

# Pediatric Modified Barium Swallow Studies

Presented by

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November 7, 2015

# Definition

- \* Modified Barium Swallow Study
  - \* Assesses swallow functions via fluoroscopy not visible directly
  - \* Assesses oral and pharyngeal phases of swallow
  - \* Calls for optimal positioning of patient and systematic presentation of variety of food textures, tastes, temperatures and quantities
  - \* Utilizes barium contrast and dynamic recording of the swallow process

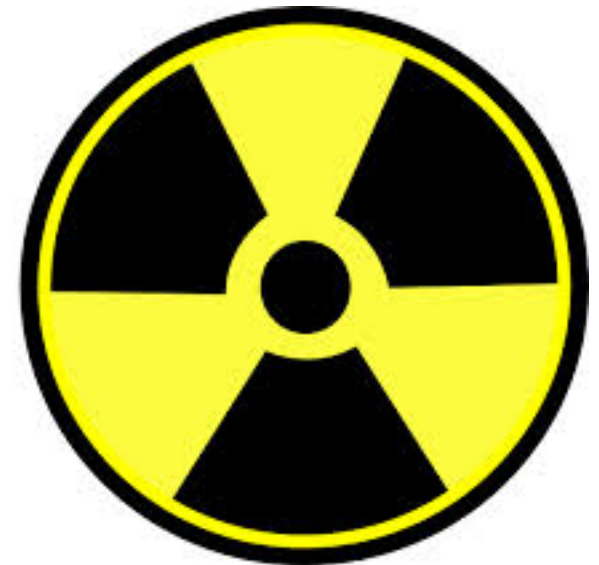
# Advantages of MBS

- \* Immediate playback
- \* Attempts to simulate 'typical' feeding
- \* Routine in most centers
- \* Storage and practicality



# Disadvantages of MBS

- \* Radiation exposure
- \* Inability to assess over course of full meal
- \* Limited sample in brief time period
- \* Requires patient cooperation
- \* Mild constipation: side effect of bar



# Criteria for MBS

- \* Poor control of oral secretions
- \* Frequent coughing/choking, +/- gagging especially during eating or drinking
- \* Respirations are wet/gurgly
- \* Structural/functional problems of oral, pharyngeal mechanism which might result in aspiration (ie cleft)



# Criteria for MBS, cont

- \* Increased upper airway sounds during po intake
- \* Increased respiratory rate with feedings
- \* Frequent pauses indicative of decreased coordination of respiration and feeding
- \* O<sub>2</sub> desaturations during feeds
- \* Diaphoresis, bradycardia, cyanosis/ color changes during feedings



# Criteria for MBS, cont

- \* Current pulmonary status: pneumonia, recurrent URI's (frequent/chronic), CXR infiltrates, chronic asthma, frequent bronchitis, bronchiolitis
- \* May find references in literature re: irritability, sleep habits, rigid feeding behaviors, refusing to eat new textures, FTT...refer for clinical feeding eval prior to MBS ? Sensory vs motor issues
- \* Child/infant must be alert, medically stable, be able to ingest enough food (5-10 c over 5 min period)

# Not appropriate for MBS if...

- \* Lethargic
- \* Orally defensive
- \* Medically unstable
- \* Unable to feed during Clinical Feeding Evaluation





# Goals of MBS

- \* Max amount of information in min amt of time
- \* Assess swallow structure and movement pattern, using pt's typical feeding posture and food consistencies
- \* Assess airway protection
- \* Make safe, appropriate feeding recommendations
- \* Determine effectiveness of strategies when possible

# General procedure and considerations

- \* Clinical feeding eval helpful to determine if pt ready for MBS
- \* Radiation Exposure: MUST be minimized ~ no more than 120 sec (infant), ~ 2-3 min infants/toddlers
- \* Aspiration: minimal risk for respiratory complications 2' to small amounts of materials aspirated
- \* Interpretation: interpret findings cautiously, children are not usually fed while crying
- \* Parents/caregiver involvement: present to feed usually decreases child's anxiety, provides SLP with additional information (re: feeding techniques), assist w/ feeding, provides food samples

# General Procedures: Presentation

- \* Dependent on motor development, cognitive development, medical condition, feeding history and other variables (pt specific)
- \* Order of presentation varies
- \* Start with least problematic to most problematic \*tactile defensive child ~ start with most problematic as study may be limited
- \* Food that is easiest, safest and/or preferred is first
- \* Subsequent presentations based on: age, typical diet, OM function, cooperation
- \* Amounts: amount is dependent on child's typical feeding history.  
\*fluoro may be turned off while child continues to feed viewed intermittently to assess for fatigue

# General Procedures: presentation

- \* Modifications: variables that may be modified include:
  - \* Bolus consistencies
  - \* Amount of presentation
  - \* Rate of presentation
  - \* Feeding utensils (nipple, bottle, sippy cup, cup, straw, spoon)
  - \* positioning



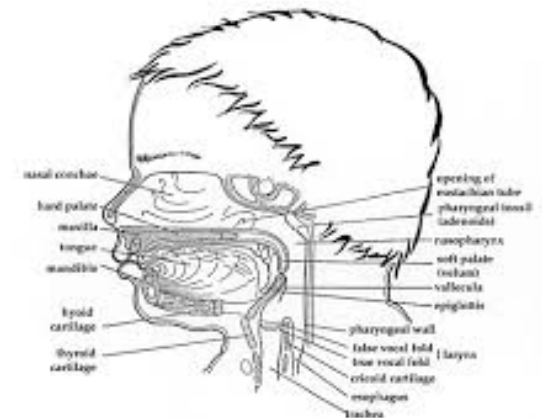
# Presentation tips

- \* Infant: if increased oral or pharyngeal residue, try nipple alternated with pacifier to clear residue
- \* May require syringe/spoon for liquid presentation
- \* Beecher/Alexander recommend 3 swallows/texture, 3 sucking sequences for adequate evaluation
- \* Arvedson recommends 5-6 swallows, 3 sequences
- \* Utilization of chin tuck with infants may cause bolus to dump into larynx if it pools in valleculae

# Observe swallows for: oral phase

- \* Bilabial seal
- \* Bolus expression from nipple/cup/spoon
- \* Munch vs rotary mastication (age specific)
- \* Bolus formation
- \* Bolus control ~ premature spillage
- \* Tongue base retraction
- \* Oral transit time
- \* Coordination of oral-pharyngeal phases

THE MOUTH AND PHARYNX OF THE NEWBORN  
(sagittal section)



# Observe swallows for: pharyngeal phase

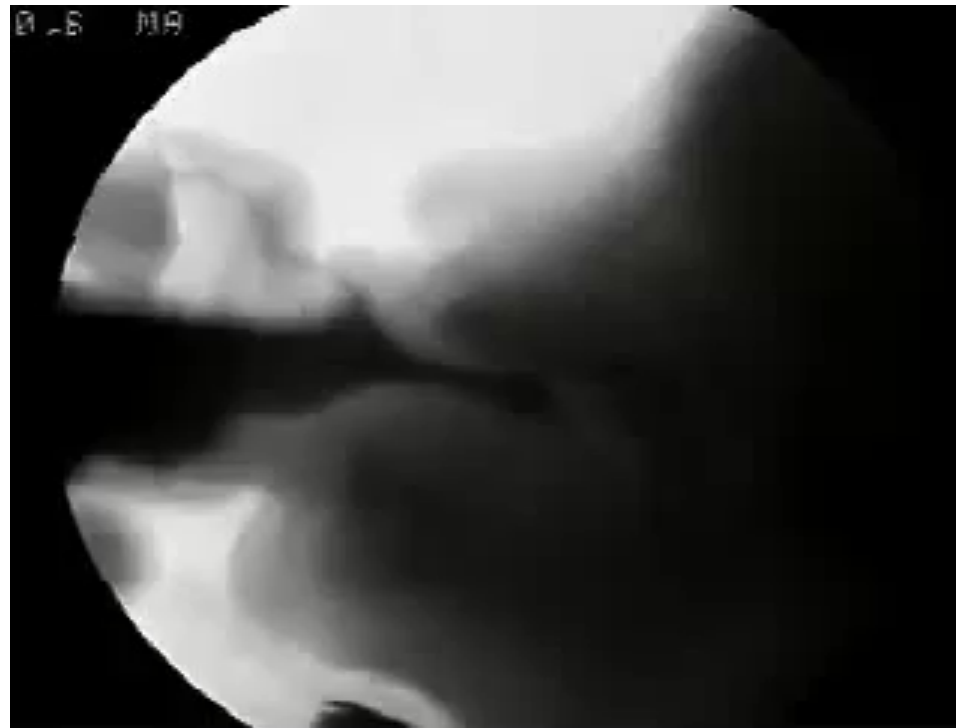
- \* V-p closure ~ NPR
- \* Laryngeal elevation
- \* Epiglottic retroversion
- \* Swallow initiation level
- \* Pharyngeal residue
- \* Pharyngeal transit time
- \* Laryngeal penetration
- \* Aspiration

# Observe swallows for: Esophageal Phase

- \* UES relaxation
- \* Cervical esophageal transit time
- \* Structural abnormalities



# Normal pedi MBS



# Case presentation/s

\* Susan Shonbrun