Title: Current Use and Barriers to Point-of-Care Ultrasound in Rheumatology: A National Survey of VA Medical Centers

Authors:

Ayesha Iqbal, MD[1,2] (aiqbal@emory.edu)

Madiha Ahmad, MD[1,2] (madiha.t.ahmad@emory.edu)

Kevin J. Murray, DO[3,4] (Kevin.Murray1@va.gov) (ORCID: 0009-0007-1228-1806)

Jison Sim, DO[1,2] (jison.sim@emory.edu)

Terry J.S. Lund, MD[5,6] (Terry.Lund@va.gov) (ORICID: 0009-0004-2005-4396)

Anthony J. Andrade, MD[5,6] (Anthony.Andrade@va.gov) (ORCID: 0009-0001-6612-8408)

Ariadna Perez-Sanchez, MD[6] (perezsanchez@uthscsa.edu) (ORCID: 0009-0009-4615-2812)

Michael J. Mader, MS[7] (Michael.Mader2@va.gov) (ORCID: 0000-0002-0341-0641)

Elizabeth K. Haro, MPH[5,7] (haro@uthscsa.edu)

Jason P. Williams, MD[1,8] (jason.phillip.wiliams@gmail.com)

Robert Nathanson, MD[5,6] (nathansonr3@uthscsa.edu) (ORCID: 0000-0002-4443-7525)

Nilam J. Soni, MD MS[5,6,9] (sonin@uthscsa.edu) (ORCID: 0000-0002-8460-0323)

Affiliations:

(1) Atlanta VA Medical Center, Medicine Service, Atlanta, Georgia, USA

(2) Emory School of Medicine, Division of Rheumatology, Atlanta, Georgia, USA

(3) Louis Stokes Cleveland VA Medical Center, Medicine Service, Cleveland, Ohio, USA

(4) Case Western Reserve University School of Medicine, Department of Medicine, Cleveland, Ohio, USA

(5) South Texas Veterans Health Care System, Medicine Service, San Antonio, Texas, USA

(6) University of Texas Health San Antonio, Division of Hospital Medicine, San Antonio, Texas, USA

(7) South Texas Veterans Health Care System, Research Service, San Antonio, Texas, USA

(8) Emory School of Medicine, Division of Hospital Medicine, Atlanta, Georgia, USA

(9) University of Texas Health San Antonio, Division of Pulmonary Diseases & Critical Care Medicine, San Antonio, Texas, USA

Corresponding Author:

Nilam J. Soni, MD

Professor of Medicine

University of Texas Health San Antonio

7703 Floyd Curl Drive, MC 7885, San Antonio, TX 78229

sonin@uthscsa.edu

(210) 701-9953 cell

2019 VHA Point of Care Ultrasound (POCUS) Survey – Chief of Staff

The Office of Patient Care Services periodically surveys the programs it administers to obtain information for stakeholders that is not readily available through other means. The purpose of this survey is to:

1. Assess the current state of POCUS in acute care settings in VHA,
2. Assess POCUS training needs across specialties, and
3. Compare data/explore relationships that may be related to POCUS.

The VHA defines **Point of Care Ultrasound** as:

> *"Point of Care Ultrasound is defined as a goal-directed, bedside ultrasound examination performed by a healthcare provider to answer a specific diagnostic question or to guide performance of an invasive procedure."* – Reference: *Point of Care Ultrasound, 1st edition.*

Respondent: Chief of Staff or designated representative.

Key Instructions:

1. In some cases, one management team is responsible for more than one VA Hospital. The ***Chief of Staff or designee*** should submit one survey response ***for each*** VA Hospital under their area of responsibility.

2. Respondents must identify the Service or Section Chief/Designee who will submit a follow-up survey later in the year for ***each individual*** service or section in existence at your facility, in question nine.

This survey takes approximately 15 minutes to complete but may take additional time to gather the appropriate information.

Provide the name of the individual who should be contacted if clarification of responses is needed.

VISN Number: (Select from list provided: 1 – 23)

Facility Name: (Select from list provided)

Point of Contact information (Person completing the survey)

Name of person completing this survey_____Title_____

Phone Number (including area code)_____Extension_____

VA Email (user@va.gov) _____

Point of Care Ultrasound (POCUS) definition: "Point of Care Ultrasound is defined as a goal-directed, bedside ultrasound examination performed by a healthcare provider to answer a specific diagnostic question or to guide performance of an invasive procedure." – Reference: *Point of Care Ultrasound, 1st edition.*

1. Is Point of Care Ultrasound (POCUS) training desired at your facility?
   ( ) Yes
   ( ) No
   If yes,
   a. *For each body system below*, select the **diagnostic and procedural** POCUS **training** modules your staff could benefit from.

Body System	(For each specialty below, you must choose at least one response)	
a. Cardiac	[ ] Pericardial Effusion [ ] Left Ventricular Function [ ] Venous Mapping [ ] Volume Status (Inferior Vena Cava (IVC)/Internal Jugular (IJ))	[ ] Advanced Hemodynamic Measurements (e.g., cardiac output, stroke volume) [ ] Pericardiocentesis [ ] None of the above
b. Pulmonary	[ ] Pleural Effusion [ ] Pneumothorax [ ] Pulmonary Edema [ ] Pneumonia	[ ] Thoracentesis [ ] Chest Tube [ ] Endotracheal Intubation [ ] None of the above
c. Gastrointestinal (GI)	[ ] Biliary [ ] Peritoneal Fluid [ ] FAST [ ] Hernia [ ] Small Bowel Obstruction	[ ] Appendicitis [ ] Pneumoperitoneum [ ] Paracentesis [ ] Liver Biopsy [ ] None of the above
d. Urinary	[ ] Hydronephrosis [ ] Nephrolithiasis [ ] Urinary Retention [ ] Bladder [ ] Prostate	[ ] Prostate Biopsy [ ] Suprapubic Catheter [ ] Nephrostomy Tube [ ] None of the above
e. Gynecological	[ ] Intrauterine Pregnancy [ ] Uterus [ ] Ovaries	[ ] Intrauterine Device (IUD) Insertion [ ] None of the above
f. Vascular	[ ] Abdominal Aortic Aneurism (AAA) [ ] Deep Vein Thrombosis (DVT) [ ] Arterial Flow [ ] Peripheral IV Access [ ] Central Line Placement	[ ] Peripherally Inserted Central Catheter (PICC) Placement [ ] Arterial Line Placement [ ] Intravascular Ultrasound [ ] None of the above
g. Ocular/Neurologic	[ ] Optic Nerve Sheath Diameter [ ] Eye – Posterior Chamber (i.e., retinal detachment, vitreous detachment, etc.)	[ ] Peripheral Nerve Blocks [ ] Not of the above

Question 3 (continued)

h. Musculoskeletal/Soft Tissue	[ ] Fractures [ ] Tendinopathies [ ] Shoulder/Rotator Cuff [ ] Cellulitis [ ] Foreign Body [ ] Abscess [ ] Joint Effusion [ ] Synovitis [ ] Bursitis	[ ] Lymph Nodes [ ] Joint Injection [ ] Bursa Injection [ ] Tendon Injection [ ] Foreign Body Removal [ ] Abscess Drainage [ ] Arthrocentesis [ ] Lymph Node Biopsy [ ] None of the above
i. Other	[ ] Thyroid Gland [ ] Parathyroid Glands [ ] Neck Mass [ ] Other *diagnostic training modules*, please specify:_____	[ ] Thyroid Biopsy [ ] Breast Biopsy [ ] Lumbar Puncture [ ] Other *procedural training modules*, please specify: _____ [ ] None of the above

2. What are the barriers to use of POCUS in your facility?
   (check all that apply)

   [ ] Lack of trained providers
   [ ] Lack of ultrasound equipment
   [ ] Lack of funding for provider time for training
   [ ] Lack of funding for staff time for training
   [ ] Lack of funding for simulation space
   [ ] Lack of funding for travel
   [ ] Lack of funding for ultrasound equipment
   [ ] Lack of training opportunities
   [ ] Lack of privileging criteria
   [ ] Lack of image archiving
   [ ] Lack of standard reporting form
   [ ] No clinician champion
   [ ] Lack of facility leadership support
   [ ] Lack of service/section leadership support
   [ ] No perceived benefit to using POCUS
   [ ] Other, please specify:_____
   [ ] No barriers

3. Does your facility have policies regarding use of POCUS?
   ( ) Yes
   ( ) No
   If yes,
   a. Specify which policies are in place at your facility:
      (check all that apply)
      [ ] Policies regarding use by clinicians (i.e., non-radiologists, non -cardiologists)
      [ ] Policies regarding ultrasound equipment maintenance
      [ ] Policies regarding documentation
      [ ] Policies regarding image archiving
      [ ] Policies regarding privileging of clinicians
      [ ] Policies regarding supervision of trainees

Competency

4. Does your facility have a formal credentialing/privileging process to perform specific POCUS exams?
   ( ) Yes
   ( ) No

5. Does your facility require ***initial*** demonstration of individual provider competency in POCUS to grant privileges?
   ( ) Yes
   ( ) No

If yes,

a. Choose the initial competency demonstration methods:
(check all that apply)
[ ] Attestation/verification of basic competency obtained during graduate medical education training program (Residency/Fellowship)
[ ] Completion of an accredited POCUS continuing medical education (CME) course with hands-on sessions
[ ] Demonstrated/tracked at academic affiliate
[ ] Documented minimum number of cases (e.g., 25 cases per application)
[ ] Focused Professional Practice Evaluation (FPPE) (Prospective, Concurrent, Retrospective)
[ ] Live proctoring
[ ] Personal attestation of basic competency
[ ] Simulation demonstration
[ ] Other, please specify:_____

6. Does your facility require ***ongoing*** demonstration of individual provider competency in POCUS to maintain privileges?
( ) Yes
( ) No

If yes,

a. Choose the demonstration methods of providers' competency:
(check all that apply)
[ ] Attestation/verification of competency from supervisor/service chief
[ ] Completed/tracked at academic affiliate
[ ] Documented minimum number of cases per reappointment cycle (e.g., 5 cases per application)
[ ] Live proctoring
[ ] Ongoing Professional Practice Evaluation (OPPE) (Prospective, Concurrent, Retrospective)
[ ] Personal attestation of competency
[ ] Simulation demonstration
[ ] Other, please specify: _____

Travel/Training Support

7. Would you be in favor of physicians attending a National VA POCUS course (e.g., a 3-day National VA POCUS course in Orlando at the VA National Simulation Center or a regional VA simulation center)?
( ) Yes
( ) No

If yes,

a. What type of training opportunities currently exist at or nearby your facility?
(check all that apply)
[ ] Onsite CME course
[ ] Offsite CME course sponsored by VA
[ ] Non-VA sponsored (e.g., academic affiliation, self-sponsored, corporate sponsor)
[ ] Other, please specify:_____
[ ] I don't know

Question 8 - Specific provisions would be required:

1) Educational space for lectures and hands-on practice,
2) Live models (may be volunteers or paid human ultrasound models), and
3) Ultrasound machines (either owned or loaned).

8. Would you support an onsite POCUS training course for physicians at your facility?
(choose one)
( ) Yes
( ) No
( ) Maybe, please explain_____

Clinical Services

9. Select all of the clinical services or units that exist in your facility.

(Person who will actually complete the follow-up Service or Section Chief survey.)

(check all that apply)	***Service or Section Chief/Designee Name***	**VA Email**	**Phone Number (including area code)**	**Extension**
[ ] MICU				
[ ] SICU				
[ ] CCU				
[ ] MICU & CCU				
[ ] MICU & SICU (Mixed)				
[ ] Specialty ICU (Includes Transplant)				
[ ] Emergency Department				
[ ] Urgent Care				
[ ] Hospital Medicine				
[ ] Acute Care Medicine				
[ ] Anesthesiology				
[ ] Dermatology				
[ ] Endocrinology				
[ ] Eye/Ophthalmology				
[ ] Gastroenterology				
[ ] Geriatrics & Extended Care				
[ ] Infectious Disease				
[ ] Nephrology				
[ ] Neurology				
[ ] Neurosurgery				
[ ] Oncology				
[ ] Orthopedics				
[ ] Pain Management – General				
[ ] Physical Medicine and Rehabilitation (PM&R)				
[ ] Pathology & Laboratory Medicine				
[ ] Podiatry				
[ ] Primary Care				
[ ] Pulmonary				
[ ] Rheumatology				
[ ] Surgery (General)				
[ ] Spinal Cord Injury				
[ ] Urology				
[ ] Vascular Surgery				
[ ] Women's Health				
[ ] None				

10. Please provide any additional comments or clarification about your survey responses here. *(optional)*

_____

_____

_____

Thank you for your time and cooperation.

Please direct any questions to Edward O'Brien, Management Analyst, or Brandy Drum, Project Manager, HAIG, at 414-384-2000, Ext. 42354.

2019 VHA Point-of-Care Ultrasound (POCUS) Survey – Service or Section Chief

The Office of Patient Care Services periodically surveys the programs it administers to obtain information that is, or may be of, importance to stakeholders not readily available through other means.

> ***Point-of-Care Ultrasound (POCUS) definition:*** *"Point-of-Care Ultrasound is defined as a goal-directed, bedside ultrasound examination performed by a healthcare provider to answer a specific diagnostic question or to guide performance of an invasive procedure." – Reference: Point-of-Care Ultrasound, 1st edition.*

The purpose of this survey is to assess the current state of POCUS in acute care settings in Veterans Health Administration (VHA), assess POCUS training needs across specialties, and compare data, and explore relationships that may be related to POCUS.

This survey takes approximately 15 minutes to complete online but will take additional time to gather the appropriate information using this worksheet.

Point-of-Care Ultrasound (POCUS) definition: *"Point-of-Care Ultrasound is defined as a goal-directed, bedside ultrasound examination performed by a healthcare provider to answer a specific diagnostic question or to guide performance of an invasive procedure." – Reference: Point-of-Care Ultrasound, 1st edition.*

1. Is **Point-of-Care Ultrasound** used in your Service or Section?
   ( ) Yes
   ( ) No
   If yes,
   a. How many physicians deliver direct patient care within your Service or Section?
   _____ (Head Count)

   a1. Of the **total** physicians that deliver direct patient care, estimate the percentage that use ANY procedural or diagnostic POCUS applications._____ (%)

   b. Select the **diagnostic and procedural** POCUS applications routinely used by your Service or Section *and then* estimate the percentage of physicians that currently use POCUS for the diagnostic and procedural applications chosen.

( ) Few 1-25% ( ) Some 26-50% ( ) Many 51-75% ( ) Most 76-99% ( ) All 100%

	choose all that apply	b1. % of Physicians	choose all that apply	b1. % of Physicians
Cardiac	[ ] Pericardial Effusion [ ] Left Ventricular Function [ ] Venous Mapping [ ] Volume Status (Inferior Vena Cava (IVC)/Internal Jugular (IJ))	_____ % _____ % _____ % _____ %	[ ] Advanced Hemodynamic Measurements (e.g., cardiac output, stroke volume) [ ] Pericardiocentesis	_____ % _____ %
Pulmonary	[ ] Pleural Effusion [ ] Pneumothorax [ ] Pulmonary Edema [ ] Pneumonia	_____ % _____ % _____ % _____ %	[ ] Thoracentesis [ ] Chest Tube [ ] Endotracheal Intubation	_____ % _____ % _____ %
Gastrointestinal (GI)	[ ] Biliary [ ] Peritoneal Fluid [ ] Focused Assessment with Sonography for Trauma (FAST) [ ] Hernia [ ] Small Bowel Obstruction	_____ % _____ % _____ % _____ % _____ %	[ ] Appendicitis [ ] Pneumoperitoneum [ ] Paracentesis [ ] Liver Biopsy	_____ % _____ % _____ % _____ %
Urinary	[ ] Hydronephrosis [ ] Nephrolithiasis [ ] Urinary Retention [ ] Bladder	_____ % _____ % _____ % _____ %	[ ] Prostate [ ] Prostate Biopsy [ ] Suprapubic Catheter [ ] Nephrostomy Tube	_____ % _____ % _____ % _____ %
Gynecological	[ ] Intrauterine Pregnancy [ ] Uterus	_ % _____ %	[ ] Ovaries [ ] Intrauterine Device (IUD) Insertion	_____ % _____ %
Vascular	[ ] Abdominal Aortic Aneurism (AAA) [ ] Deep Vein Thrombosis (DVT) [ ] Arterial Flow [ ] Peripheral IV Access	_____ % _____ % _____ % _____ %	[ ] Central Line Placement [ ] Peripherally Inserted Central Catheter (PICC) Placement [ ] Arterial Line Placement [ ] Intravascular Ultrasound	_____ % _____ % _____ % _____ %

Question 1b. (continued)

( ) Few 1-25% ( ) Some 26-50% ( ) Many 51-75% ( ) Most 76-99% ( ) All 100%

	choose all that apply	b1. % of Physicians	choose all that apply	b1. % of Physicians
Ocular/ Neurologic	[ ] Optic Nerve Sheath Diameter [ ] Eye – Posterior Chamber (i.e., retinal detachment, vitreous detachment, etc.)	_____ % _____ % _____ %	[ ] Peripheral Nerve Blocks	_____ %
Musculoskeletal/ Soft Tissue	[ ] Fractures [ ] Tendinopathies [ ] Shoulder/Rotator Cuff [ ] Cellulitis [ ] Foreign Body [ ] Abscess [ ] Joint Effusion [ ] Synovitis [ ] Bursitis	_____ % _____ % _____ % _____ % _____ % _____ % _____ % _____ % _____ %	[ ] Lymph Nodes [ ] Joint Injection [ ] Bursa Injection [ ] Tendon Injection [ ] Foreign Body Removal [ ] Abscess Drainage [ ] Arthrocentesis [ ] Lymph Node Biopsy	_____ % _____ % _____ % _____ % _____ % _____ % _____ % _____ %
Other	[ ] Thyroid Gland [ ] Parathyroid Glands [ ] Neck Mass [ ] Other *diagnostic applications used*, please specify: _____	_____ % _____ % _____ % _____ %	[ ] Thyroid Biopsy [ ] Breast Biopsy [ ] Lumbar Puncture [ ] Other *procedural applications used*, please specify: _____	_____ % _____ % _____ % _____ %

POCUS Barriers

2. What are the barriers to the use of POCUS in your Service or Section?
(check all that apply)

[ ] Lack of trained Physicians
[ ] Lack of ultrasound equipment
[ ] Lack of funding for physician time for training
[ ] Lack of funding for support staff time for training
[ ] Lack of funding for simulation space
[ ] Lack of funding for travel
[ ] Lack of funding for ultrasound equipment
[ ] Lack of training opportunities
[ ] Lack of privileging criteria
[ ] Lack of image archiving
[ ] Lack of standard reporting form
[ ] No clinician champion
[ ] Lack of facility leadership support
[ ] Lack of service/section leadership support
[ ] No perceived benefit to using POCUS
[ ] Other, please specify: _____
[ ] No barriers

Diagnostic and Procedural Training Modules

3. Is POCUS training desired by physicians in your Service or Section? *(If 'No' to Q1 answer Q3 and skip to Q5)*
( ) Yes
( ) No

If yes,

a. For each body system below, select the diagnostic and procedural POCUS training modules your staff could benefit from: (check all that apply for each body system)

Body System		
Cardiac	[ ] Pericardial Effusion [ ] Left Ventricular Function [ ] Venous Mapping [ ] Volume Status (Inferior Vena Cava (IVC)/Internal Jugular (IJ))	[ ] Advanced Hemodynamic Measurements (e.g., cardiac output, stroke volume) [ ] Pericardiocentesis
Pulmonary	[ ] Pleural Effusion [ ] Pneumothorax [ ] Pulmonary Edema [ ] Pneumonia	[ ] Thoracentesis [ ] Chest Tube [ ] Endotracheal Intubation
Gastrointestinal (GI)	[ ] Biliary [ ] Peritoneal Fluid [ ] FAST [ ] Hernia [ ] Small Bowel Obstruction	[ ] Appendicitis [ ] Pneumoperitoneum [ ] Paracentesis [ ] Liver Biopsy
Urinary	[ ] Hydronephrosis [ ] Nephrolithiasis [ ] Urinary Retention [ ] Bladder	[ ] Prostate [ ] Prostate Biopsy [ ] Suprapubic Catheter [ ] Nephrostomy Tube
GYN	[ ] Intrauterine Pregnancy [ ] Uterus [ ] Ovaries	[ ] Intrauterine Device (IUD) Insertion
Vascular	[ ] Abdominal Aortic Aneurism (AAA) [ ] Deep Vein Thrombosis (DVT) [ ] Arterial Flow [ ] Peripheral IV Access	[ ] Central Line Placement [ ] Peripherally Inserted Central Catheter (PICC) Placement [ ] Arterial Line Placement [ ] Intravascular Ultrasound
Ocular/Neurologic	[ ] Optic Nerve Sheath Diameter [ ] Eye – Posterior Chamber (i.e., retinal detachment, vitreous detachment, etc.)	[ ] Peripheral Nerve Blocks
Musculoskeletal/Soft Tissue	[ ] Fractures [ ] Tendinopathies [ ] Shoulder/Rotator Cuff [ ] Cellulitis [ ] Foreign Body [ ] Abscess [ ] Joint Effusion [ ] Synovitis [ ] Bursitis	[ ] Lymph Nodes [ ] Joint Injection [ ] Bursa Injection [ ] Tendon Injection [ ] Foreign Body Removal [ ] Abscess Drainage [ ] Arthrocentesis [ ] Lymph Node Biopsy
Other	[ ] Thyroid Gland [ ] Parathyroid Glands [ ] Neck Mass [ ] Other *diagnostic training modules*, please specify:	[ ] Thyroid Biopsy [ ] Breast Biopsy [ ] Lumbar Puncture [ ] Other *procedural training modules*, please specify:

POCUS Brands used

4. What brand of ultrasound machine(s) is/are being used for POCUS within your Service or Section?

(check all that apply)	a. Indicate the type of device: (choose all that apply for selected units) [ ] **H**andheld (i.e., pocket device) [ ] **S**mall Cart based (i.e., laptop style) [ ] **L**arge Cart based (i.e., radiology style)		
[ ] Aloka	H	S	L
[ ] Bard	H	S	L
[ ] BK Medical	H	S	L
[ ] Butterfly IQ	H	S	L
[ ] Clarius	H	S	L
[ ] Ellex	H	S	L
[ ] Esaote	H	S	L
[ ] GE	H	S	L
[ ] Hitachi	H	S	L
[ ] Mindray	H	S	L
[ ] Olympus	H	S	L
[ ] Philips	H	S	L
[ ] Samsung	H	S	L
[ ] Siemens	H	S	L
[ ] SiteRite	H	S	L
[ ] Sonomet	H	S	L
[ ] Sonosite/Fujifilm	H	S	L
[ ] Terason	H	S	L
[ ] Toshiba	H	S	L
[ ] Verathon	H	S	L
[ ] Zonare	H	S	L
[ ] Brand Unknown	H	S	L
[ ] None *(continue to Q5)*			

Device types by POCUS brand and number available

For each Brand and Type of Device chosen,

4a1. Indicate the number of ultrasound machines that are dedicated/shared/provided by physician or facility:

		(Number of Units – If none, enter '0')			
	(Do not count any unit more than once.) Complete for each Device Type Chosen (check all that apply)	Dedicated to this Service or Section	Shared with other departments	Provided by physician	Provided by facility
Aloka	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Bard	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
BK Medical	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				

Question 4a1. (continued)

Complete for each Device Type Chosen (check all that apply)		(Number of Units – If none, enter '0') (Do not count any unit more than once.) Dedicated to this Service or Section	Shared with other departments	Provided by practitioner	Provided by facility
Butterfly IQ	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Clarius	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Ellex	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Esaote	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
GE	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Hitachi	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Mindray	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Olympus	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Philips	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Samsung	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Siemens	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
SiteRite	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Sonomet	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				

Question 4a1. (continued)

Complete for each Device Type Chosen (check all that apply)		(Number of Units – If none, enter '0') (Do not count any unit more than once.) Dedicated to this Service or Section	Shared with other departments	Provided by practitioner	Provided by facility
Sonosite/ Fujufilm	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Terason	Handheld (i.e., pocket device)				
	[Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Toshiba	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Verathon	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Zonare	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				
Brand Unknown	Handheld (i.e., pocket device)				
	Small Cart based (i.e., laptop style)				
	Large Cart based (i.e., radiology style)				

POCUS Policies

5. Are there **facility-wide** policies regarding use of POCUS? *(If 'No' to Q1 answer Q5 then skip to Q14)*
   ( ) Yes
   ( ) No
   If yes,
   a. Specify which policies are in place at your facility.
   (check all that apply)
   [ ] Policies regarding use by clinicians
   [ ] Policies regarding ultrasound equipment maintenance
   [ ] Policies regarding documentation
   [ ] Policies regarding image archiving
   [ ] Policies regarding privileging of clinicians
   [ ] I'm not sure

6. Does your Service or Section have its own specific policies regarding use of POCUS?
   ( ) Yes
   ( ) No
   If yes,
   a. Specify which policies are in place for your Service or Section.
   (check all that apply)
   [ ] Policies regarding use by clinicians
   [ ] Policies regarding ultrasound equipment maintenance
   [ ] Policies regarding documentation
   [ ] Policies regarding image archiving
   [ ] Policies regarding privileging of clinicians
   [ ] Other, please specify:_____
   [ ] I'm not sure

Quality Assurance, Trainees

7. Do trainees rotate with Physicians in your Service or Section?
( ) Yes
( ) No
If yes,
a. Specify type(s) of trainees.
(check all that apply)
[ ] Medical students
[ ] Residents
[ ] Fellows
[ ] Nursing students
[ ] Physician Assistant (PA) students
[ ] Advance Practice Registered Nurse (APRN) Students
[ ] Other

b. For which of these trainee types does your Service or Section provide POCUS training?
(check all that apply)
[ ] Medical students
[ ] Residents
[ ] Fellows
[ ] Nursing students
[ ] PA students
[ ] APRN students
[ ] Other
[ ] None of the above

POCUS Documentation/Workload

8. Are POCUS images recorded and saved within your Service or Section?
(choose one)
( ) Yes
( ) No
( ) I don't know
If yes,
a. Where are the POCUS images saved?
(check all that apply)
[ ] On the machine
[ ] Electronic medical record
[ ] VHA server
[ ] Non-VHA server
[ ] Other, please specify:_____
[ ] I don't know

b. Are these recordings reviewed by a second level, (i.e., POCUS designee/expert)?
(choose one)
( ) Yes
( ) No
( ) I don't know

c. Is there a protocol or agreement for preliminary vs. official interpretation?
(choose one)
( ) Yes
( ) No
( ) I don't know

9. Does your Service or Section perform periodic quality assurance (QA) reviews of POCUS cases?
   (choose one)
   ( ) Yes
   ( ) No
   ( ) I don't know
   If yes,
   a. Choose the review methods:
      (check all that apply)
      [ ] Retrospective review of cases
      [ ] Demonstration of skills using live models
      [ ] Demonstration of skills using simulation
      [ ] Other, please specify: _____
   If no or I don't know,
   b. Would you be interested in establishing a QA program in your Service or Section?
      (choose one)
      ( ) Yes
      ( ) No
      ( ) I'm not sure at this time

10. How is workload captured for POCUS in your Service or Section?
    (check all that apply)
    [ ] Encounters are generated and Physicians select CPT codes
    [ ] Coders review documentation and select appropriate codes for encounters
    [ ] Workload is not captured for POCUS
    [ ] Other, please specify: _____
    [ ] I don't know

Training

11. What percentage of physicians in your Service or Section have had formal training through a continuing medical education (CME) workshop in POCUS?
    (choose one)
    ( ) None (0%)
    ( ) Few (1-25%)
    ( ) Some (26-50%)
    ( ) Many (51-75%)
    ( ) Most (76-99%)
    ( ) All (100%)
    ( ) I don't know

12. What percentage of physicians in your Service or Section received POCUS training as part of their residency or fellowship training?
    (choose one)
    ( ) None (0%)
    ( ) Few (1-25%)
    ( ) Some (26-50%)
    ( ) Many (51-75%)
    ( ) Most (76-99%)
    ( ) All (100%)
    ( ) I don't know

13. What percentage of physicians in your Service or Section have completed a separate ultrasound or POCUS fellowship?
(choose one)
( ) None (0%)
( ) Few (1-25%)
( ) Some (26-50%)
( ) Many (51-75%)
( ) Most (76-99%)
( ) All (100%)
( ) I don't know

POCUS Process for Training

14. Does your facility have a process to obtain or provide POCUS training for the physicians that desire training in your Service or Section?
( ) Yes
( ) No
If yes,
a. What type of training opportunities currently exist at or nearby your facility?
(check all that apply)
[ ] Onsite CME course
[ ] Offsite CME course sponsored by VHA
[ ] Non-VHA sponsored (e.g., academic affiliation, self-sponsored, corporate sponsor)
[ ] Other, please specify:_____
[ ] I don't know

Travel Support and Comments

15. Is your VHA facility's Simulation Center/Program currently offering POCUS training?
(choose one)
( ) Yes
( ) No
( ) No center/program exists at our facility
( ) I don't know

16. Would you be in favor of physicians in your Service or Section attending a National VHA POCUS course (e.g., a 3-day National VA POCUS course in Orlando at the VA National Simulation Center or a regional VA simulation center)?
(choose one)
( ) Yes
( ) No
If yes,
a. For physicians in your Service or Section that want to attend a National VHA POCUS course, which of the following would you support?
(choose all that apply)
[ ] Cost of travel
[ ] Advocate for facility to fund travel
[ ] Release from clinical duties
[ ] Other, please specify: _____

When answering question 17 please take into consideration these specific provisions that would be required for onsite POCUS training.
1) Educational space for lectures and hands-on practice,
2) Live models (may be volunteers or paid human ultrasound models), and
3) Ultrasound machines (either owned or loaned).

17. Would you support an onsite POCUS training course for physicians at your facility?
(choose one)
( ) Yes
( ) No
( ) Maybe, please explain: _____

18. Please provide any additional comments or clarification about your survey responses here. (optional)
_____

Thank you for your time and cooperation.

Please direct any questions to Edward O'Brien, Program Analyst, or Brandy Drum, Project Manager, HAIG, at 414-384-2000, Ext. 42354.

Supplemental Table S1. Current use and Desired Training of Diagnostic and Procedural Point-of-care Ultrasound Applications in Rheumatology (N=80)

45 Rheumatology Groups (56%) Used ≥1 Point-of-care Ultrasound Application
55 Rheumatology Groups (69%) Desired Training

Application	Used	Desire for Training
Synovitis	**42**	**54**
Joint Effusion	**41**	**52**
Joint Injection	**35**	**50**
Arthrocentesis	**35**	**43**
Tendinopathies	**34**	**44**
Tendon Injection	**28**	**48**
Bursitis	**33**	**50**
Bursa Injection	**34**	**48**
Shoulder/Rotator Cuff	**27**	**44**
Cellulitis	**5**	**5**
Abscess	**2**	**5**
Abscess Drainage	**1**	**1**
Foreign Body	**2**	**4**
Foreign Body Removal	**2**	**2**
Lymph Nodes	**2**	**3**
Lymph Node Biopsy	**0**	**0**
Parotid Gland	**2**	**3**
Fractures	**1**	**3**
Urinary Retention	**0**	**0**
Hydronephrosis	**0**	**1**
Bladder	**0**	**1**
Nephrolithiasis	**0**	**0**
Prostate	**0**	**0**
Prostate Biopsy	**0**	**0**
Pulmonary Edema	**0**	**0**
Pleural Effusion	**0**	**0**
Pneumothorax	**0**	**0**
Pneumonia	**0**	**0**
Paracentesis	**0**	**0**
Thoracentesis	**0**	**0**
Chest Tube	**0**	**0**
Volume Status (Inferior Vena Cava/Internal Jugular)	**0**	**0**
Pericardial Effusion	**0**	**0**
Left Ventricular Function	**0**	**0**
Advanced Hemodynamic Measurements	**0**	**0**
Venous Mapping	**0**	**0**
Pericardiocentesis	**0**	**0**
Central Line Placement	**0**	**0**

Peripheral IV Access	**0**	**0**
Arterial Line Placement	**0**	**0**
Peripherally Inserted Central Catheter (PICC) Placement	**0**	**0**
Peritoneal Fluid	**0**	**0**
Biliary	**0**	**0**
Deep Vein Thrombosis (DVT)	**0**	**1**
Abdominal Aortic Aneurism (AAA)	**0**	**1**
Focused Assessment with Sonography for Trauma (FAST)	**0**	**0**
Lumbar Puncture	**0**	**1**
Small Bowel Obstruction	**0**	**0**
Hernia	**0**	**0**
Arterial Flow	**0**	**0**
Intravascular Ultrasound	**0**	**0**
Liver Biopsy	**0**	**0**
Breast Biopsy	**0**	**0**
Peripheral Nerve Blocks	**0**	**0**
Neck Mass	**0**	**0**
Thyroid Gland	**0**	**0**
Parathyroid Glands	**0**	**0**
Thyroid Biopsy	**0**	**0**
Pneumoperitoneum	**0**	**0**
Endotracheal Intubation	**0**	**0**
Eye-Posterior Chamber	**0**	**0**
Optic Nerve Sheath Diameter	**0**	**0**
Nephrostomy Tube	**0**	**0**
Suprapubic Catheter	**0**	**0**
Uterus	**0**	**0**
Ovaries	**0**	**0**
Intrauterine Pregnancy	**0**	**0**
Intrauterine Device Insertion	**0**	**0**
Appendicitis	**0**	**0**

Supplemental Table S2. Availability of POCUS Devices among POCUS User Groups

Number of POCUS Devices	POCUS User Groups
At least 2 dedicated devices	8 (18%)
1 dedicated device	31 (69%)
No dedicated devices but at least one shared device	5 (11%)
No devices available	1 (2%)

POCUS, point-of-care ultrasound

Note: Data were not collected from Rheumatology Service Chiefs who reported no POCUS use in their group.