

**GUNDERSEN HEALTH SYSTEM ULTRASOUND DEPARTMENT**  
**POLICY AND PROCEDURE MANUAL**

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SUBJECT: Abdominal Ultrasound Exam  
SECTION: Radiology Ultrasound  
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REVIEW DATE: September 12, 2013

APPROVED BY:

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**Scheduling:**

One every half hour. Patient should be scheduled in the A.M. due to NPO status.

**Prep:**

NPO > 10 hours. Ultrasound performed prior to barium enema, UGI, or endoscopy.

**Equipment:**

Ultrasound unit with 3.5 MHz transducer. It may be necessary to have a unit with 2.5, 5.0, or greater MHz transducers.

**Exam Protocol:**

With real-time ultrasound the soft tissue structures within the upper abdomen will be evaluated completely. The following is a description of the complete upper abdominal ultrasound:

Liver – The evaluation of the liver includes both long axis and transverse views. The liver parenchyma is evaluated for possible diffuse or focal abnormalities. The echogenicity of the liver compared to the right kidney should be performed whenever possible. The aorta in the region of the liver should be evaluated as well as the IVC where it passes through the liver. Evaluation should be done of the regions of the ligamentum teres, right hemidiaphragm, dome of the right lobe, and the right pleural space. The right and left portal vein branches and the hepatic veins should be seen within both lobes of the liver.

Gallbladder and biliary tree – Evaluation of the gallbladder includes both long axis and transverse views. The gallbladder is evaluated with the patient supine and in the left lateral decubitus positions, with additional patient positions as necessary. The gallbladder is evaluated for possible stones, polyps, or other masses and the mobility of these if found. The intrahepatic and extrahepatic bile ducts are evaluated for possible dilatation or any other abnormalities. Evaluation of the common bile duct in the head of the pancreas is done whenever possible.

Pancreas – The head, uncinata process, and body of the pancreas are evaluated transversely and in long axis. When possible the tail of the pancreas is also evaluated. In the head of the pancreas the distal common bile duct and the gastroduodenal artery are evaluated. The pancreas and peripancreatic region are assessed for any fluid collections, adenopathy, vascular abnormalities, or masses.

Spleen – The spleen is evaluated in both long axis and transverse views. It is measured in long axis, transverse axis, and anterior to posterior diameter. When possible the echogenicity of the left kidney compared to the spleen is performed as well as the left pleural space.

Kidneys – The kidneys are evaluated in long axis visualizing the cortex and renal pelvis. The maximum length of each kidney is recorded. Transverse views of both kidneys include the upper pole, mid section including the renal pelvis, and the lower pole. The perirenal regions are evaluated for possible abnormalities. At times it may be necessary to evaluate the renal arteries and veins for patency.

Aorta and IVC – The aorta and IVC are evaluated in long axis and transverse views. Both vessels are evaluated from the diaphragm to the bifurcation when possible. Any aneurysmal dilatation of the aorta is measured in AP and transverse diameters. The soft tissue surrounding these vessels should be evaluated for any abnormalities.

Adrenals – The adrenal glands can be evaluated in the newborn and possible in the infant. The adrenal glands are evaluated for masses, hemorrhage, or other abnormalities.

The radiologist is informed by the sonographer of any structure not clearly seen during the ultrasound exam.

#### Documentation

Even though only specific images are documented on film, all organs are to be scanned in detail. The following images will represent the upper abdominal ultrasound exam (additional images may be necessary for proper documentation).

## Imaging Protocols

### Radiology Ultrasound

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#### Complete Abdominal Ultrasound Exam

- Two images transverse pancreas to include head, uncinata process, body, and tail.
- Long distal aorta with diameter measurement.
- \*Transverse liver to include hepatic veins. It may be necessary to take more than one image so that all three hepatic veins are seen.
- \*Transverse image of the liver to include the portal vein.
- \*Longitudinal liver to include:
  - Left lobe of liver with prox. aorta.
  - Left lobe of liver with left portal vein.
  - Liver with IVC labeled.
  - Liver with right portal vein.
  - Right lobe of liver / right kidney interface.
- Main portal vein with color Doppler as it enters the liver demonstrating the direction of blood flow (into or out of the liver).
- Gallbladder: at least three images to include long and transverse supine and long LLD.
- Color Doppler image of the gallbladder wall if the wall is thickened.
- Long CHD: one image with internal diameter measurement.
- Long CBD: one image with internal diameter measurement.
- Three longitudinal images of right kidney: mid, medial, and lateral with maximum renal length measured.
- Three transverse image of right kidney: upper, mid (to include renal pelvis), lower.
- Three longitudinal images of left kidney: mid, medial, and lateral with maximum renal length measured.
- Three transverse images of left kidney: upper, mid (to include renal pelvis), lower.
- Long spleen with maximum length measured.
- Transverse spleen with transverse and AP measurement.
- Long spleen / left kidney interface (when possible).
- \*When the indication for the exam is surveillance for HCC (hepatocellular carcinoma) a Long spleen with maximum length measured.
- Transverse spleen with transverse and AP measurement.
- Long spleen / left kidney interface (when possible).

**This represents the normal complete abdominal ultrasound exam. Additional images may be necessary for proper documentation.**