses narcotic respiratory depression
- May induce withdrawal in shorter half-life than most narcotics addicts

NARCAN INDICATIONS AND USE

- Acute narcotic overdose
- Sub-Q, I.M., I.V.
- Usual dose: 0.4 – 2 mg (1-5 cc) titrated .2mg doses

DIAZEPAM (VALIUM)/ MIDAZOLAM (VERSED)

- Anticonvulsive
- Sedation drug

Indications:
- Overdose reactions to local anesthetics
- Status epilepticus
- Febrile convulsions
- Hyperventilation syndrome
DIAZEPAM

Administration
- 5 mg/1 cc I.V. administration
- 2 cc preloaded syringe
- Give slowly, 1-2 mg / min
- 1 mg/age (child) or 0.3 mg/kg titrate to effect

Precautions
- Respiratory depression
- Hypotension
- Brachycardia

Intranasal Automization Device

FLUMAZENIL (ROMAZICON)
- Benzodiazepine receptor antagonist
- Antagonizes sedation
- Impairment of recall
- Reduces psychomotor impairment produced by benzodiazepines

Using the LMA® MAD Nasal™ Intranasal Mucosal Atomization Device

FLUMAZENIL (ROMAZICON)
- Dosage & Administration
  - 0.2 mg (2ml) I.V. in 15 seconds
  - 0.2 mg (2ml) if not at desired level of consciousness one minute after first dose
  - 0.2 mg (2ml) over 5 minute intervals to max. dose of 1.0 mg
DIPHENHYDRAMINE (BENADRYL) 50 MG/ML
HYDROXYZINE (VISTARIL/ATARAX) 25 MG/ML OR 50MG/ML

- Antihistamine
- Competitive antagonist of histamine
- Do not prevent release of histamine
- Do not stop actions of histamine once they occur

**DIPhenhydramine (BenAdryl) 50 mg/ml**
Administer I.M./I.V. Children 0.5 – 1 mg/kg q 6-8 hrs
- Adult: 50 mg
- Child: 12.5 – 25 mg q 6-8 hrs

- Causes sedation in 50% of patients

**Hydroxyzine (Vistaril/Atarax)**
Administer I.M./I.V. Hydroxyzine 50 mg/ml
- Child: 0.5 – 1 mg/kg
- Adult: 50 mg
- Causes sedation in almost 100% of patients
HYDROCORTISONE (SOLU-CORTEF)

- Corticosteroid
- 100 mg/2ml vial
- Non-specific anti-inflammatory

Indications:
- Prevention of recurrent episodes of anaphylaxis
- Management of acute adrenal insufficiency

HYDROCORTISONE

Contraindications:
- None for emergency situation
- For non-emergency situation, concerns for pre-existing infection, peptic ulcers, and hyperglycemia

HYDROCORTISONE

Administrations:
- Solu-Cortef
  - 50 mg/ml (2ml vial)
  - 100mg i.m. or i.v.
  - Maximal effectiveness at one hour after administration

ESMOLOL (BREVIBLOC)

- Antihypertensive
- β1 – Selective adrenergic receptor-blocking agent
- Acute hypotensive episode
- Short duration of action
- 10 mg/ml / 10ml vial
- Titrate .5 mg/kg per minute

NITROGLYCERIN

- .3 - .4 mg tablets
Everyone knows their job:
- Who activates EMS (calls 911)
- Who brings oxygen and emergency drugs
- Who manages airway
- Who does compressions
- Who administers drugs

TEAM APPROACH TO MANAGEMENT
- Who does compressions
- Who administers drugs
- Regular office emergency drills

DRUGS SUGGESTED FOR DENTAL OFFICE EMERGENCY SUPPLY
- Oxygen (and the means to deliver it with positive pressure)
- Aromatic ammonia
- Epinephrine
- Benadryl
- Glucose or sucrose
- Valium (nasal atomizer)
- Nitroglycerin
- Bronchodilator Inhaler
- Albuterol
- Ephedrine
- Aspirin

A PRACTICAL SUMMARY
- Have oxygen available
- Have emergency kit available
- All staff trained in BLS
- Do not panic – take the time to properly assess and act appropriately
- Routine office drills

Rules for the management of dental office emergencies:
- Prevention – know your patient’s medical history
- Knowledge and forethought – know how to manage common emergencies
Above all, do not do anything to make the situation worse

911 – Do not hesitate to activate the EMS system

PREMIUM NON NOCERE

**OFFICE EMERGENCIES**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syncope (vasovagal reaction)</td>
<td>Acute asthma attack</td>
</tr>
<tr>
<td>Hyperventilation</td>
<td>Insulin shock, hypoglycemia</td>
</tr>
<tr>
<td>Allergic reaction (mild or severe)</td>
<td>Acute adrenal insufficiency</td>
</tr>
<tr>
<td>Seizures</td>
<td>Cerebrovascular accident (stroke)</td>
</tr>
<tr>
<td>Angina pectoris</td>
<td>Airway obstruction</td>
</tr>
<tr>
<td>Myocardial infarction (MI)</td>
<td></td>
</tr>
</tbody>
</table>

Step 4: Monitor respiration, blood pressure and pulse – carotid, radial, femoral, facial, superficial temporal

Step 5: Be prepared to

- Send for help
- Support respiration
- Support circulation

Step 6: Follow instructions on the page indicated for the type of emergency you are treating

**MANAGEMENT OF DENTAL OFFICE EMERGENCIES**

Note: Steps 1-6 are the same for every emergency:

- **Step 1:** Discontinue dental treatment
- **Step 2:** Place patient in a supine, feet up position
- **Step 3:** Make sure patient has a patent airway – remove prostheses, rubber dams, etc. Support mouth as needed and support airway if obstructed, using head tilt and/or chin lift and/or jaw thrust

**VASOPRESSOR SYNCOPE**

Simple faint

- Caused by decrease in cerebral blood flow
- Sudden fall in blood pressure
- Slowed heart rate

Generally benign and self-limiting

25,000 giving blood during WWII fainted, all recovered

**SYNCOPE**

- Loss of consciousness
- Breathing irregular – slow or stopped
- Loss of airway
- Muscle relaxation
SYNCOPE

Non-psychogenic Factors
- Standing
- Hunger
- Poor physical condition
- Adult males between 16-35 years of age
- Hot, humid, crowded environment

Psychogenic Factors
- Fright
- Stress
- Pain

CLINICAL MANIFESTATIONS

Pre-syncope
Syncope
Post-syncope (recovery)

PRE-SYNCOPE
- Patient erect or standing up
- Feeling of warmth
- Loss of color
- Feeling bad

PREVENTION / MANAGEMENT OF SYNCOPE

Prevention:
- Proper positioning of patient
- Relief of anxiety
- Medical history

Management:
- Place patient in supine position, slightly head down, feet up
- Establish airway
- Loosen binding clothing
- Oxygen
- Aromatic spirits, cold towel on forehead
- Maintain your composure

POST SYNCOPE / RECOVERY

- Rapid with proper positioning
- May faint again if raised too rapidly
ORTHOSTATIC / POSTURAL HYPOTENSION

- Adaptive BP mechanisms fail
- Body not able to adapt BP to effect of gravity with dramatic positional changes
- Dizziness
- Disorientation
- Cold extremities
- Unconsciousness

Other Predisposing Factors

- Inadequate postural reflex
- Pregnancy
- Addison’s disease
- Shy-Drager syndrome
- Age:
  - Common in over 65
  - Rare in children

ORTHOSTATIC HYPOTENSION

Predisposing factors
- Medications #1 cause

Drugs associated
- Anti-hypertensives
- Phenothiazines
- Tricyclics
- Narcotics
- Anti-parkinson drugs

MANAGEMENT OF ORTHOSTATIC HYPOTENSION

- Supine position with slight head down, feet up
- Raise back up slowly after recovery

HYPERVENTILATION SYNDROME

- Effort syndrome/
  Soldier’s heart
- Common dental emergency
- Extreme anxiety
- Impaired but not loss of consciousness
- Rare in children
- Common in those hiding anxiety, ages 15-40
- Equal among males as females

HYPERVENTILATION

- Common at time of injection
- Feeling of tightness in chest
- Rapid short, shallow breathing
- Light-headedness
- Muscle twitching of extremities
- Prevention of hyperventilation: Anxiety control
HYPERVENTILATION - MANAGEMENT

- Stop treatment
- Position patient upright
- Reduce anxiety
- Correct respiratory alkalosis

ALLERGIC REACTIONS

- Delayed (mild)
- Immediate (severe)

DELAYED ALLERGIC REACTIONS

- Occur more than an hour after exposure
- Generally mild
- Urticaria (hives)
- Edema (swelling)
  - Pruritis (itching)
  - Erythema of skin, mucosa and/or conjunctiva

MANAGEMENT OF DELAYED (MILD) ALLERGIC REACTIONS

- Discontinue possible allergy causing substances
- Administer:
  - Benadryl 25-50 mg P.O.
  - or Vistaril 25-50 mg P.O.
- Observe patient to ensure reaction is controlled

IMMEDIATE ALLERGIC REACTIONS

- Occur within one hour of exposure
- More severe, possibly life-threatening
- Severe urticaria (hives)
- Respiratory reactions
- Bronchial constriction
- Laryngeal edema
- Generalized anaphylaxis

IMMEDIATE ALLERGIC REACTIONS (SEVERE)

- Signs & symptoms:
  - Severe itching
  - Wheezing and dyspnea
  - Airway obstruction
  - Hypotension
  - Feeling of impending doom
  - Decreased consciousness
  - Unconsciousness
MANAGEMENT OF SEVERE ALLERGIC REACTION

- Position semi-erect or supine
- Administer Epinephrine: 0.3-0.5 mg Sub-Q, IM, IV
- Administer Benadryl: 25-50 mg IM or IV
- Administer Solu-Medrol: 50-100 mg IM or IV
- Maintain airway
- BLS
- Activate EMS

SEIZURE DISORDERS

Partial (focal, local) seizures
Generalized tonic clonic seizures
*Status epilepticus

SEIZURE DISORDERS

Tonic clonic seizures – 4 phases
- Prodromal: minutes to hours
- Convulsive: (ictal) Phase: 3-5 minutes
- Loss of consciousness
- Post-ictal/Recovery
  * Awakes confused, disoriented

SEIZURES

- May occur secondary to an underlying seizure disorder
- May represent drug overdose, hyperventilation, cerebrovascular accident (stroke), hypoglycemia

MANAGEMENT OF TONIC CLONIC SEIZURES

- Stop treatment
- Position patient (supine)
- Remove dental equipment from area
- Gently restrain
- Monitor and support (BLS)

SEIZURES

Signs & Symptoms
- Disorientation
- Slurred speech
- Frequent blinking or blank stare
- Increased emotional lability
- Vision or noise perceived by patient (aura)
- Mild or severe contraction of skeletal muscles in tonic-clonic manner
- Airway or respiratory compromise
- Incontinence
MANAGEMENT OF TONIC CLONIC SEIZURES

- Management of Post-ictal phase
- Permit patient to recover
- Contact physician
- Discharge in company of a responsible adult

MANAGEMENT OF STATUS EPILEPTICUS

- I.V./I.M. Valium or Versed
- Versed atomizer, nasal administration

► Activate EMS

ANGINA PECTORIS

Classic expression of coronary artery disease not supplying adequate blood to the heart, i.e. heart ischemia

Precipitating Factors:
- Physical activity
- Hot, humid environment
- Cold weather
- Large meals
- Caffeine and nicotine
- Emotional stress!!!

SIGNS AND SYMPTOMS OF ANGINA

- Squeezing, burning, tightness
- Aching in chest
- Radiation of aching, tingling, numbness to left arm, should, face or jaw
- Indigestion
- Diaphoresis
- Tachycardia
- Increased anxiety
- Feeling of impending doom

PREVENTION OF ANGINA EPISODE

Health history
Minimize stress
Morning appointments
Supplemental oxygen
Not all angina indicates that an infarction is imminent

Angina Pectoris:
- Thoracic pain
- Dull, aching, sub sternal
- May occur at exertion or rest
- Conversely, an infarction is not always accompanied by angina.

MANAGEMENT OF ANGINA PECTORIS

- Stop treatment
- Position patient
- Oxygen/Nitrous oxide
- Previously undiagnosed with pain lasting longer than 3 minutes -> activate EMS
- Previously diagnosed -> 3 NTG tabs under tongue over 10 minutes. If not relieved, assume MI and activate EMS
Nitroglycerin precautions:

- Viagra
- Cialis

Systolic BP should be 100 or greater

Myocardial Infarction / Heart Attack

Deficient coronary blood supply to area of myocardium, resulting in cellular death, necrosis and permanent heart muscle damage

Myocardial Infarction / Heart Attack

- Leading cause of death in US
- 1.5 million/year
- US male has 1 in 3 chance of MI before age 65
- 60% die outside of hospital
- Most die within 1-2 hours of onset of symptoms

Signs and Symptoms of Heart Attack

- May or may not be preceded by chest pain
- Dyspnea
- Feeling of impending doom
- Light headedness
- Cyanosis
- Hypotension/Tachycardia
- Irregular pulse
- Decreased level of consciousness
- Unconsciousness

Management of Myocardial Infarction

- Diagnosis
- Activate EMS
- Oxygen/Nitrous oxide
- Monitor vital signs
- Basic life support

Signs & Signals of Heart Attack

- Sudden Cardiac Death
  - 4 minutes – Brain damage begins
  - 10 minutes – Brain damage certain
- Chest pain
- Character
- Location
- Duration
- Sweating
- Nausea
- Shortness of breath
MONA
Emergency response to MI:
- Morphine
- Oxygen
- Nitroglycerin
- Aspirin

Person with unknown coronary heart disease
Recognize the signals of a heart attack
Stop activity and sit or lie down
Wait two minutes to see if the symptoms go away. If pain persists:
- Activate a “system for survival” (EMS system or local rescue unit)
- Go at once to the nearest emergency room that offers 24-hour emergency cardiac care

Person with known coronary heart disease (using nitroglycerin)
Recognize the signals of a heart attack
Stop activity and sit or lie down
Take three nitroglycerin tablets within ten minutes. If the pain persists:
- Call an ambulance
- Go at once to the nearest emergency room that offers 24-hour emergency cardiac care

CONGESTIVE HEART FAILURE AND ACUTE PULMONARY EDEMA
- Failure of right or left heart
- Both systemic and pulmonary congestion
- Congestive heart failure is chronic condition
- Pulmonary edema is an acute condition

ACUTE PULMONARY EDEMA
- Excess serous fluid in alveolar spaces
- Extreme difficulty breathing
- Cyanosis
- Life-threatening

CONGESTIVE HEART FAILURE AND ACUTE PULMONARY EDEMA
Prevention: Diagnosis and Preparation
Health history
- Stairs
- Swollen ankles
- Pillows
- Weight gain
Physical exam
Medical consult
ACUTE PULMONARY EDEMA

Management:
- Stop treatment
- Position upright
- Oxygen
- Monitor
- Control anxiety
- Activate EMS

CVA / STROKE

Cerebral ischemia / Infarction – 85%
Intracranial hemorrhage – 15%

CVA/STROKE SIGNS & SYMPTOMS
- Mild to severe headache
- Dizziness/vertigo
- Nausea/vomiting
- Weakness, numbness, paralysis of extremities/face
- Diaphoresis
- Slurring or loss of speech
- Vision changes
- Incontinence
- If these symptoms spontaneously cease in 5-10 minutes, may be a transient ischemic attack (TIA)

STROKE ASSESSMENT – THE CINCINNATI PREHOSPITAL STROKE SCALE (CPSS)

<table>
<thead>
<tr>
<th>Test</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facial Droop: Patient show teeth or smile</td>
<td>Normal – both sides of face move equally</td>
</tr>
<tr>
<td></td>
<td>Abnormal – one side of face does not move as well as the other side</td>
</tr>
<tr>
<td>Arm Drift: Patient closes eyes and extends both arms straight out, with palms up, for 10 seconds</td>
<td>Normal – both arms move the same or both arms not at all (other findings, such as pronation drift, may be helpful)</td>
</tr>
<tr>
<td></td>
<td>Abnormal – one arm does not move or one arm drifts down compared to the other</td>
</tr>
<tr>
<td>Abnormal Speech: Patient say “you can’t teach an old dog new tricks.”</td>
<td>Normal – patient uses correct words with no slurring</td>
</tr>
<tr>
<td></td>
<td>Abnormal – patient slurs words, used the wrong words, or is unable to speak</td>
</tr>
</tbody>
</table>


MANAGEMENT OF PATIENT WITH CVA/STROKE
- Stop treatment
- Position patient
- Monitor vital signs
- Basic Life Support
- Activate EMS
ASTHMA
- Hyper-reactivity of tracheobronchial tree
- Recurrent paroxysms of dyspnea & wheezing
- Bronchospasm
- Bronchial wall edema
- Hypersecretion of mucous glands

- 8-10 million Americans
- Up to 8% of children’s hospital admissions
- Acute episode generally self-limiting
- “Status asthmaticus” life threatening
- Death rate increasing

ACUTE ASTHMA ATTACK
SIGNS & SYMPTOMS
- Shortness of breath
- Wheezing
- Coughing
- Increased level of anxiety
- BP elevated
- Pulse elevated

- Intense dyspnea and orthopnea
- Perspiration
- Cyanosis
- Confusion/altered consciousness

MANAGEMENT OF ASTHMATIC EPISODE
- Stop treatment
- Position patient
- Administer aerosol bronchodilator
  - Albuterol
- Administer oxygen
- Parenteral epinephrine
  - Adult: 0.3-0.5 mg Sub-Q, I.M.
  - Child: 0.1-0.25 mg Sub-Q, I.M.

PREVENTION OF ASTHMATIC EPISODE
- Health history
- Appropriate scheduling
- Minimize anxiety
- Avoid allergens
  - Aspirin
  - PCN
  - Narcotics, barbiturates
- Appropriate pre-medication

DIABETES MELLITUS
- 18.2 Million or 6.3% have diabetes in US
- 13 million diagnosed, 5.2 million (1/3) unaware they have the disease
- 41 million with pre-diabetes
DIABETES MELLITUS
There are 3 major types of Diabetes:
- Type 1 Diabetes
- Type 2 Diabetes
- Gestational Diabetes
- New diabetes emerging: Pediatric type 2
And also of concern: Pre-Diabetes

TYPE 1 DIABETES
- Body fails to produce adequate insulin
- Usually diagnosed in children and young adults
- Complications: heart disease, retinopathy, neuropathy, nephropathy

TYPE 2 DIABETES
- Results from insulin resistance
  - Body fails to properly use insulin
- Combined with relative insulin deficiency
- 90-95% of American diabetics
- More common in African Americans, Latinos, Native Americans, Asian/Pacific Islanders, and the elderly

DIABETIC COMPLICATIONS
- Hyperglycemia
- Leads to diabetic coma 48 hours from onset of symptoms
- Hypoglycemia
- May be seen in non-diabetics
- Blood glucose < 50mg/100 ml
- Potentially life threatening
  - Blood glucose -0- = Death

PREVENTION OF DIABETIC COMPLICATIONS
Health History
Medical consult
Morning appointments
Short appointments
Anxiety control
Maintain healthy diet and medications

CLINICAL SIGNS OF HYPOGLYCEMIA
Early stage
- Mood change
- Hunger or nausea
More severe stage
- Sweating
- Tachycardia
- Belligerence
Late stage
- Unconsciousness
- Seizure
MANAGEMENT OF HYPOGLYCEMIC EPISODE

- Stop treatment
- Position
- Monitor vital signs
- Administer oral carbohydrates
- Administer parenteral carbohydrates

MANAGEMENT OF HYPOGLYCEMIA

THYROID DYSFUNCTION

Hyperthyroid
- Thyroid storm

Hypothyroid
- Myxedema coma
- 2nd most common endocrine disorder
- Most common in females
- Well managed with treatment

MANAGEMENT OF THYROID DYSFUNCTION

If euthyroid – no precaution
If signs of dysfunction:
- Medical consult before treatment
- Careful use of drugs
  - Sedative/narcotics
  - Epinephrine/Atropine

ACUTE ADRENAL INSUFFICIENCY

Least common endocrine disorder
Most serious

Life threatening
Peripheral vascular collapse
Ventricular asystole / cardiac arrest

ACUTE ADRENAL INSUFFICIENCY

Two major causes
- Addison’s Disease
- Administration of exogenous glucocorticosteroids
- Administration of glucocorticosteroids of over 30 mg/day for 14 days can suppress adrenal glands for up to 1 year
- Patients without adequate glucocorticosteroids unable to tolerate stress
- Require supplemental steroids
ACUTE ADRENAL INSUFFICIENCY

Signs & symptoms
- Confusion
- Muscle weakness
- Intense abdominal pain
- Hypoglycemia
- Hypotension / bradycardia
- Nausea & vomiting
- Unconsciousness

MANAGEMENT OF ACUTE ADRENAL INSUFFICIENCY

Prevention
- Health history
- Medical consult

Intervention
- Activate EMS
- Establish I.V., administer 100 mg Hydrocortisone
- BLS

DRUG OVERDOSE REACTIONS

- Local anesthetics
- Vasoconstrictors
- Sedative hypnotics
- Narcotic analgesics
- Local anesthetic reactions
- Allergic reactions
- Most reactions are syncopal
- Seizure reactions with overdose

MAXIMAL RECOMMENDED DOSES OF LOCAL ANESTHETICS

- Lidocaine 2% with or without Epinephrine 2 mg/lb up to 300 mg
- Mepivicaine 2% or 3% 2mg/lb up to 300 mg
- Prilocaine 4% 2.7 mg/lb up to 400 mg
* Caution with topical anesthetic

CLINICAL MANIFESTATIONS OF LOCAL ANESTHETIC OVERDOSE

Mild to moderate blood levels
- Confusion
- Talkativeness
- Muscular twitching

Moderate to high blood levels
- Tonic-clonic seizure
- Depressed BP and respiration
CLINICAL MANIFESTATIONS OF LOCAL ANESTHETIC OVERDOSE
- Mild to moderate
  - Stop treatment
  - Position patient
  - Administer oxygen
  - Monitor vital signs
- Severe
  - Manage seizure
  - BLS
  - Activate EMS

EPINEPHRINE REACTION
- Similar to acute anxiety attack
- Tachycardia
- Tremors/severe nervousness
- Rise in BP
- Rise in pulse

MANAGEMENT OF EPINEPHRINE REACTION
- Stop treatment
- Position patient
- Reassure patient
- Consider oxygen
- BLS

MANAGEMENT OF NARCOTIC OVERDOSE
- Position patient supine
- BLS
- Administer oxygen
- Administer Naloxone (Narcan)
  - 0.4 mg I.M. or I.V.

MANAGEMENT OF SEDATIVE HYPNOTIC OVERDOSE
- Position patient supine
- BLS
- Administer oxygen
- Administer Flumazenil I.V.
  - 0.2 mg/min in 15 sec.
  - 0.2 mg/minute after 1st dose, up to 1.0 mg

AIRWAY OBSTRUCTION
- Signs and symptoms
- Gasping
- Suprasternal retraction with inspiration
- Stridor
- Wheezing
- Clutching the throat
- Inability to speak
- Cyanosis
- Management of obstructed airway
- PREVENTION
- If it happens, follow AHA guidelines
- Consider cricothyrotomy
ALTERED CONSCIOUSNESS

General Considerations:
- Recognize
- Stop treatment
- Position patient
- Monitor vital signs
- BLS
- Definitive management

SUMMARY OF PREPARATION FOR DENTAL OFFICE EMERGENCIES

- All members of the dental office team MUST be well versed in the recognition of life threatening situations
- Maintain BLS certification
- If not prepared, those few serious emergencies may become office catastrophes
- Train all staff in recognition and management of life threatening situations