



Fire Department Screening FEMALE Sonographer Scanning Cheat Sheet

Fire Department Ultrasound Screening Overview

Instructions for Sonographers

Firefighters face a significantly increased risk of developing certain cancers due to occupational exposure to carcinogens such as benzene, asbestos, diesel exhaust, PAHs, and formaldehyde. Research has shown elevated incidence rates of cancers including thyroid, liver, kidney, bladder, prostate, testicular, and lymphoma—with risk increasing alongside years of service.

This limited ultrasound screening protocol has been developed to support early detection of potentially life-threatening abnormalities in this high-risk population. While these protocols involve **fewer saved images** than a standard diagnostic exam, **your scanning technique should remain thorough and systematic**. The goal is to detect any suspicious findings that may warrant further evaluation.

Please note:

- For **FEMALE**, screening includes the **abdomen, thyroid, and pelvic**.
- ALL Images for each (abdomen, thyroid, and pelvis), will be performed under ONE study.
- Be sure to Change Study Type and Probes when appropriate for Correct Image Settings on your machine

Your role is critical in this preventive health effort. Careful, complete visualization of each organ—even when fewer images are captured—is essential. When in doubt, over-document. Always alert the reading physician of any concerning findings.

****Document pathology with and without measurement in two planes, Sag and Trv measuring the length, height, & width. Be sure to also include images with and without color Doppler.**

Document all required images plus additional images or cine clips of any areas that appear atypical, leaving final interpretation to the radiologist.



THYROID SCREENING :

Required Pre-Procedure Prep and Instructions:

- Obtain a detailed patient history including, but not limited to symptoms, thyroid medication usage, and previous thyroid surgery.
- Patient will lay supine without a pillow to hyperextend his/her neck.
- Only measure 3 largest nodules on each lobe.

Proper Probe: Linear array probe with a frequency of 7-14MHz that has tri-duplex capabilities.

Images:

1. Rt Transverse thyroid mid with measurement (width)
 - a. *Sweep through superior to inferior to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.*
2. Rt Transverse thyroid with color Doppler
3. Rt Sagittal thyroid mid with measurements (length and height)
 - a. *Sweep through medial to lateral to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.*
4. Rt Sagittal thyroid mid with color Doppler
5. LT Transverse thyroid mid with measurement (width)
 - a. *Sweep through superior to inferior to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.*
6. LT Transverse thyroid with color Doppler
7. LT Sagittal thyroid mid with measurements (length and height)
 - a. *Sweep through medial to lateral to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.*
8. LT Sagittal thyroid mid with color Doppler
9. Trv Isthmus w/measurement (A/P measurement)
10. Right and left thyroid dual image in transverse using extended field of view

ABDOMEN SCREENING :

Required Pre-Procedure Prep:

- NPO for 8 hours
- Obtain patient history including but not limited to symptoms and previous abdominal surgery.
- Instruct patient to lie supine, right lateral decubitus, and/or left lateral decubitus.

Proper Probe: Convex or sector probe with a frequency of 2.5 - 5 MHz that has tri-duplex capabilities.

Images:



11. Prox IVC with A/P measurement
 - a. Be sure to follow IVC to rule out thrombus
12. Mid Aorta Sag with A/P measurements (be sure to INCLUDE WALL in measurement)
 - a. Sweep through the entire aorta, prox to distal, to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.
13. Long Pancreas Head/Body
14. Long Pancreas Body/Tail
15. Lt Liver Sag to Mid portion (include inferior margin and aorta)
 - a. Sweep through Lt Lobe of Liver medial and Lateral to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.
16. R Liver Sag Measurement (at level of kidney comparison)
 - a. Sweep through the entire Rt Lobe of Liver dome to medial to lateral to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.
17. Rt Liver TRV mid portion (showing portal vein branches)
18. Rt Liver TRV inferior (at level of kidney comparison)
 - a. Sweep through the entire Rt Lobe of Liver superior to inferior to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.
19. Sag GB Supine Body
 - a. Sweep through GB entirely to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.
20. TRV GB Body
 - a. Sweep through GB entirely to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.
21. GB LLD Sag Body/Neck, add comment for Murphy Sign Yes or No
22. GB LLD Trv Body w/ measurement of anterior wall thickness (measurement should be of the anterior wall interface w/liver at thinnest portion. Note: an oblique angle can cause false thickening of the wall and exaggerated measurement)
23. CBD w/measurement
24. Rt Kidney Sag Mid with measurements (length and height, & Cortex)
 - a. Sweep through Kidney medial and lateral entirely to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.
25. Rt Kidney Sag Mid Add COLOR (adjust color scale or PRF to show good perfusion)
26. Rt Kidney TRV Mid w/measurement (width)
27. Rt Kidney TRV Mid w/color flow over hilum
 - a. Sweep through Kidney superior and inferior entirely to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.
28. Lt Kidney Sag Mid with measurements (length and height, & Cortex)
 - a. Sweep through Kidney medial and lateral entirely to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.
29. Lt Kidney Sag Mid Add COLOR (adjust color scale or PRF to show good perfusion)
30. Lt Kidney TRV Mid w/measurement (width)

31. Lt Kidney TRV Mid w/color flow over hilum
 - a. Sweep through Kidney superior and inferior entirely to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.
32. Spleen Sag w/measurement (length and height)
 - a. Sweep through the spleen entirely to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.
33. Spleen TRV w/measurement (width)
 - a. Sweep through the spleen entirely to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.

PELVIS SCREENING :

Required Pre-Procedure Prep:

- Obtain patient verbal consent prior to exam.
- Instruct the patient to drink fluids to fill her bladder for TA. Patients should be allowed to empty their bladders before TV.
- Obtain patient history including, but not limited to symptoms, parity, gravita, LMP, hormone regimens, and previous pelvic surgery.

Proper Probe: for TA exams, a curvilinear (convex) or vector probe 2.5 – 5 MHz. High Frequency endocavity probe should be used for TV exams.

Images:

1. Sag UT midline with measurement (length and height)
 - a. Sweep through the sag uterus entirely to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.
2. Sag UT midline focusing on endometrial stripe with measurements (A/P measurement)
3. Sagittal vagina/cervix
4. Transverse cervix/vagina
5. Transverse uterus mid with measurements (width)
 - a. Sweep through the uterus superior and inferior entirely to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.
6. Sagittal Rt adnexa w/Color on iliac vessels
7. Sagittal Rt ovary with measurements (length and height)
 - a. Sweep through the Sag Ovary entirely to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.
8. Sagittal Rt ovary with color flow
9. Rt Transverse ovary with measurements (width)



- a. *Sweep through the ovary superior to inferior entirely to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.*
- 10. Sagittal Lt adnexa w/Color on iliac vessels
- 11. Sagittal Lt ovary with measurements (length and height)
 - a. *Sweep through the Sag Ovary entirely to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.*
- 12. Sagittal Lt ovary with color flow
- 13. Lt Transverse ovary with measurements (width)
 - a. *Sweep through the ovary superior to inferior entirely to demonstrate complete visualization. If any area appears atypical, obtain additional images and Doppler, leaving interpretation to the radiologist.*
- 14. Midline Sag UT

*****Additional images to be taken documenting any pathology or abnormalities***

*****Report any findings on your Comment section in the Report page on the machine using proper sonographic terminology.***

*****Refer to COMPLETE Protocols for Common Pathologies for these exams***