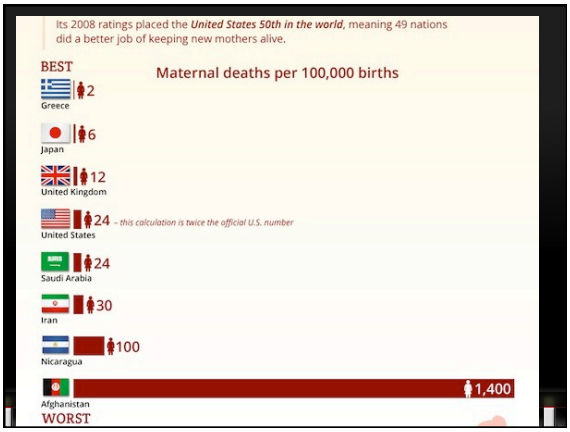
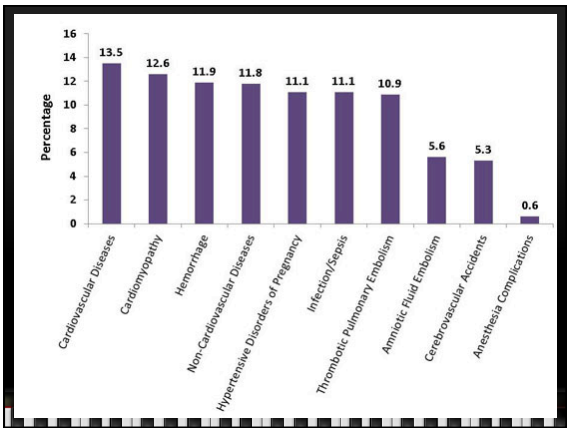
Obstetrical Emergencies

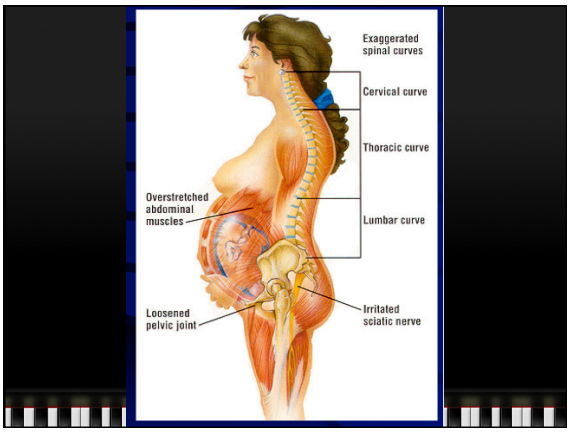
In the News



Areas of Concern

- Complications of Pregnancy
  - Cardiovascular, GDM, trauma
  - Gestational hypertension
- Complications of Delivery
  - Hemorrhage, embolism, anesthesia
- Complications Post Delivery
  - Hemorrhage, embolism, PIH
  - Gestational hypertension





Cardiovascular Changes

- Blood Volume
  - At term: 45-50% increase in volume
  - RBC increase ~30%
- Blood Pressure
  - Systolic: slight decline
  - Diastolic: reduced intially
  - Decreased sensitivity to angiotensin II (vasopressin)

Cardiac Output

- Increases due to SV rather than HR
- At 20 weeks: max HR (should not be more than 40% above pre-pregnancy rate)
- Resting HR ⇧ by 8bpm/8 weeks. 16bpm/full term

Vena Cava Syndrome

Aorto-caval Compression	
<23 wks	No change
24-28 wks	Decrease by 8%
29-32 wks	Decrease by 14%
33-term	Decrease by 25%

CO and Blood Distribution

Distribution:

- **750 ml/min to the uterus,**
- **300 ml/min to the kidneys,**
- **300 ml/min to skin,**
- **300 ml/min to GI tract, breast & heart**

Cardiovascular

- Total peripheral resistance decreased
  - Progesterone
  - Placenta
  - Prostaglandins
- BP = CO x SVR
- BP is decreased in most normal patients

Respiratory and Renal

- Rate increased
- Minute volume increased
- Hyperventilation of pregnancy
  - Protects fetus from too much CO_2
- GFR increased
- Renal blood flow increased

Gestational Diabetes

- 7% of all pregnancies, increasing (more common in obese mothers)
- Insulin resistance most common
- Insulin resistance greatest in 3rd trimester (boosts fetal growth)
- R(x): Diet, exercise, Insulin, glyburide (not metformin)
  - Low glycemic and high fiber foods

Am J Obstet Gynecol 2008 May;198(5):525e1

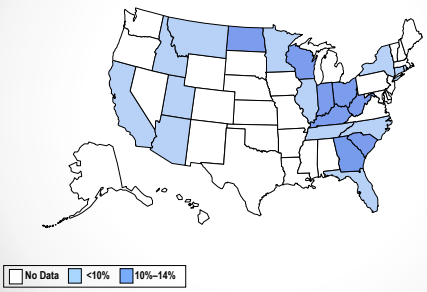
Morbidly Obese Mothers

- More likely to have:
  - Gallbladder attacks during/after delivery
  - Complications with pregnancy
  - GDM
  - PIH
  - If gastric bypass, an underweight and/or premature infant

Obesity Trends* Among U.S. Adults

BRFSS, 1985

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



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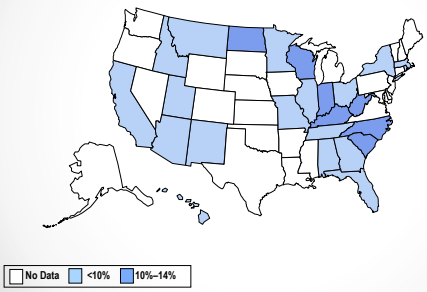

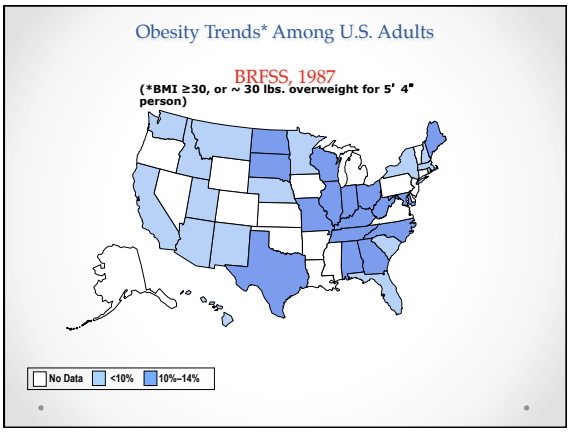
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BRFSS, 1987
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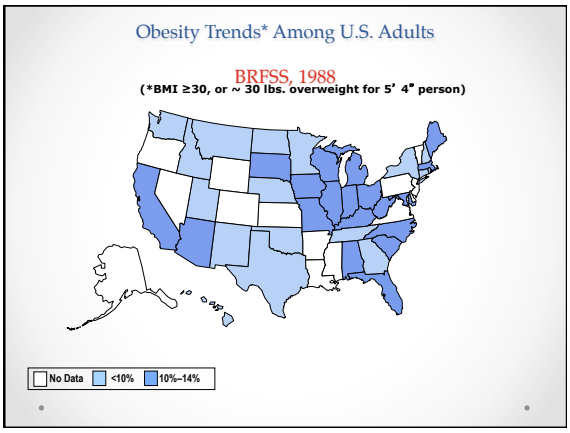
10%–14%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BRFSS, 1988
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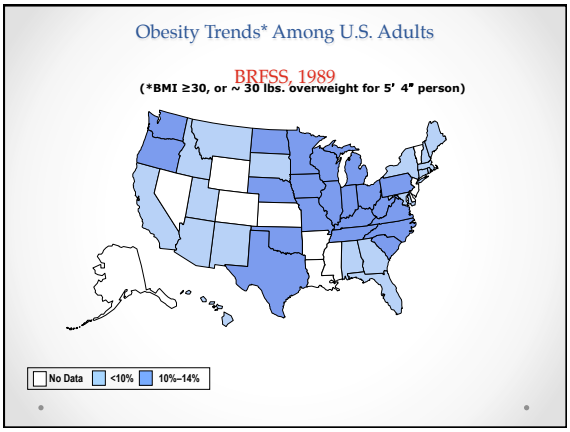
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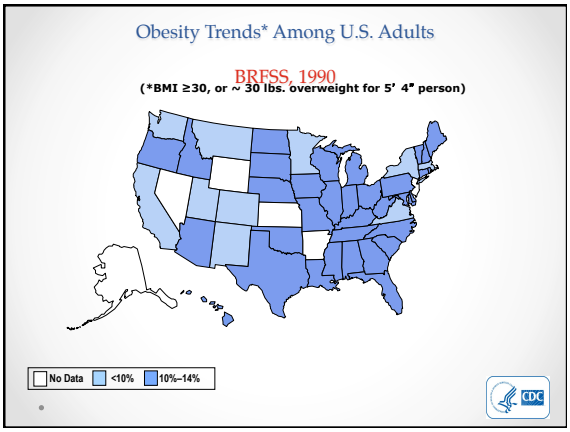
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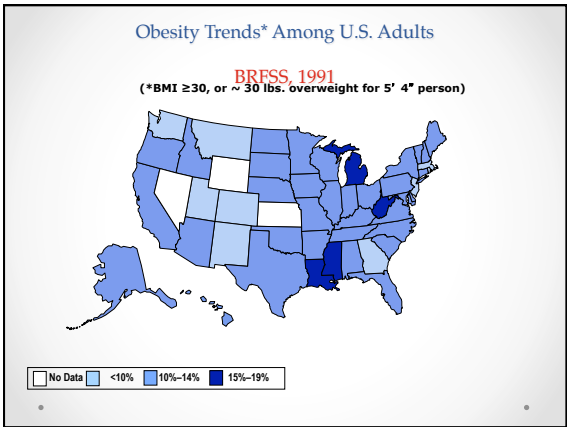
CDC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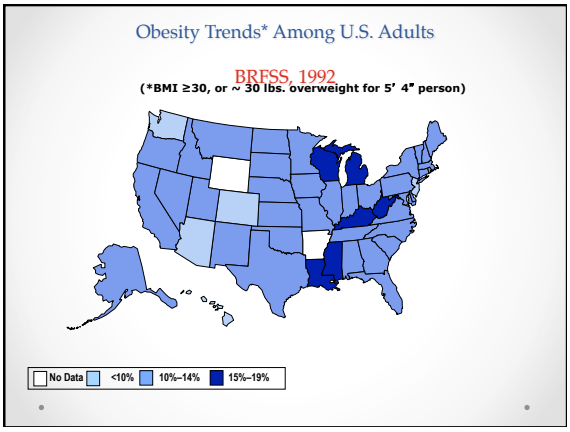
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Obesity Trends* Among U.S. Adults

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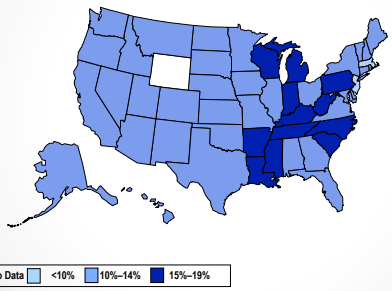

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Obesity Trends* Among U.S. Adults

BRFSS, 1994

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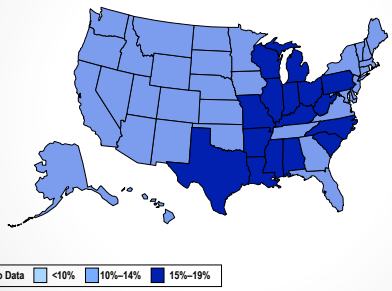

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Obesity Trends* Among U.S. Adults

BRFSS, 1995

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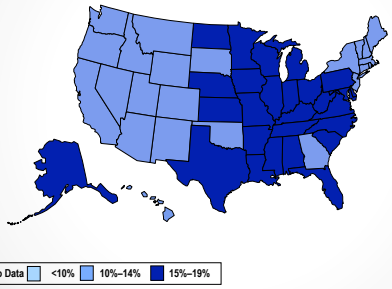

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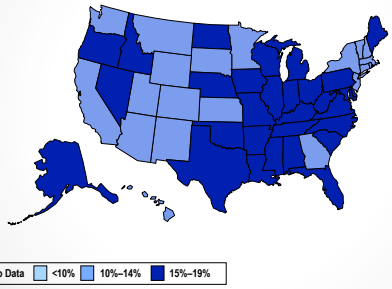
Obesity Trends* Among U.S. Adults

BRFSS, 1996

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



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Obesity Trends* Among U.S. Adults

BRFSS, 1997

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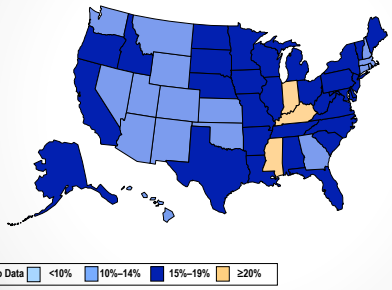

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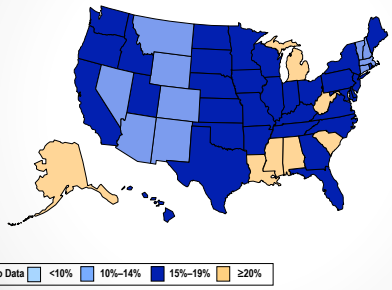
Obesity Trends* Among U.S. Adults

BRFSS, 1998

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



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Obesity Trends* Among U.S. Adults

BRFSS, 1999

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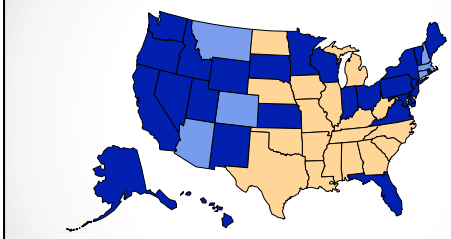
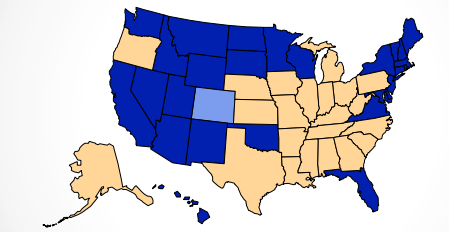


Obesity Trends* Among U.S. Adults

BRFSS, 2000

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



Obesity Trends* Among U.S. Adults

BRFSS, 2001

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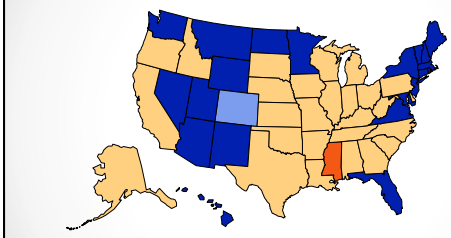

Obesity Trends* Among U.S. Adults

BRFSS, 2002

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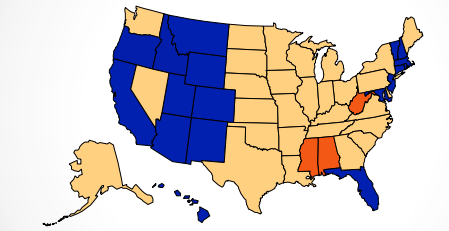

Obesity Trends* Among U.S. Adults

BRFSS, 2003

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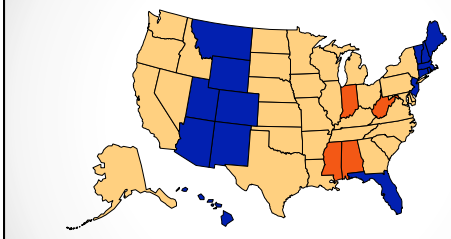

Obesity Trends* Among U.S. Adults

BRFSS, 2004

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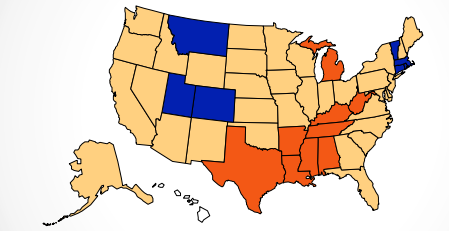

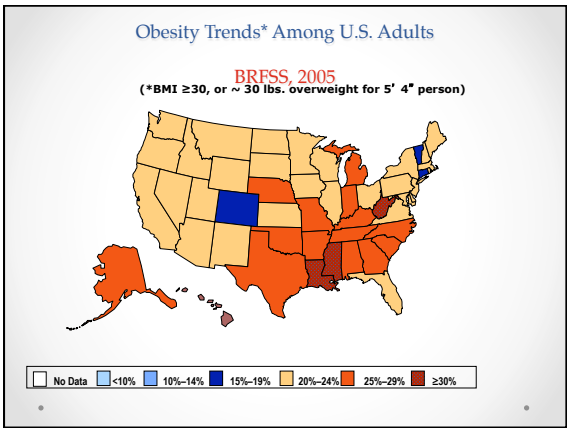
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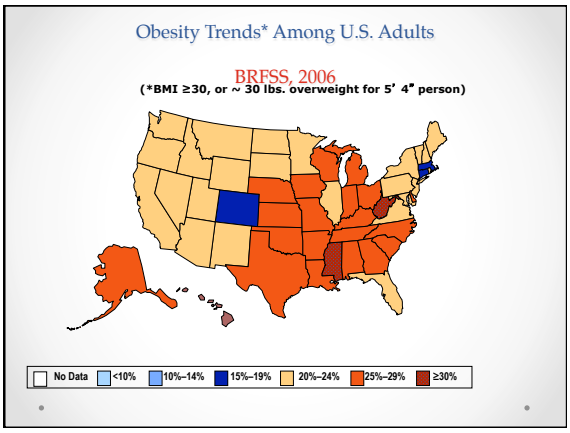
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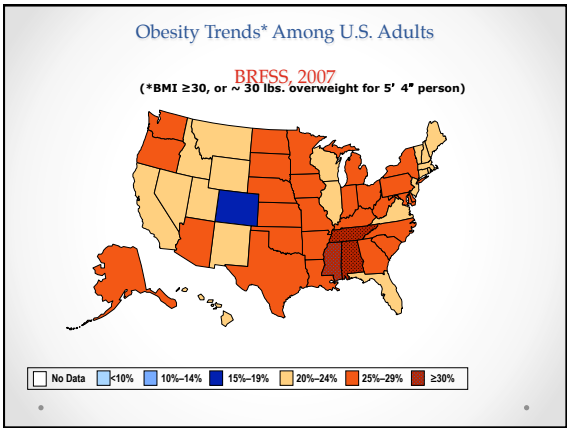
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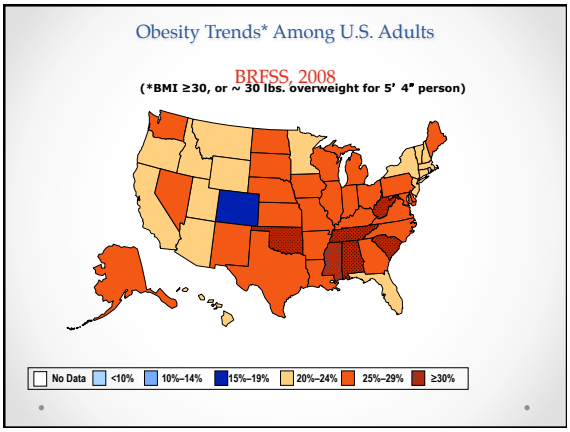
Obesity Trends* Among U.S. Adults
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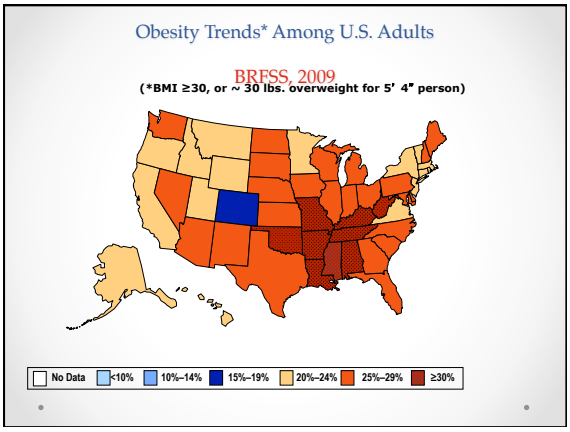
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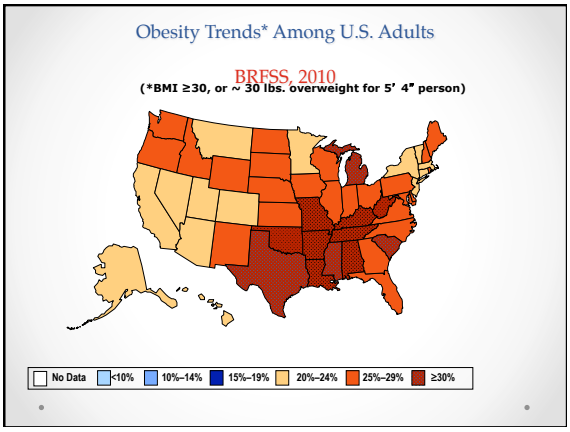
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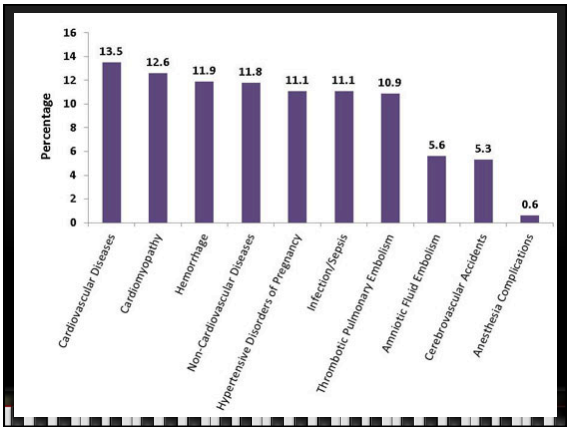


Cardiovascular Disorders

- Arrhythmias: Atrial fibrillaion
  - Rate control (same as nonpregnant)
  - Beta blockers, Ca channel blockers, digoxin
  - Avoid amiodarone
- Anticoagulation:
  - Heparin and LWMH ok
  - Avoid warfarin

Valvular Stenosis and Insufficiency

- Murmurs increased:
  - Mitral and aortic stenosis
  - Leads to ⇧ pulm capillary mmHg = pulmonary edema
- Murmurs dimished:
  - Mitral and aortic regurgitation (less concerning)

Mitral Valve Prolapse

- Regurgitation at LV
- LV enlargement = compensation
- Thrombi and emboli may develop
- Anticoagulation and dysrhythmia may develop (beta blockers)

Peripartum Cardiomyopathy

- Last month – 5 mo postpartum
- Multiparity, >30yrs, multifetal pregnancy and preeclampsia
- 5yr mortality 50%
- Treat as for CHF pt
- What S/S would you expect?

http://www.merckmanuals.com/professional/gynecology_and_obstetrics/pregnancy_complicated_by_disease/heart_disorders_in_pregnancy.html#v1072312

Hemorrhage

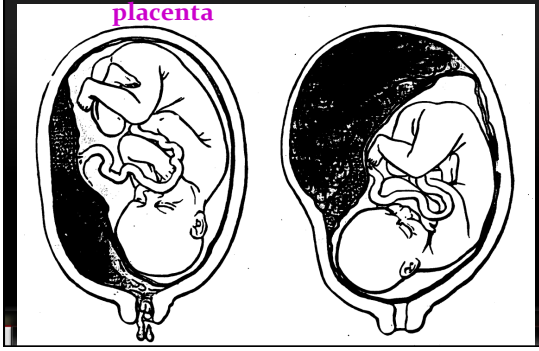
- Abruptio placenta
- Placenta previa
- Vaginal hemorrhage during delivery

Third Trimester Bleeding

- Abruptio Placenta
  - 0.5 to 1.5% incidence
  - Painful contractions
    - Frequent
  - Uterine tenderness
  - Vaginal bleeding
  - Fetal compromise
  - Risk for D.I.C., hypofibrinogemia

Abruptio Placenta

May have vaginal bleeding or might be concealed behind placenta



PLACENTAL ABRUPTION

Questions to ask:

•Are the contractions constant or do they come & go?

•Have you noticed any wetness/leakage?

•Have you felt your baby move since the accident / trauma?

PLACENTAL ABRUPTION

Assessment:

•Painful uterus even between contractions

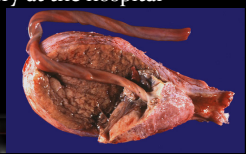
•Contractions are very close together

•Uterus may feel hard even between contractions

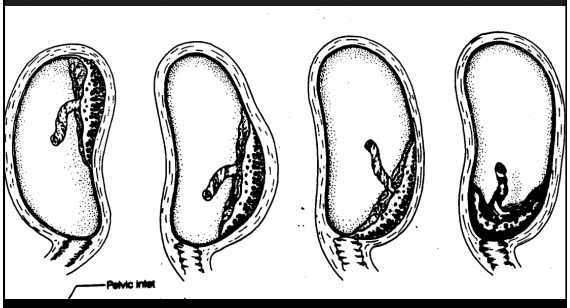
•Speed or cocaine use can also cause abruption

Placenta Previa

- Development of placenta over the cervix
- Signs and Symptoms include a painless abdomen (in between contractions) and lots of vaginal bleeding
- Treat for shock and position in the left-lateral trendelenberg position if in active labor
- Rapid Transport for delivery at the hospital



Placenta Previa



Third Trimester Bleeding

- Vasopressor Therapy
  - Dopamine, 2-4 mgm/kg/min
    - (low dose preserves placental flow)
  - Norepinephrine (Levophed)
    - Used in life-saving mode only
    - Decreased fetal flow

Fundal Massage

- Place one hand just above the mother's pubic bone
- Use other hand to massage the uterus until it becomes firm

Firm vs Boggy Uterus

- Firm feels like a grapefruit
- Should be midline about level of umbilicus
- Should be firmer when massaged

Vaginal Bleeding Assessment

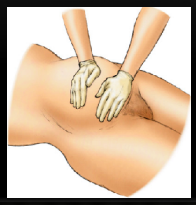
- Bleeding from
  - Vagina, cervix, perineum tear, trauma
- Bleeding from uterus
- Uterine atony

How Much Blood is too much?

- Saturating hospital pad in one hour
- Often with clots
- Fruit sized clots

Post Partum Hemorrhage

- **Monitor vital signs**
- **Bladder empty?**
- **IV fluids wide open**
- **2nd IV? Large bore**
- **Oxytocin**
- **Methergine?**
- **Hemabate?**



Non-Cardiovascular Disorders

- Cholecystitis, pancreatitis
- Acute surgical problems
- STDS
- Hydramnios and oligohydramnios
  - Too much and too little amniotic fluid

Surgical Problems

- Appendicitis
  - Changing position due to labor, challenging diagnosis due to WBCs during pregnancy
- Ovarian cysts
- Instestinal obstruction
  - If blockage occurs, surgery must occur
  - What are the S/S?

Gestational HTN

- Pre-Eclampsia
- Pre-Eclampsia superimposed on pre-existing HTN
- Eclampsia
- HELLP

Pre-Eclampsia

- Occurs after the 20th week of pregnancy, especially in the 3rd trimester
- Can be diagnosed the 1st time during labor
- Elevated BP & proteinurea present (later)
- Edema of hands and face

Superimposed pre-eclampsia

- After 20th week of pregnancy
- Is defined by the development of elevated BP on top of an already existing hypertensive state
- Elevated BP defined as a rise of

  30mmHg systolic or 15mmHg diastolic off the baseline or 140/90

ECLAMPSIA

- Occurs after the 20th week
- Is defined by the presence of seizures in women with pre-eclampsia
- Develops in 1 out of every 2000 pregnancies

ECLAMPSIA

- Very young primigravida
- Anyone with pre-existing elevated BP
- Multiple gestation
- Previous history of pre-eclampsia

ECLAMPSIA

- Decreased delivery of oxygen & glucose to all tissues of the body due to vaso spasms of vessels to organs
- Fluids shift = edema (weight gain)
- *Edema of hands, face, abdomen and sacral area are not normal & may be present*

ECLAMPSIA

- Cerebral vasospasm
- Clinical signs: visual disturbances such as blurred vision, dizziness, HA
- Vasospasm in liver = hemorrhages in the capsule covering the liver
- These hemorrhages = pain to RUQ or "epigastric pain"

ECLAMPSIA

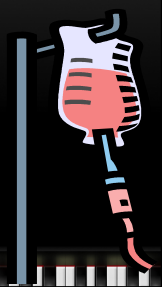
- CNS system may be irritated causing hyperactive reflexes and/or clonus

Seizures

- *1 out of 15 women will die when seizures develop due to cardiac failure, brain hemorrhage, pneumonia due to aspiration or shock of kidney failure*

Management of Eclampsia

- Prevent convulsions through the use of $MgSO_4$
- Decrease stimulation from noise or light
- Seizure precautions, prevent injury



HELLP

- Hemolysis, elevated liver enzymes, low platelets syndrome
- 70% antepartum
- 10-20% of pregnancies with preeclampsia
- Peak at 27-37 weeks
- 20% after 37 weeks (up to 6 weeks AFTER delivery!!)

HELLP

- RBC fragmentation, w/⇧liver enzymes from hemolysis
- ↓platelets due to endothelial damage
- DIC, pulm. edema, placental abruption
- Eclampsia, cerebral edema, liver rupture
- CVA, renal failure, DEATH (maternal & fetal)

Treatment

- Treat the preeclampsia FIRST
- Magnesium sulfate, methyldopa
- Hydralazine, labetalol, nifedipine**
- Nitroprusside
- Platelets (DIC)
- Dexamethosone (fetal distress and developmental delay)

Infection/Sepsis

- Pylonephritis/UTI (stagnant bladder)
- Can cause premature rupture of membranes
- Most common non-obstetric cause of hospitalization during pregnancy

Premature Rupture of Membranes (PROM)

- Rupture of membranes prior to 37 weeks
- Clear, watery vaginal discharge
- Continuous, odorless, colorless
- Avoid digital vaginal exam
- Risk of infection

PROM: Therapeutic Interventions

- Hydration
- Tocolytics
- Steroids
- Observation
- Transport to center with NICU
- Antibiotics

PROM: Chorioamnionitis

- Uterine tenderness
- Uterine contractions
- Maternal pyrexia
- Maternal/fetal tachycardia
- Vaginal discharge
  - Foul-smelling, discolored

Thrombotic PE

- DVT: from the iliac veins
- Why?
- S/S you would expect?
- What would we do BLS? ALS?
- In-hospital: LMWH, heparin.

Amniotic Fluid Embolism

- 1/20-30,000 births
  - Usually occurs after surgical delivery
  - Diagnosis post-mortem
- Massive MAST cell degranulation with DIC
- Hypotension, cardiogenic shock
- SEVERE bronchospasm

Amniotic Fluid Embolism

- Diesel Therapy
- DIC = heparin and blood products (FFP)
- Blood factors (VIIa) to stop complement cascade (amniotic fluid found in blood, sputum, muscle, lung tissue of these women)
- Surgery: RVAD and IABP
- Support and wait out disease

Objectives

- Maternal morbidity/mortality
- Causes
- Treatments
- Questions?

Sources for this Presentation

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A little Special on STIs

- Bacterial Vaginosis
- Chlamydia
- Gonorrhea
- Hepatitis
- Herpes
- HPV
- Trichomoniasis
- Syphillis
- HIV/AIDS

Pelvic Inflammatory Disease

- Fever
- PID shuffle
- Discharge with odor
- Painful intercourse
- Bleeding or discharge
- Gonorrhea
- Chlamydia

Gonorrhea

- Men: burning penis, white, purulent discharge
- Women: burning genitals, foul smelling discharge

Chlamydia

- Men: silent or burning/itchy penis
- Women: silent
- Infertility: if untreated
- Blindness: in neonates