

# **GUNDERSEN/LUTHERAN ULTRASOUND DEPARTMENT**

## **POLICY AND PROCEDURE MANUAL**

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SUBJECT: NICU Abdomen for Necrotizing Enterocolitis (NEC)

SECTION: Radiology Ultrasound

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### **Imaging Protocol:**

1. SMA/SMV transverse color Doppler for SMA/SMV relationship
2. Long axis SMA color Doppler
3. Scan through the liver looking for portal venous gas
4. Main portal vein gray scale and pulsed Doppler images
5. Four quadrant survey (RUQ, RLQ, LUQ, LLQ) looking for free fluid, free air, and/or abscess
  - 5 to 8 MHz transducer
  - Special attention to the anterior surface of the liver
  - One saved image of each quadrant if normal
6. Four quadrant survey (RUQ, RLQ, LUQ, LLQ) of bowel loops
  - 9 to 15 MHz transducer
  - Most common location of abnormality is RLQ
  - Gray scale and color Doppler images of each quadrant if normal

### **NICU Abdomen for Necrotizing Enterocolitis**

#### *Normal Bowel Wall*

- Likely see multiple collapsed loops without differentiation
- Normal wall thickness is 1.1 to 2.6 mm

#### *Gut Signature*

- Hyperechoic with hypoechoic halo

#### *Peristalsis*

- Minimum of 10 contractions per minute

### *Bowel Perfusion*

- Lowest pulse repetition frequency without aliasing
- Low wall filter
- Highest gain without flash artifact
- Velocity: 0.029 to 0.11 m/sec
- Flow present if reproducible or confirmed with pulsed Doppler
- Mean is 3.78 dots/cm<sup>2</sup> (look for dots and dashes)