



Baby is Out!

Guy Peifer

A Shower bar &
Sweet and



- Video



A Shower bar &
Sweet and

The background of the slide features a soft, pinkish-purple tint. On the left side, there is a close-up of a young child's face, looking towards the camera with their hand near their mouth. On the right side, there is a faint, circular image of a baby's feet. In the bottom right corner, there is a faint image of a shower card with the text "A Shower for Sweet and".

Definition

- Newborn: within the first few hours after birth
- Neonate: within the first month after birth



Should We Be Worried?

- When was the last time you responded to a newborn resuscitation?
- 10% of deliveries require additional interventions.
- Complications and mortality and morbidity increase as weight and age decrease.



Situations That Cause Concern....

- Multiple Gestation
- Age during pregnancy <16yo, >35yo
- >42 weeks gestation
- Pre-existing medical condition (HTN, Preeclampsia, Diabetes)
- Decreased fetal movement

Some More Situations That Cause Concern.....

- Early rupture of amniotic sac
- Lack of prenatal care
- Prior history of fetal difficulties
- Drug or alcohol use during pregnancy
- Maternal Infections
- Known high risk OB patient
- Bleeding during pregnancy



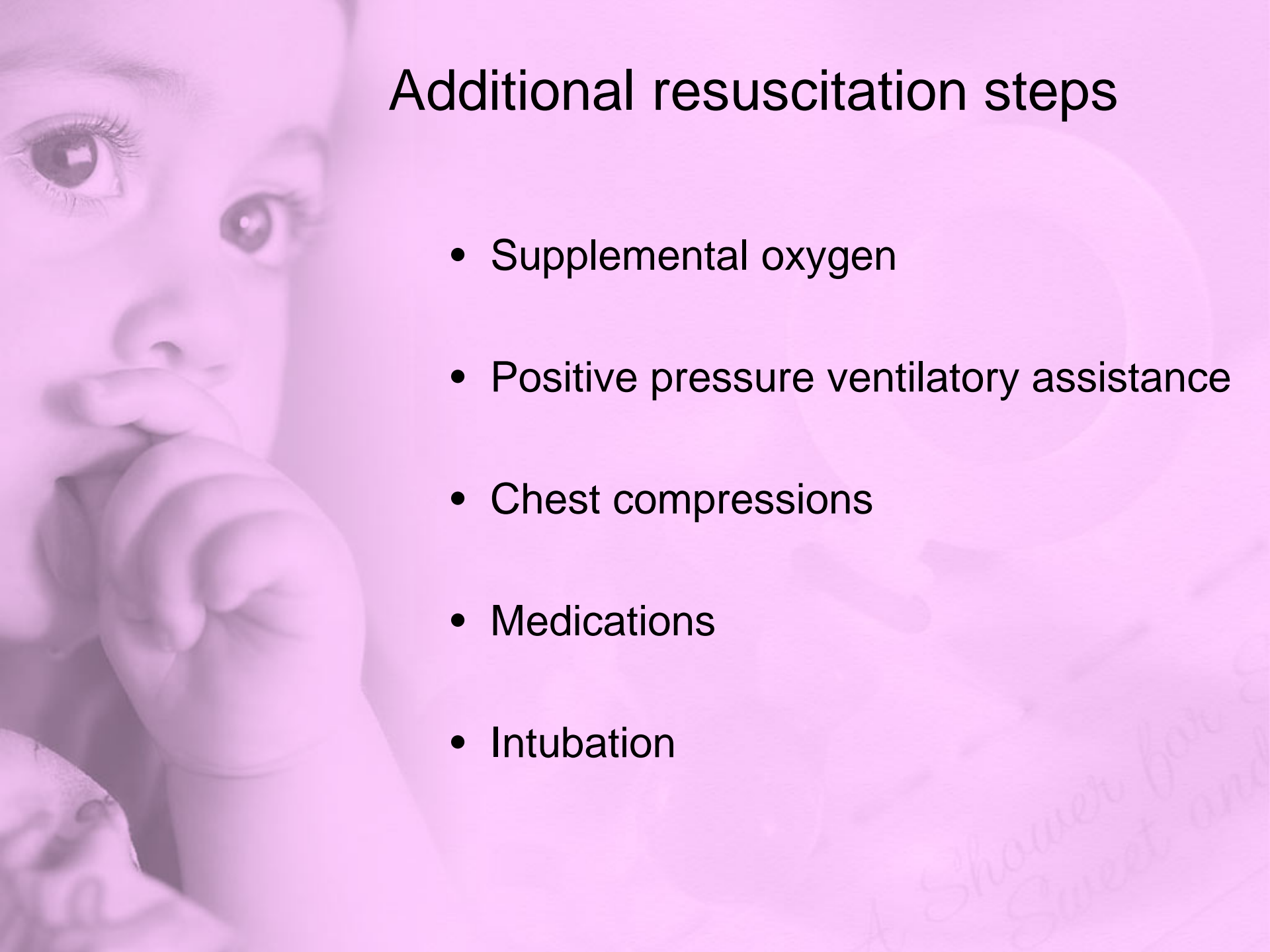
Newborn versus Neonate

- Newborn stabilization:

- Warming
- Positioning
- Clearing the airway
- Drying, stimulating breathing

- Neonatal resuscitation:

- Airway
- Breathing
- Circulation



Additional resuscitation steps

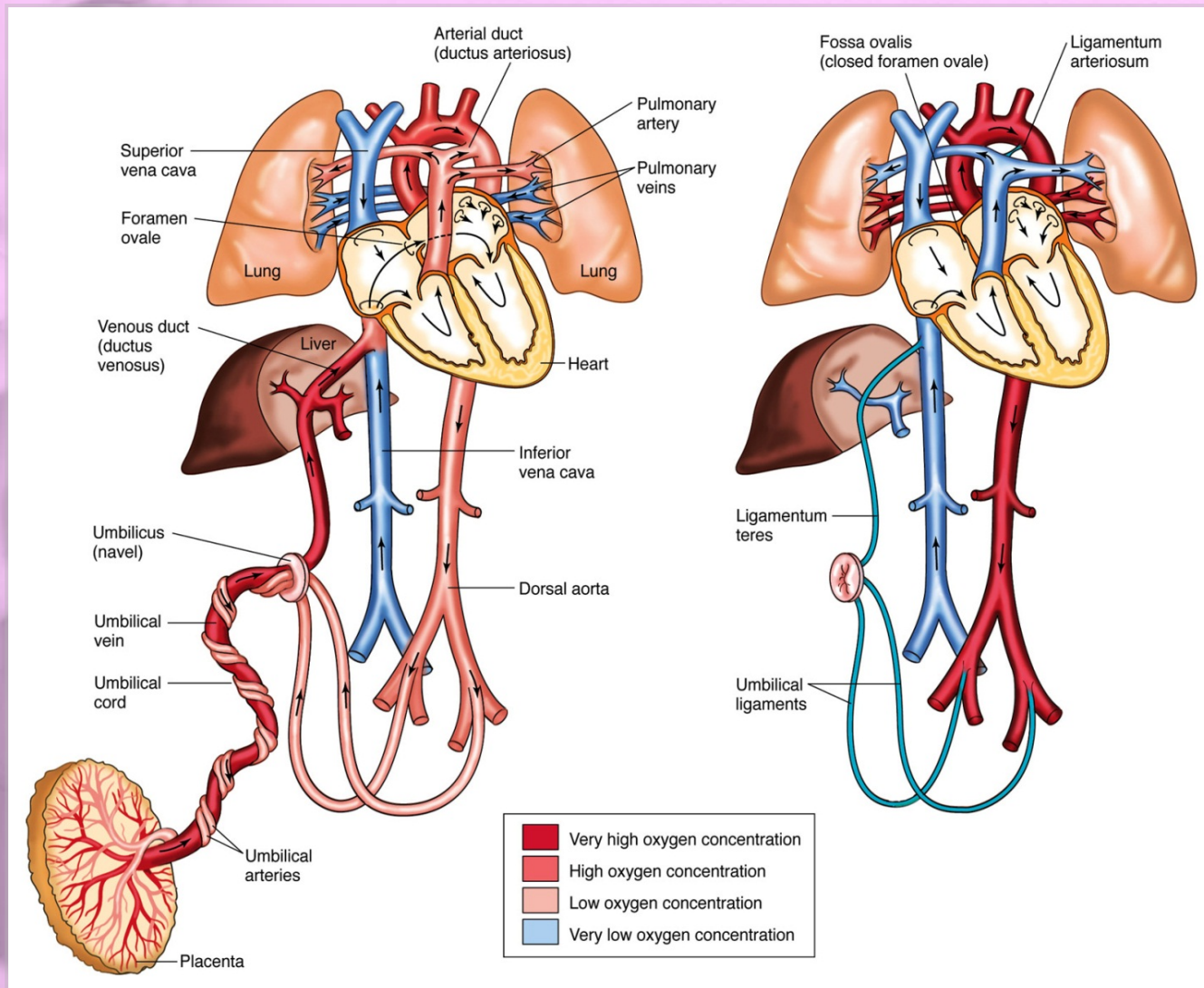
- Supplemental oxygen
- Positive pressure ventilatory assistance
- Chest compressions
- Medications
- Intubation



The First Breath and The Transition

- Triggered by mild hypoxia and hypercapnia.
- Pulmonary vascular resistance drops as the lungs fill with air.
- More blood flows to the lungs.

The Blood Flow...before and after



What happens if the Breathing is Delayed?

- Delayed transition
- Hypoxia
- Brain injury
- Death

A Shower bar &
Sweet and



Causes of Delayed Transition...

- Hypoxia
- Meconium Aspiration
- Blood Aspiration
- Hypothermia
- Pneumonia
- Hypotension
- Sepsis
- Asphyxia (Nuchal Cord)

Here it Comes....Get Ready

- Obtain patient history
- Prepare delivery area
 - Minimum needs:
 - Warm, dry blankets
 - Bulb syringe
 - Two small clamps or ties
 - A pair of clean scissors
 - Anything else?



A Show of Sweet Love

Arrival of the Newborn

- Use blankets to warm and dry the newborn.
- Confirm ABCs.
- Place on mother's chest.
- Suction mouth, then nose.
- Keep newborn at level of mother.



*A Shower be
Sweet and*

Arrival of the Newborn

- Clamp and cut the umbilical cord.
- Do an initial rapid assessment.
- Newborn is at risk for hypo/hyperthermia.
- Position the newborn, clear secretions, and assess the respiratory effort.



A Shower for
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Arrival of the Newborn

- If the newborn begins to turn pink in the first 5 minutes:
 - Maintain ongoing observation.
 - Continue thermoregulation with direct skin-to-skin contact with mother.



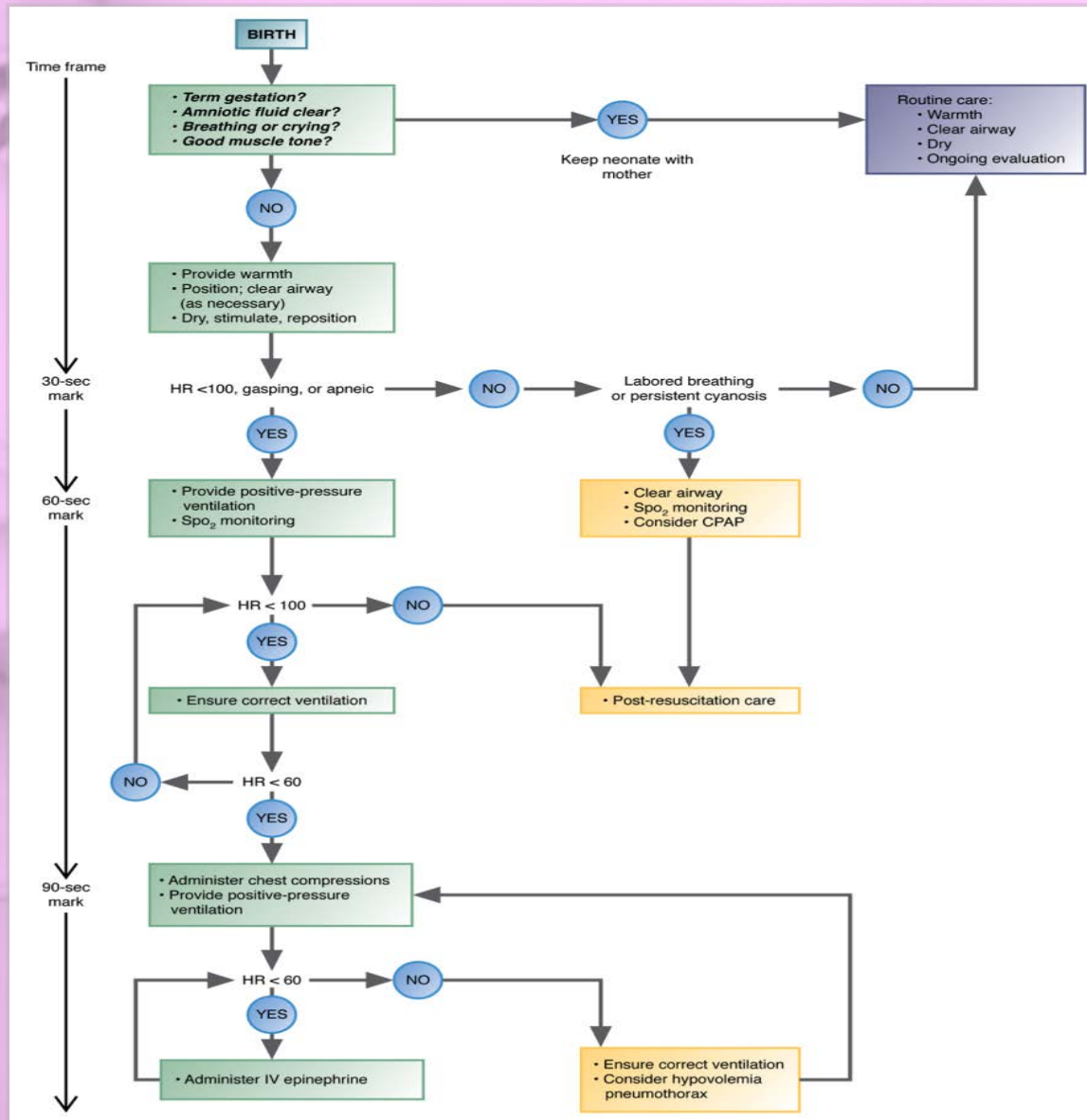
The Apgar Score

- Helps record condition at birth
 - If score is less than seven, redo every 5 minutes until 20 minutes after birth.

Table 5 The Apgar Score

Condition	Description	Score
Appearance—skin color	Completely pink	2
	Body pink, extremities blue	1
	Centrally blue, pale	0
Pulse rate	> 100	2
	< 100, > 0	1
	Absent	0
Grimace—irritability	Cries	2
	Grimaces	1
	No response	0
Activity—muscle tone	Active motion	2
	Some flexion of extremities	1
	Limp	0
Respiratory—effort	Strong cry	2
	Slow and irregular	1
	Absent	0

Algorithm for Neonatal Resuscitation



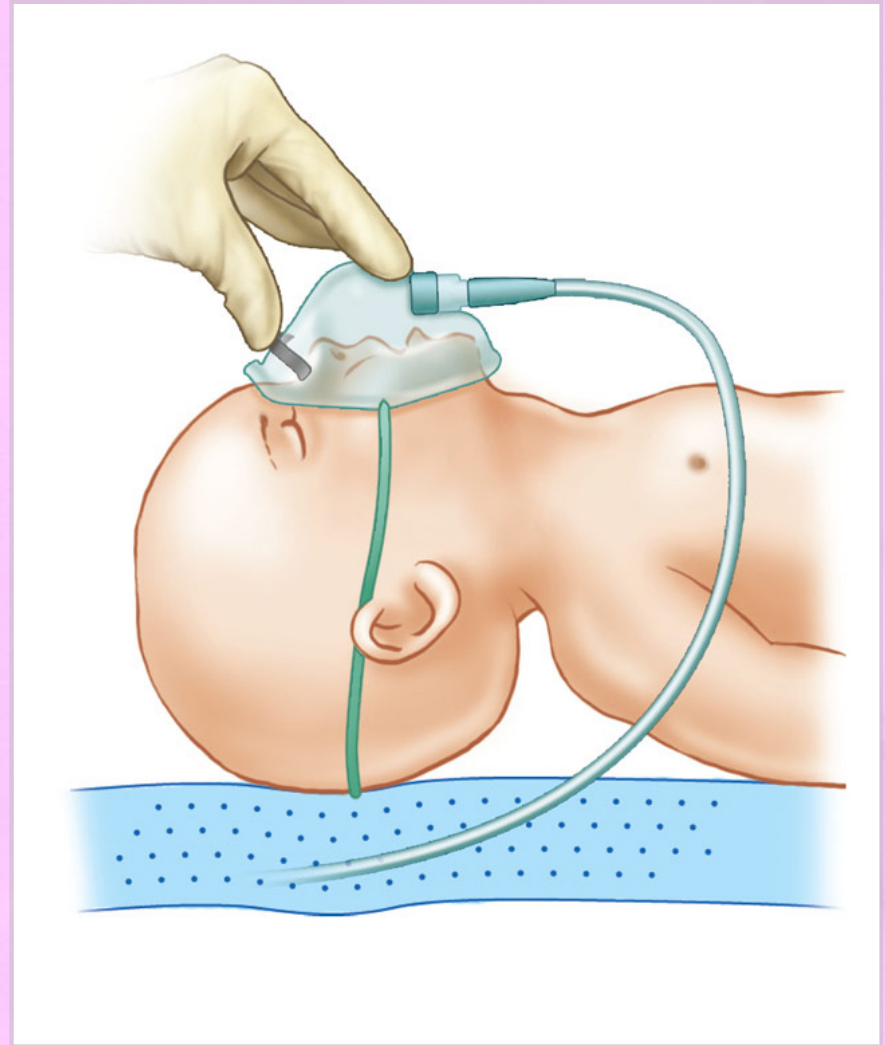


Drying and Stimulation

- Nasal suctioning stimulates breathing.
 - Position on the back or side in sniffing position.
 - If airway is not clear, suction with the head turned to the side.
- Flick the soles of the feet and rub the back.

Airway Management

- Free-flow oxygen
 - If cyanotic or pale, provide oxygen.
 - If PPV is not indicated, oxygen can initially be delivered through:
 - Oxygen mask
 - Oxygen tubing





Airway Management

- Oral airways
 - Conditions:
 - Bilateral choanal atresia
 - Pierre Robin sequence
 - Macroglossia
 - Craniofacial defects
 - In all these cases (except bilateral choanal atresia), an ET tube is inserted down a nostril.



Airway Management

- Bag-mask ventilation
 - Indicated if newborn:
 - Is apneic
 - Has inadequate respiratory effort
 - Has a pulse rate of less than 100 beats/min after stimulation efforts





Airway Management

- Bag-mask ventilation (cont'd)
 - Correct ventilation time: 40 to 60 breaths/min
 - Causes of ineffective bag-mask ventilation:
 - Inadequate mask seal on the face
 - Incorrect head position
 - Copious secretions
 - Pneumothorax
 - Equipment malfunction

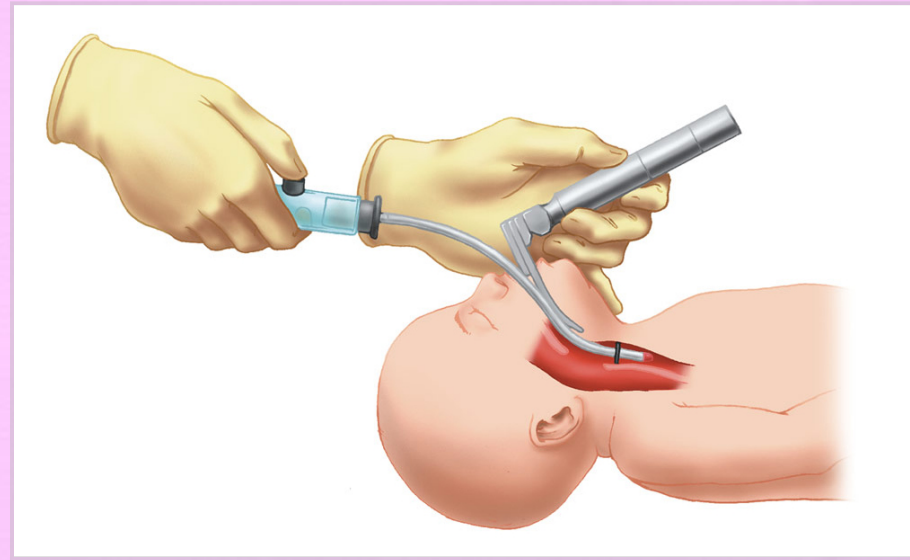
Airway Management

- Intubation
 - Indications:
 - Meconium-stained fluid, nonvigorous newborn
 - Congenital diaphragmatic hernia
 - ET administration of epinephrine needed
 - Prolonged PPV needed
 - Craniofacial defects impeding airway

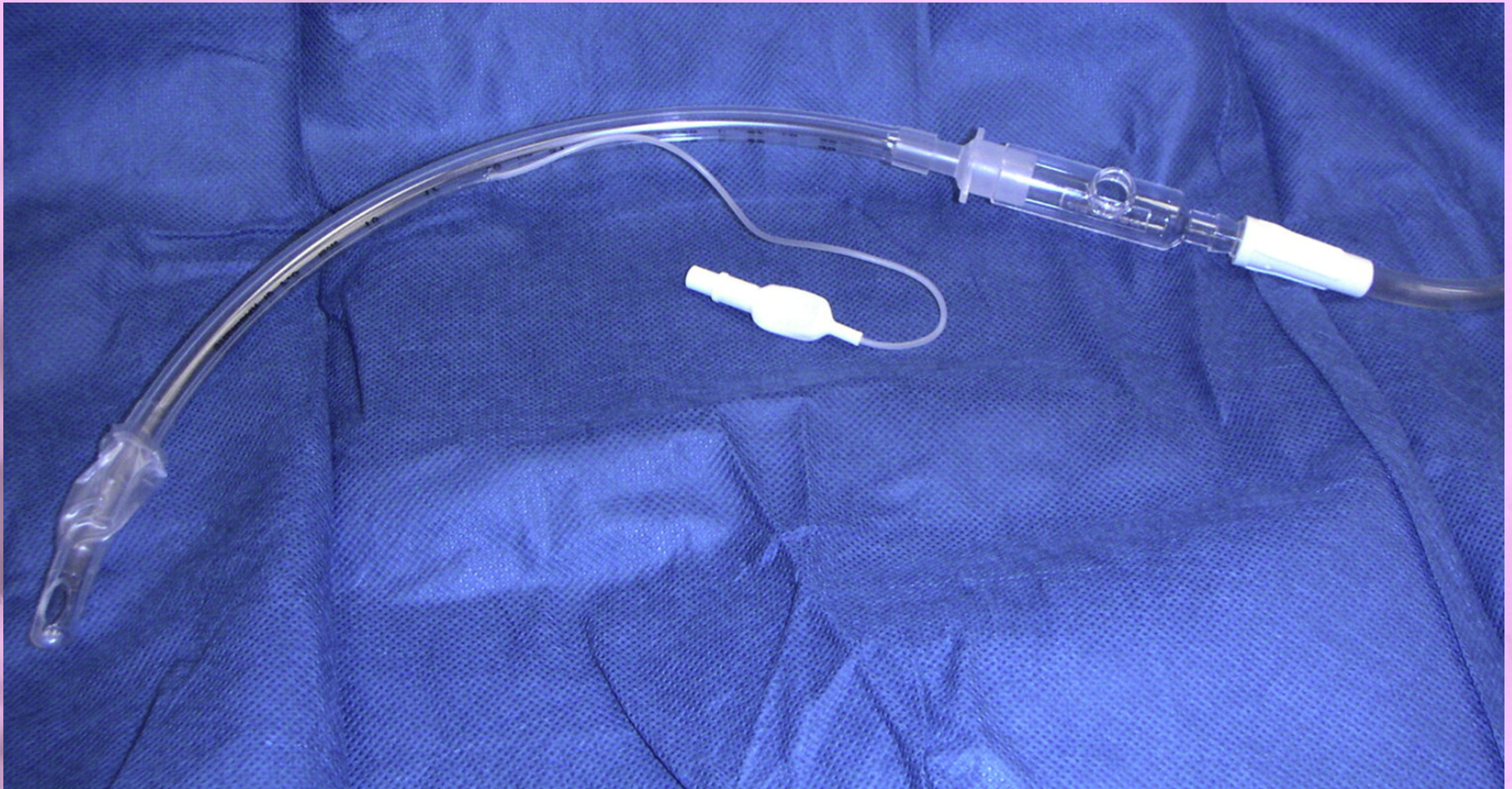


Meconium-Stained Amniotic Fluid

- Assessment and management
 - If depressed:
 - Clear meconium from airway.
 - Intubate trachea.
 - Suction ET tube while withdrawing from the trachea.



Meconium Aspirator



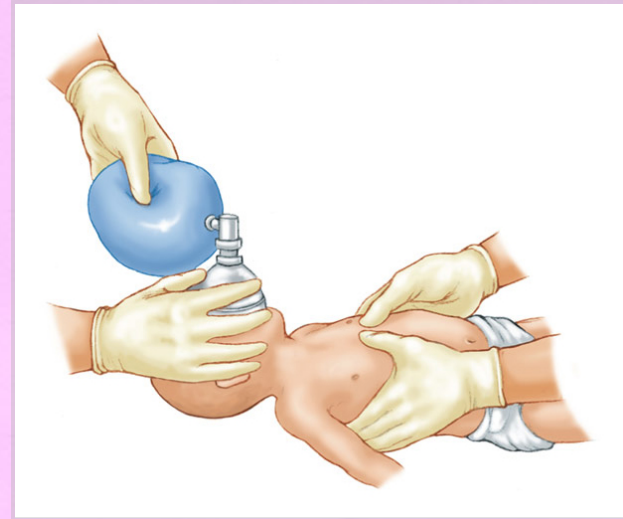


Circulation

- Chest compressions
 - Indicated if pulse rate remains at less than 60 beats/min after resuscitation efforts
 - Two people needed

Circulation

- Chest compressions (cont'd)
 - Two techniques:
 - Thumb technique
 - Two-finger technique





Circulation

- Chest compressions (cont'd)
 - Rate: 120 minute
 - Ratio: 3 compressions/1 ventilation
 - Depth: one third of the anteroposterior diameter
 - 0.5" to 0.75"
 - Do not deliver simultaneously with artificial ventilation.



Circulation

- Chest compressions (cont'd)
 - If pulse rate is above 60 beats/min:
 - Chest compressions can be stopped.
 - Continue ventilation at 40 to 60 breaths/min.
 - Recheck pulse rate after 30 seconds.
 - If rate goes above 100 beats/min, gradually slow the rate and decrease PPV pressure.



Circulation

- Vascular access
 - Umbilical vein can be catheterized.
 - Clean the cord with antiseptic.
 - Attach a syringe and stopcock to an umbilical vein line catheter and prefill.
 - Cut the cord with a scalpel.

Pharmacologic Interventions

- Rarely needed in newborn resuscitation
- Medication dosages based on weight





Bradycardia

- Hypoxia?????
- Often will respond to PPV
- Epinephrine administration is indicated for pulse rate of less than 60 beats/min.
 - Check pulse rate 1 minute after administration.
 - May repeat dose every 3 to 5 minutes



Low Blood Volume

- Fluid resuscitation may be needed.
- Signs of hypovolemia include:
 - Pallor
 - Persistently low pulse rate
 - Weak pulses
 - No improvement in circulatory status after resuscitation efforts



Low Blood Volume

- Fluid bolus in a newborn is 10 mL/kg given IV every 5 to 10 minutes of:
 - Saline
 - Lactated Ringer's
- D5 1/2NS after third bolus of NS or LR

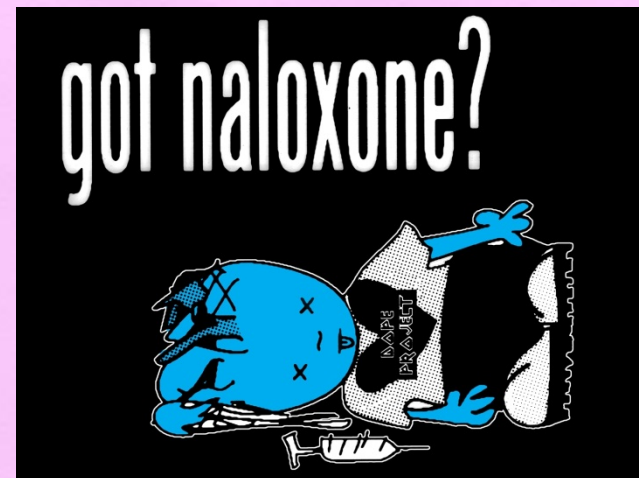
A young child with their hand to their mouth, looking thoughtful. The image is overlaid with a semi-transparent pink filter. The child's eyes are wide and focused, and their hand is held up to their mouth in a classic 'thinking' pose. The background is a soft, out-of-focus light color.

Acidosis

- Suspect if bradycardia persists after:
 - Adequate ventilations
 - Chest compressions
 - Volume expansion

Respiratory Depression from Narcotics

- Respiratory suppression from use of narcotics:
 - Provide ventilator support.
 - Transport immediately.
- Respiratory depression from acute treatment with narcotics:
 - Administer 0.1 mg/kg of naloxone.





Hypoglycemia

- Neurologic symptoms:
 - Decreased stimuli response
 - Hypotonia
 - Apnea
 - Poor feeding
 - seizures
- Obtain baseline vital signs and oxygen saturation readings.

The background of the slide features a soft-focus image of a young child's face on the left, with their hand near their mouth. On the right, there is a faint, light-colored medical diagram of a child's torso, showing internal organs like the stomach and intestines. Below the diagram, there is a handwritten note in cursive that reads "A Shower bar & Sweet and".

Hypoglycemia

- If blood glucose level is less than 40 mg/dL:
 - Give IV bolus of 10% dextrose solution.
 - 5ml/kg
 - Recheck level in about 10 minutes.

The background of the slide features a soft-focus image of a young child with their hand near their mouth. Overlaid on the right side is a faint, light-colored medical diagram of a newborn's head and neck, showing internal structures like the trachea and esophagus. Below the diagram, there is a handwritten note in cursive that reads "A Shower bar & Sweet and".

Family and Transport Considerations

- Transport to nearest facility once newborn is stabilized as much as possible.
 - Provide ongoing communication with the family.
 - During transport, monitor the newborn.



Family and Transport Considerations

- Transport of a high-risk newborn:
 - Physician at referring hospital initiates request.
 - Mode of transportation is chosen.
 - Transport team is mobilized and equipment assembled.
 - On arrival, transport team continues to stabilize the newborn.



Family and Transport Considerations

- Conditions that should be treated before leaving the referring hospital:
 - Hypoxemia
 - Acidosis
 - Hypoglycemia
 - Hypovolemia



Apnea

- Respiratory pause greater than 20 seconds
 - Can lead to hypoxemia and bradycardia
 - Often follows hypoxia or hypothermia
 - Newborn needs respiratory support to minimize brain and organ damage.



Bradycardia

- Most frequently occurs in newborns due to inadequate ventilation
 - Often responds to effective PPV
- Morbidity and mortality are determined by underlying cause and how quickly it is corrected.

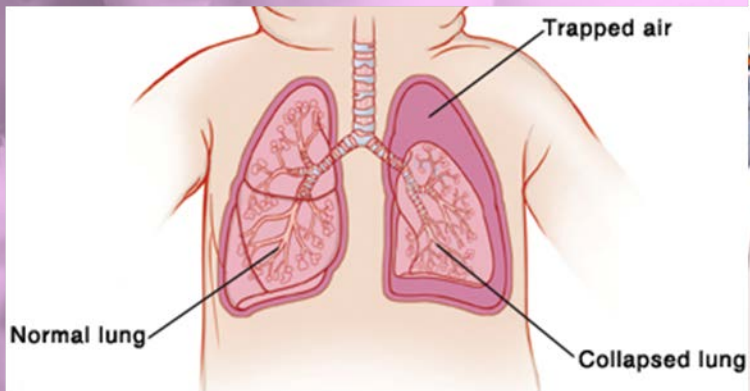
A young child with a hand to their mouth, overlaid with a faint medical diagram of a heart and a handwritten note.

Bradycardia

- Assessment and management
 - Heart rate less than 100 beats/min: provide PPV.
 - If still less than 60 beats/min:
 - Begin chest compressions.
 - If still less than 60 beats/min:
 - Administer epinephrine.
 - Repeat every 3 to 5 minutes for persistent bradycardia.

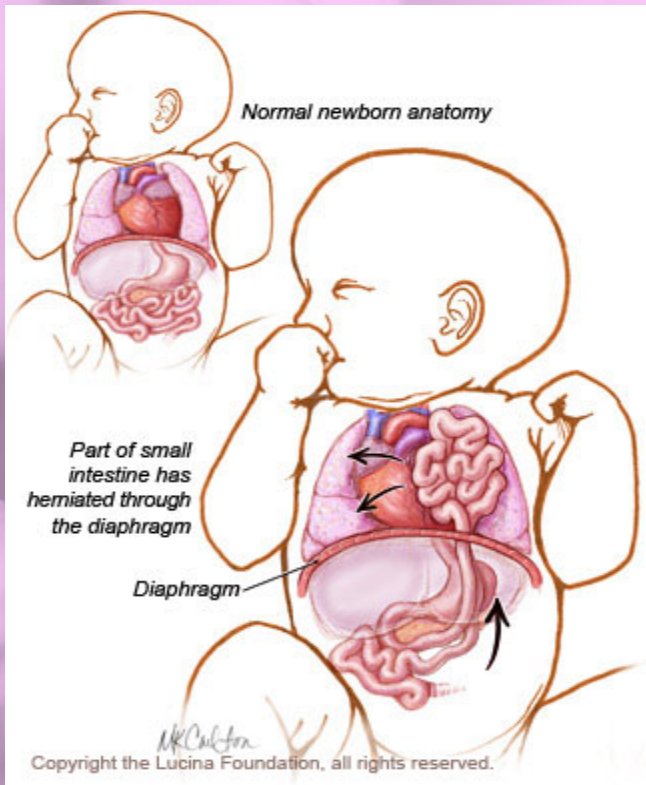
Pneumothorax

- Can occur if:
 - Infant inhales meconium
 - Lung is weakened by infection
- Signs of significant pneumothorax:
 - Severe respiratory distress unresponsive to PPV
 - Unilateral decreased breath sounds



Diaphragmatic Hernia

- An abnormal opening in the diaphragm
- Signs and symptoms include:
 - Respiratory distress
 - Heart sounds shifted to the right
 - Bowel sounds heard in the chest





Respiratory Distress and Cyanosis

- Single most common cause is prematurity
 - Respiratory causes
 - Other causes:
 - Shunting of blood across the patent ductus arteriosus and patent foramen ovale
 - Central nervous system depression
 - Septic shock and severe metabolic acidosis
 - Cardiac anomalies



Respiratory Distress and Cyanosis

- Assessment and management
 - Ensure patent airway.
 - Check breathing is adequate.
 - Check pulse is present.
 - Assess respirations.
 - Ask about increased symptoms with feeding.

The background of the slide features a close-up, soft-focus photograph of a young child's face. The child has their hand near their mouth, with fingers slightly curled. Overlaid on this image is a faint, light-colored anatomical diagram of the human respiratory system, showing the trachea, bronchi, and lungs. The overall color palette is a light, muted purple or lavender.

Respiratory Distress and Cyanosis

- Assessment and management (cont'd)
 - Treatment includes:
 - Establishing patent airway
 - Ensuring adequate oxygen delivery
 - Establishing effective ventilation
 - Ensuring adequate circulation

Premature and Low Birth Weight Infants

- Premature—delivered before 37 weeks of gestation
 - Increased mortality
 - Associated morbidities



Premature and Low Birth Weight Infants

- Low birth weight—newborns weighing less than 5½ lb (2,500 g)
- Morbidity and mortality are related to degree of prematurity.
- To optimize survival in the field:
 - Provide cardiorespiratory support.
 - Provide thermoneutral environment.
 - Use only minimum pressure necessary to move chest when providing PPV.



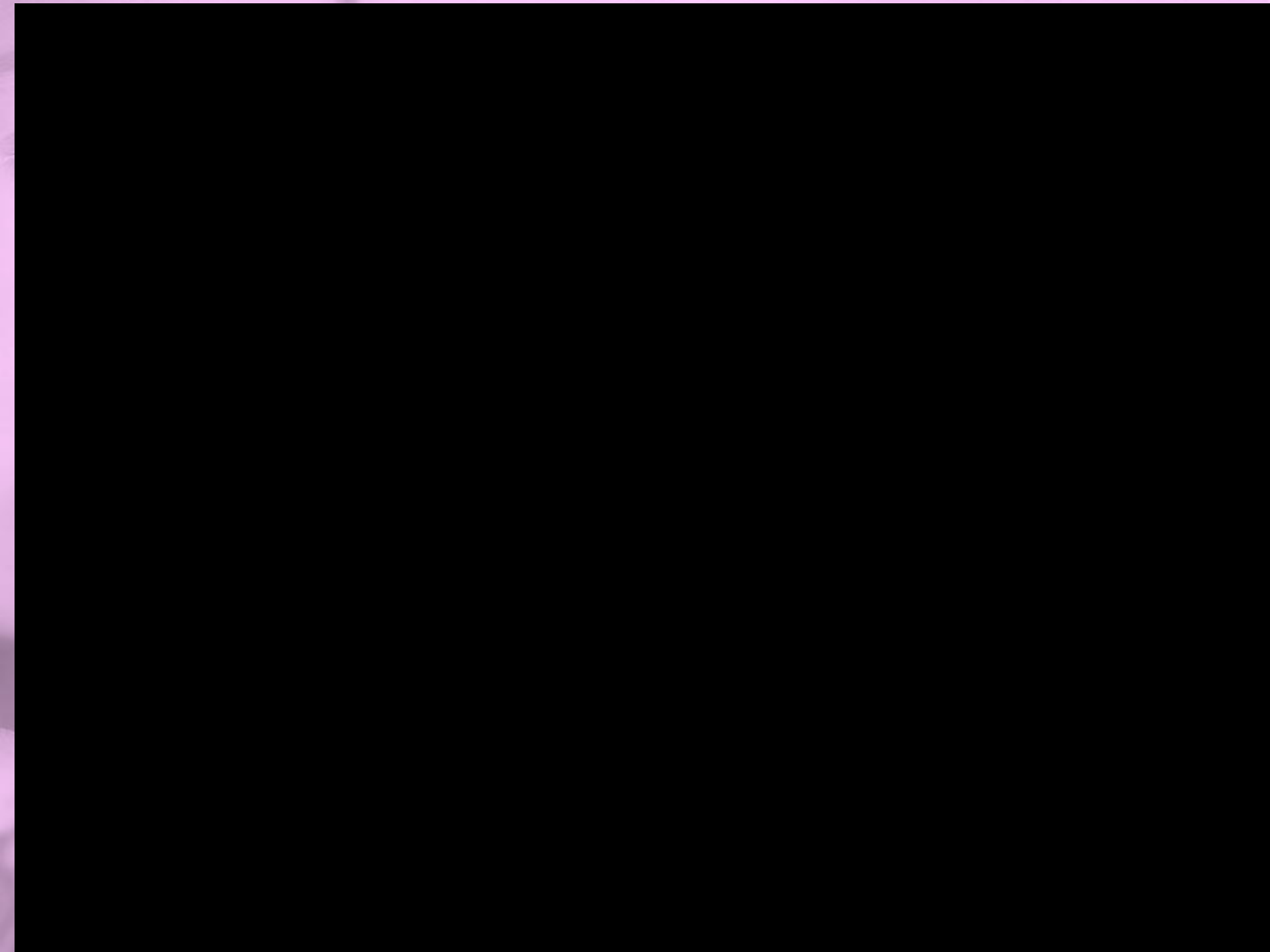
Premature and Low Birth Weight Infants

- Assessment and management
 - Management focuses on:
 - Clearing airway
 - Gentle stimulation
 - Providing supplemental oxygen and PPV if needed
 - Providing chest compressions
 - Maintaining a warm environment

A newborn baby's face is shown in profile, looking towards the right. The baby's hand is near its mouth. The image is overlaid with a semi-transparent pink circle and a faint, handwritten-style text that reads "A Shower for Sweet and".

Seizures in the Newborn

- Most distinctive sign of neurologic disease
- Identified by direct observation in the field
 - Diagnosis is confirmed in the hospital.
- Usually related to an underlying abnormality
- Prolonged seizures may cause brain injury.



Seizures in the Newborn

- Types of seizures:
 - Subtle seizure
 - Tonic seizure
 - Focal clonic seizure
 - Myoclonic seizure

Table 8 Causes of Neonatal Seizures

- **Hypoxic ischemic encephalopathy**
- Intracranial infections (meningitis)
- Hypoglycemia
- Other metabolic disturbances
- Epileptic syndromes
- Intracranial hemorrhage
- Development defects
- Hypocalcemia
- Meningitis
- Encephalopathy
- Drug withdrawal



Hypoglycemia

- Assessment and management
 - Symptoms may be nonspecific.
 - Check blood glucose level and vital signs.
 - Manage hypoglycemia after ABCs.
 - Maintain normal body temperature.

Vomiting

- Common in newborns
- Persistent in first 24 hours may indicate:
 - Upper digestive tract obstruction
 - Increased intracranial pressure
- Vomitus aspiration may cause respiratory insufficiency or airway obstruction.



The background of the slide features a composite image. On the left, a close-up of a young child's face is shown with their hand near their mouth. On the right, there is a faint, larger image of a baby's face. At the bottom right, there is a faint image of a shower bar with the text "A Shower bar Sweet and" written on it.

Vomiting

- Sudden, unexpected, and forceful vomiting may occur in conjunction with:
 - Asphyxia
 - Meningitis
 - Hydrocephalus

Vomiting

- Assessment and management
 - Start management with ABCs.
 - Consider decompressing the stomach.
 - May need fluid resuscitation if dehydrated
 - Place newborn on the side when transporting.



Diarrhea

- Excessive loss of electrolytes and fluid in the stool
- Causes include:
 - Poisoning
 - Gastroenteritis
 - Lactose intolerance

A young child with a hand to their mouth, looking thoughtful. The image is overlaid with a light purple tint and a faint circular graphic on the right side.

Diarrhea

- Assessment and management
 - Estimate:
 - Number and volume of loose stools
 - Decreased urinary output
 - Degree of dehydration
 - Patient management begins with ABCs.



Neonatal Jaundice

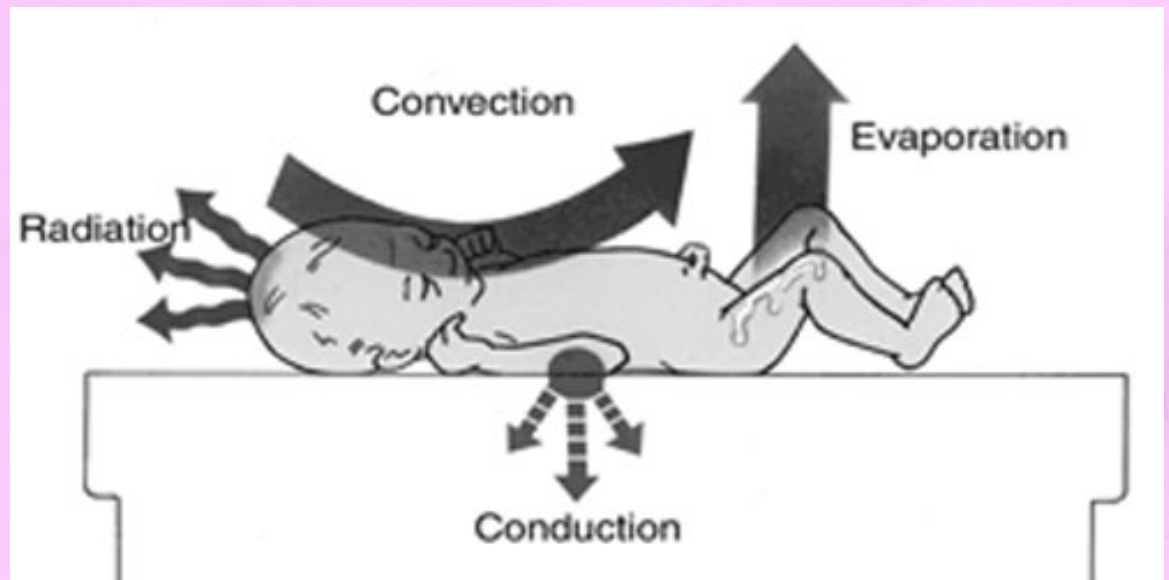
- Assessment and management
 - Transport is essential.
 - Start on IV fluids if neonate shows significant clinical jaundice.
 - Communicate with medical control.

Thermoregulation

- Thermoregulation limited in newborns
 - Average normal temperature of newborn— 37°C (99.5°F)
 - Range for neonate— 36.6°C to 37.2°C (97.9°F to 99°F)

Thermoregulation

- Heat loss occurs through:
 - Evaporation
 - Convection
 - Conduction
 - Radiation



A young child with a hand to their mouth, looking thoughtful. The image is overlaid with a semi-transparent pink circle and a faint watermark of a hand holding a pen writing on a notepad.

Fever

- Rectal temperature greater than 38°C (100.4 °F)
- Newborn may not always present with fever in an illness or infection
- May be caused by overheating or dehydration.



Fever

- Limited ability to control their temperature.
- Signs and symptoms include:
 - Irritability
 - Somnolence
 - Decreased feeding
 - Warm to touch

Fever

- Assessment and management
 - Examine for rashes.
 - Obtain history.
 - Note increased respiratory rate.
- Obtain vital signs and ensure adequate oxygenation and ventilation.



Courtesy of CDC.



Hypothermia

- Drop in body temperature to less than 25°C (95°F)
- Newborns are sensitive to environmental conditions, especially after delivery.
- Investigate for infection.

Hypothermia

- Assessment and management
 - Hypothermic newborns may be:
 - Cool to the touch
 - Pale with acrocyanosis
 - Presentation may include:
 - Decreased respiratory effort
 - Apnea
 - Sclerema





Hypothermia

- Assessment and management (cont'd)
 - Preventive measures include:
 - Warming hands before touching the newborn
 - Drying thoroughly after birth
 - Placing a cap on the head.
 - Placing the newborn “skin-to-skin” with mother

Common Birth Injuries in the Newborn

- Birth trauma injuries include:
 - Those involving instruments during delivery
 - Excessive molding of the head
 - Caput succedaneum
 - Cephalhematoma



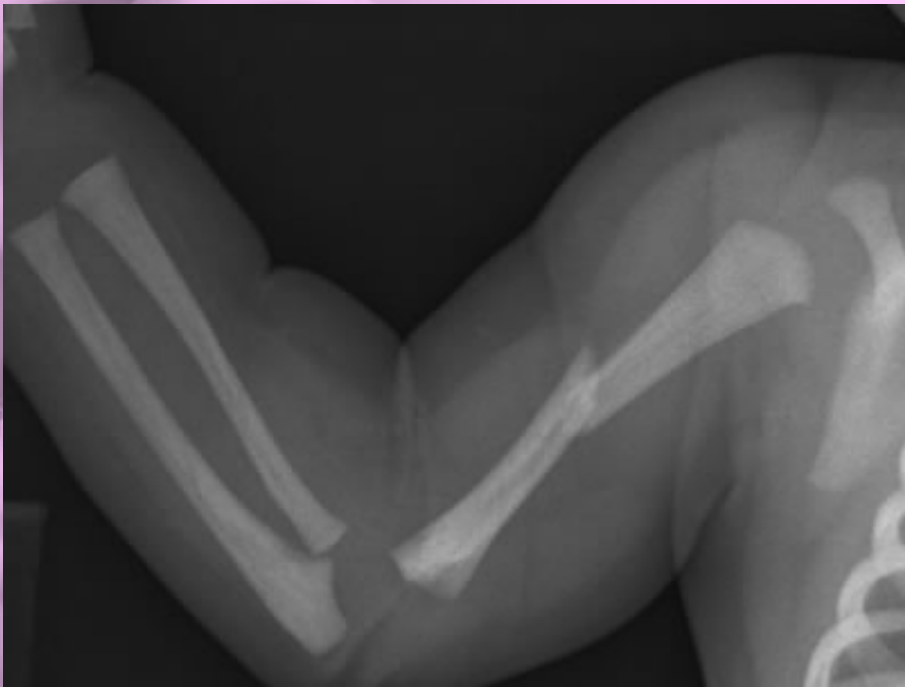


Common Birth Injuries in the Newborn

- Clavicle—most frequently fractured bone
 - Examination will show:
 - Crepitus
 - Palpable bony irregularity
 - Possible lack of arm movement on affected side

Common Birth Injuries in the Newborn

- Long bone fracture may present as loss of spontaneous arm or leg movement.
- Hypoxia and shock could be caused by birth trauma.



Assessment and Management of Cardiac Conditions in Newborns

- Rapid detection and transport are mandatory.
- Communication with medical control is critical.



Summary

- Initial steps of neonatal resuscitation include positioning and clearing the airway, stimulating the newborn to breathe, and assessing heart rate and oxygenation.
- Short- and long-term outcomes are linked to initial stabilization efforts.



Summary

- At birth, a fetus transitions from receiving oxygen from the placenta to oxygen from breathing.
- During delivery, obtain a patient history and prepare the environment and equipment you may need for neonatal resuscitation.
- The initial rapid assessment of the newborn may be done simultaneously with any interventions.



Summary

- The Apgar score determines the need for and effectiveness of resuscitation.
- Follow the neonatal resuscitation algorithm developed by the American Academy of Pediatrics and the American Heart Association.
- Thermoregulation is limited in the newborn, so take an active role in keeping body temperature in the normal range.



Summary

- If the newborn does not respond in 30 seconds after initial stabilization efforts, further intervention is needed.
- If the newborn is cyanotic or pale, administer free-flow oxygen. If the newborn has an airway obstruction, insert an oral airway. If newborn is apneic, has inadequate respiratory effort, or is bradycardic, perform bag-mask ventilation. If this does not work, endotracheal intubation is required.



Summary

- If prolonged bag-mask ventilation is used, gastric decompression with an orogastric tube is indicated.
- Perform chest compressions if the pulse rate remains below 60 beats/min.
- Emergent vascular access is necessary if fluid administration is needed for circulation support or if resuscitations medications or therapeutic drugs are to be given IV.



Summary

- Most newborns are resuscitated with effective ventilation support, but medications may be needed in some instances.
- Transport to the nearest facility once the newborn is stabilized as much as possible.
- Ongoing communication with family is necessary.



Summary

- Bradycardia in a newborn is usually from hypoxia, which can normally be reversed with effective positive-pressure ventilation.
- There is a high risk of morbidity if a newborn is delivered through meconium-stained amniotic fluid.
- Diaphragmatic hernia is an abnormal opening in the diaphragm.



Summary

- If born before 37 weeks gestation, newborns are considered premature.
- Seizures are distinctive of neurologic disease in the newborn.
- Nonbilious vomiting is common in newborns. Keep the face turned to one side to prevent further aspiration.



Summary

- If the infant has diarrhea, estimate the number and volume of loose stools, decreased urinary output, and degree of dehydration.
- If fever is suspected, observe for rashes. Obtain a careful history and vital signs. Ensure adequate oxygenation and ventilation.



Summary

- Birth trauma includes avoidable and unavoidable injuries resulting from mechanical forces during delivery. A difficult birth or injury can occur because of the newborn's size or position during labor and delivery.
- Cardiac emergencies in newborns can come from various congenital heart diseases or malformations.



Credits

- Jones & Bartlett Learning