Initial Assessment of the Critical Neonate
Compromised Foal
Critical 48 hours

- < 48 Hr old
  - 70-80% of admissions
- 84% survive
  - 70% fatal cases < 48 hr old
Weak or Fading Neonate

- Immediate assessment of essential organ function
- Immediate directed supportive therapy
Neonatal Problems

- Fetal Distress - Maladaptation
- Prematurity/postmaturity
- Sepsis/Infection
- Trauma
- Anemia
- Congenital malformations
Neonatal Problems

- Rarely one problem
  - Combination of problems
  - Varying severities
- Wide array of possibilities
  - But predictable course
Goals

- Identify underlying problem
- Identify disrupted vital organ functions
- Therapeutic interventions
  - Support normal organ functions
  - Control infection
Initial Assessment

- Is there evidence of sepsis?
- Is cardiovascular support necessary?
- Is respiratory support required?
- Will enteral nutrition/fluid maintenance be possible?
  - Is intravenous fluid therapy necessary?
  - Is continuous rate dextrose infusion necessary?
  - Is parenteral nutrition necessary?
- Will assisted thermoregulation be necessary?
- Control behavioral abnormalities?
- Level of metabolic/endocrine support needed?
- Will renal support be necessary?
- Requirements for other specific supportive care?
Physical Examination

- Cardiovascular examination
  - Mucous membrane
- Thoracic assessment
- Nervous system evaluation
- Abdominal assessment
- Body condition
- Musculoskeletal problems
Cardiovascular Examination

- Evaluating perfusion
- Evaluating volemia
  - Volemia vs hydration
  - Dehydration rare
  - Hypovolemia common
Cardiovascular Examination

- Assess effectiveness of perfusion
  - Cold extremities as blood is shunted centrally
    - Do not treat with active warming
  - Depressed mental status
  - Decreased borborygmi
  - Decreased urine production

- Pulse assessment
  - Pulse quality
  - Arterial tone
  - Arterial fill

- Blood Pressure

- Unreliable signs
  - Dry oral membranes
  - Capillary refill time
  - Skin turgor
Thoracic assessment

- Auscultation
  - Lungs
  - Cardiac murmurs
- Tachypnea
  - Pneumonia
  - Benign Neonatal Tachypnea
  - Central tachypnea
  - Pain
- Pharyngeal collapse
- Fractured ribs
- Paradoxical respiration (wave chest)
  - Progressive atelectasis
  - General fatigue
Central Nervous System

- **Important parameters**
  - Strength
  - Muscle tone
    - Hypertonus or hypotonus
  - Responsiveness
    - Hyperresponsive or hyporesponsive
  - Level of arousal
    - Somnolence
    - Hyperactive or hyperkinetic
- **Behavior**
- **Respiratory patterns**
  - Apneustic breathing
  - Periodic breathing
  - Ataxic breathing
  - Central patterns
- **Seizures**
- **Abnormal vocalization**
Changes in responsiveness
Changes in muscle tone
Changes in muscle tone
Changes in behavior
Brain stem damage
Seizure-like behavior
Abdominal Assessment

- Abdominal size
  - Appropriate?
- Feces?
  - Digital rectal
  - Meconium staining
  - Nose
- Auscultation?
- Palpation
- Ultrasound
Abdominal Palpation

- **Internal umbilical remnants**
  - Umbilical triad (2 arteries and urachus)
  - Hemorrhage
  - Omphalitis

- **Urinary bladder**
  - Luminal and bladder wall hematomas
  - Bladder size

- **Intestines**
  - Retained meconium
  - Thickened intestinal wall
  - Pneumatosis intestinalis
  - Intussusceptions

- **Kidneys**

- **Liver - Hepatomegaly**

- **Body wall defects**
  - Inguinal or umbilical hernias
  - Other body wall defects
Body Condition

- Thin to emaciated
  - IUGR
  - Fetal SIRS (FIRS)
- Prematurity
- Post maturity
Musculoskeletal problems

- Fractured ribs
- Other musculoskeletal abnormalities
  - Fractures
  - Gastrocnemius disruption
  - Contracture
  - Laxity
- Careful physical
  - Detect major dysfunction
  - Seriousness

- Dynamic monitoring
  - Serial physical evaluation
  - Laboratory analysis
    - Stall side
      - Serial blood glucose levels
      - Serial lactate levels
      - Arterial blood gas
      - Blood electrolyte
Therapeutic Interventions in Neonates