

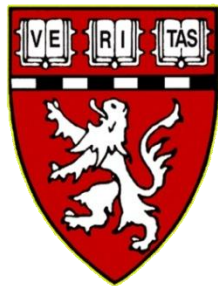
# Ultrasound in the NICU

## What the Neonatologist wants to Know:

# Point-of Care (POC) Ultrasound by the Neonatologist

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Boston, MA



# **Conflict of Interest Disclosure**

I have no financial relationships with any commercial entity producing healthcare-related products and/or services relevant to this presentation.

# Clinical Sonography

Gillman and Kirkpatrick *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine* 2012, **20**:18  
<http://www.sjtrem.com/content/20/1/18>



REVIEW

Open Access

## Portable bedside ultrasound: the visual stethoscope of the 21<sup>st</sup> century

Lawrence M Gillman<sup>1\*</sup> and Andrew W Kirkpatrick<sup>2</sup>

### Abstract

Over the past decade technological advances in the realm of ultrasound have allowed what was once a cumbersome and large machine to become essentially hand-held. This coupled with a greater understanding of lung sonography has revolutionized our bedside assessment of patients. Using ultrasound not as a diagnostic test, but instead as a component of the physical exam, may allow it to become the stethoscope of the 21<sup>st</sup> century.

**Keywords:** Point of care ultrasound, Physical exam, Pleural rub

Diagnostic, POC, Procedure Guidance

# History/Demographics of Who

- Geographic differences in who performs diagnostic US in NICU
  - Europe: Peds vs. Rad
  - Institution specific histories
    - specialty that initially picked it up remains in control
    - local specialty staffing and resources differ
- Changes in equipment
  - Machines have become smaller and portable
  - Image quality has improved
  - Cost has dramatically declined making inexpensive units available
- Residency/Fellowship training

## On the horizon

### An ultrasound device barely bigger than a smartphone

Ultrasound machines can take images (echocardiograms) of the heart's chambers, valves, and blood flow that rival CT and MRI scans for detail and clarity. But sometimes a more rapidly acquired echocardiogram serves a particular purpose better than one with all the “bells and whistles.”

New ultrasound devices that physicians can carry in a pocket now “compare favorably with the stethoscope as a tool to differentiate what’s normal from what’s not,” says Dr. Judy Mangion, associate director of the noninvasive cardiac laboratory at Harvard-affiliated Brigham and Women’s Hospital. They let doctors see on a flip screen what they previously could only hear and feel during a physical exam. And at about \$8,000 each, a hospital conceivably could give 25 doctors their own pocket-sized ultrasound device for the same cost as a single high-end machine.

The device can deliver useful images when time is of the essence or in situations that don’t justify a full-fledged ultrasound. Dr. Mangion uses hers to see how much fluid a heart failure patient is retaining, how well a recently replaced heart valve is working, or how well the heart’s chambers are pumping, to name just three applications.

#### Limits of the technology

As handy as they are, the small units will not replace full-sized machines anytime soon. They can’t deliver fine-tuned analyses of heart function, and most aren’t suitable for taking pictures of structures close to the body’s surface, such as the neck’s carotid arteries. Images from these devices can’t yet be stored in the digital archiving systems that enable doctors to share and compare pictures, nor can they be entered into a patient’s electronic health record.

The Echocardiography Lab at Brigham and Women’s Hospital is planning a study to compare handheld units with higher-end ultrasound equipment. But while researchers investigate whether these devices truly improve the practice of medicine, don’t expect your cardiologist to pull one out from his or her lab coat as part of your next heart check-up.

And if you’re healthy, your doctor *shouldn’t* use one. The FDA has restricted handheld ultrasound devices for use in people showing specific signs of disease or to monitor and follow up those already diagnosed with a specific condition.



Photo courtesy of GE Healthcare

## Lecturers

### Prof. Michael Riccabona

Department of Paediatric Radiology  
Graz University, Austria

### Prof. Veronica Donoghue

Children's University Hospital,  
Dublin 1 Ireland

### Prof. Alan Daneman

Department of Diagnostic Imaging  
Hospital for Sick Children  
University of Toronto, Canada

### Prof. George A. Taylor

Department of Radiology,  
Children's Hospital, Boston, USA

## Learning objectives of the Course

### Ultrasound imaging of neonatal abdomen

- To understand limits and usefulness of gastrointestinal tract, liver, spleen and pancreas ultrasound imaging
- In the practical session, imaging tests will be made to help participants understand many practical issues of diagnosis

### Ultrasound imaging of neonatal brain

- To become familiar with the different pathologic images of neonatal brain: morphology and haemodynamics
- In the practical session, imaging tests will be made to help participants understand many practical issues of diagnosis and the importance of ultrasound follow-up

### Ultrasound imaging of neonatal urogenital tract

- To become familiar with the different pathologic images of neonatal urogenital tract and with renal haemodynamics
- In the practical session, imaging tests will be made to help participants understand many practical issues of diagnosis and the importance of ultrasound follow-up

## Information

The theoretical-practical course is for paediatricians, neonatologists and paediatric radiologists and it is limited to 42 participants.

Practical sessions include tests for the participants and case discussions without direct examination of a baby. The language of the course is English.

### UEMS – European Union of Medical Specialists

UEMS credits will be applied for. They are valid all over Europe, the United States and Canada (reciprocity agreement with the American Medical Association).

Live educational activities, occurring outside of Canada, recognized by the UEMS-EACCME® for ECMEC are deemed to be Accredited Group Learning Activities (Section 1) as defined by the Maintenance of Certification Program of The Royal College of Physicians and Surgeons of Canada.

### CME – Continuing Medical Education (for Italian Participants only)

CME credits, requested to Ministry of Health, will be given to the participants of the course.

### Registration fee

Registration received by **18 January 2013**:  
€ 795.00 (VAT included)

Registration received by **11 March 2013**:  
€ 960.00 (VAT included)

No on site registration.

The fee includes course materials, a CD with the lessons, coffee break and lunch each day.

### Accommodation

AIM negotiated preferential rates with Residence Palazzo Ricasoli Hotel.

Double room double use € 150.00 per room per night, taxes and breakfast included.

Double room single use € 120.00 per room per night, taxes and breakfast included.

## Information

Please be informed that, a City Tax ("Tassa di soggiorno") has been applied for all Florentine hotels (but also to camping, guest houses, rooms for rent, residences, farm holidays with different taxation).

Hotel Palazzo Ricasoli requires a fee of 4 Euros per person, per night, to be paid at the check out directly to the hotel.

Make sure to have your reservation made by **18 January 2013**: after this date rooms could not be guaranteed. A receipt will be sent as confirmation of your reservation.

### Application

To make a registration and/or hotel reservation, please return the attached application form duly filled in to the Organizing Secretariat.

### Cancellation

Cancellation must be sent in writing. You will receive a 75% refund of the participation fee in case of cancellation before **18 February 2013**. After this date no refunds will be possible.

### Course endorsed by EFSUMB



### Course venue

Palazzo Ricasoli Polihotels

Via delle Mantellate, 2 - Florence, Italy

### Organizing Secretariat



AIM Group International  
Florence Office

Viale G. Mazzini, 70 - 50132 Florence, Italy  
Ph. +39 055 23388.1 - Fax +39 055 2480246  
www.aimgroupinternational.com  
ultrasound2013@aimgroup.eu

# 2013 Neonatal Ultrasound Course. Why, how and when an ultrasound image?

Florence, 18-21 March 2013  
Palazzo Ricasoli Polihotels

## PROGRAMME

### DIRECTOR

**Dr. Antonio La Torre**

Neonatology Department,  
AOU Careggi Hospital, Florence

# Sonography in the NICU

## International

- In many countries, the limiting steps are:
  - Access to equipment
  - Access to a physician
  - Access to a Radiologist
- There are many scenarios under which sonography is performed, e.g.
  - Neonatologists have always done HUS
  - Machine stationed in NICU for fEcho by certified Neonatologist

# Sonography in the NICU

## United States

- Most are in tertiary care setting with Radiologist supported services available
- Not all of these settings have Pediatric Radiologists
- Most of these settings would not be able to provide instantaneous service within minutes
- Most of these settings do not have equipment stationed in the NICU, and these patients are usually not mobile.



# POC Sonography in Medicine

- Specialties that use non-Radiologist imagers:
  - Cardiology
  - OB
  - ER
  - ICU (central vascular access, A-lines)
  - Urology (hydronephrosis)
  - Orthopedics (joint injections)
  - Ophthalmology
  - Anesthesia
- Medicare Part B US utilization rates: 2004 – 2009
  - 21% increase in utilization rate of non-cardiac US
  - 41% of 2009 POC US studies done by non-radiologists
  - Radiologists' US market share stable

# AHRQ Recommended Patient Safety Practices (2001)

- RCT (n=201)
- recommended dynamic, real-time US guidance during, as opposed to static guidance before cannulation.
  - IJ cannulation: improved success rate with both static (82%) and dynamic ultrasound (98%) compared with landmark methods (64%)
  - Dynamic vs. static improved success rates (98% vs. 82%)
  - 1<sup>st</sup> attempt success rates (62% vs. 50%)
  - mean # attempts (2.3 vs. 2.9)
  - mean time to cannulation (109 vs. 126 secs)

Pediatr Crit Care Med. 2011; 12(6): 667–674

Emerg Med J 2012; doi:10.1136/emered-2012-201652

# Common Problems in the NICU Evaluated with Sonography by the Radiologist

- Neuro
  - Screening for ICH and PVL
  - Monitoring evolution of ICH (including ICP)
  - Confirmation of prenatally suspected malformations or injuries
  - Evaluation for occult defects of the lower spine
- Renal/GU
  - Confirmation of prenatally suspected malformation, dysgenesis or obstruction
  - Assessment for obstruction of blood flow to or from the kidney in the setting of hypertension or hematuria
  - Suspicion for testicular torsion
  - Confirmation of bowel in inguinal hernia
- GI
  - Evaluation of biliary tree in the setting of cholestasis

# Acute clinical issues that might be aided by POC US

- fECHO/TNE
  - PDA significance
  - Response to inotropic agents
- Umbilical line tip placement
  - Reduction in radiation exposure
- Bladder catheterization or tap
- Pleural effusion drainage
- PICC and PIV placement
- Increased ICH requiring LP
- ETT placement

# Pros and Cons for Neonatologist

## PROS

- Knowledge of the patient's clinical history and needs
- Rapid return of information that can inform acute management
- Access optimized for non-mobile patients (timing, portable)
- Lower radiation exposure for line, tube placement

## CONS

- Lack of training in imaging
- Lack of knowledge of anatomy
- Lack of knowledge on physics of ultrasound
- Lack of technical knowledge regarding the machine
- Loss of control by Radiologist (QI, reporting, billing)
- Lack of access to machine
- Lack of technical support/service

# Potential Uses of POC US Proposed for the Neonatologist

- 1) Functional echocardiography (fECHO)/ Targeted Neonatal Echocardiography (TNE)
- 2) Localization of fluid collections for fluid withdrawal
  - a. Bladder
  - b. Pleural effusion
  - c. Ascites
- 3) Localization of UA/UVC and PICC line tips
- 4) Assistance in placing PICC and peripheral A-lines
- 5) Progression of ICP by RI
- 6) Other: ETT placement, pneumothorax detection

# Neonatologist vs. Cardiologist

- Neonatologist trained for 8 hours to perform POC US evaluation for presence of PDA
- 24 studies performed by Neonatologist prospectively read by Neonatologist and Pediatric Cardiologist.
- Readings compared to formal cardiac echo report

	Sensitivity (%) (95% CI)	Specificity (%) (95% CI)
Neonatologist	69 (49 – 89)	88 (67 – 99)
Pediatric Cardiologist	87 (67 – 98)	71 (29 – 96)

# Functional Echocardiography for the Neonatologist

## **fECHO**

1. Bedside use of cardiac ultrasound allows to longitudinally follow changes in
  - a) cardiac function
  - b) systemic and pulmonary blood flow and
  - c) clinically relevant organ perfusion
2. Hemodynamic data may provide clinical information that is different to the assumed underlying cardiovascular physiology

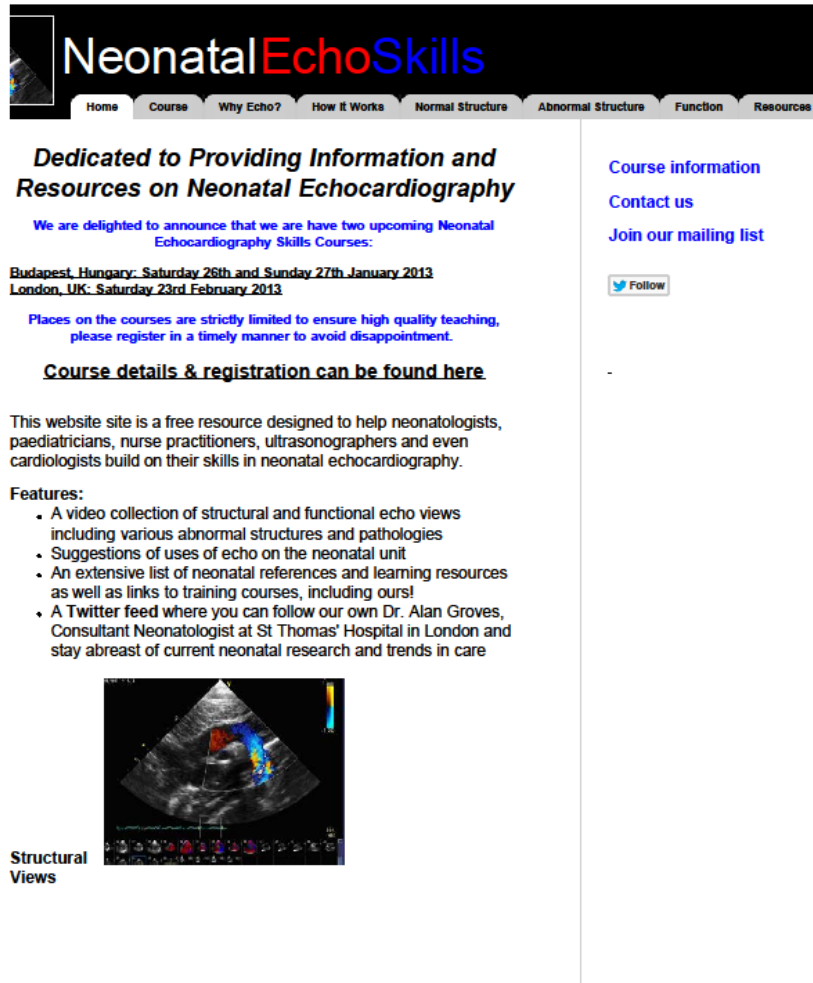


# fECHO

- To fulfill fECHO potential
  - Must be available at all times in NICU
  - Neonatologist must be appropriately trained
- Major issues
  - Training and accreditation
  - Maintenance of skills
  - Potential for misdiagnosis
- Concluded that close collaboration with Cardiologist essential: all patients followed by fECHO require formal structural survey

# Functional Echocardiography (fECHO) or Targeted Neonatal Echocardiography (TNE)

Neonatal Echo Skills



The screenshot shows the homepage of the Neonatal Echo Skills website. At the top, there is a navigation menu with links for Home, Course, Why Echo?, How it Works, Normal Structure, Abnormal Structure, Function, and Resources. The main heading reads "Dedicated to Providing Information and Resources on Neonatal Echocardiography". Below this, a blue text block announces two upcoming Neonatal Echocardiography Skills Courses: one in Budapest, Hungary (Saturday 26th and Sunday 27th January 2013) and one in London, UK (Saturday 23rd February 2013). A note states that places are strictly limited and registration should be timely. A link is provided for course details and registration. A paragraph describes the website as a free resource for neonatologists, paediatricians, nurse practitioners, ultrasonographers, and cardiologists. A list of features includes video collections, suggestions of uses, references, and a Twitter feed. A small image of a neonatal echocardiogram is shown, with the caption "Structural Views". On the right side, there are links for "Course information", "Contact us", and "Join our mailing list", along with a "Follow" button for Twitter.

**NeonatalEchoSkills**

Home Course Why Echo? How it Works Normal Structure Abnormal Structure Function Resources

**Dedicated to Providing Information and Resources on Neonatal Echocardiography**

We are delighted to announce that we have two upcoming Neonatal Echocardiography Skills Courses:

**Budapest, Hungary: Saturday 26th and Sunday 27th January 2013**  
**London, UK: Saturday 23rd February 2013**

Places on the courses are strictly limited to ensure high quality teaching, please register in a timely manner to avoid disappointment.

**[Course details & registration can be found here](#)**

This website site is a free resource designed to help neonatologists, paediatricians, nurse practitioners, ultrasonographers and even cardiologists build on their skills in neonatal echocardiography.

**Features:**

- A video collection of structural and functional echo views including various abnormal structures and pathologies
- Suggestions of uses of echo on the neonatal unit
- An extensive list of neonatal references and learning resources as well as links to training courses, including ours!
- A Twitter feed where you can follow our own Dr. Alan Groves, Consultant Neonatologist at St Thomas' Hospital in London and stay abreast of current neonatal research and trends in care

**Structural Views**

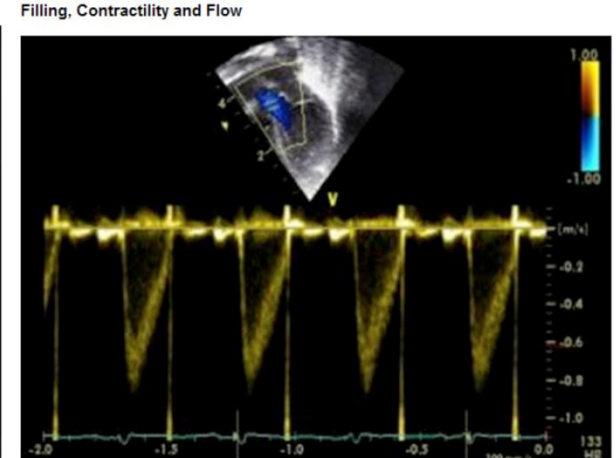
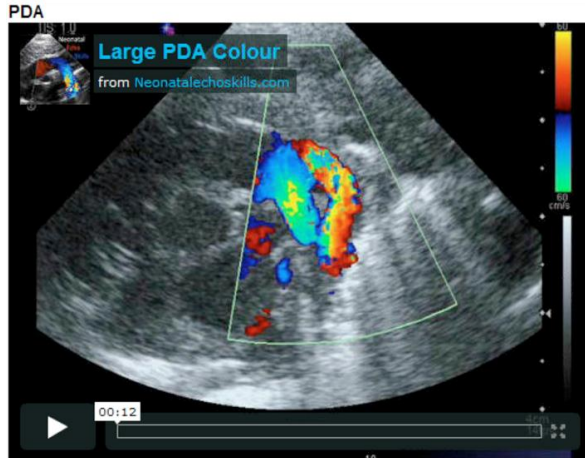
Course information  
Contact us  
Join our mailing list

Follow

<http://www.neonatalechoskills.com>

# Functional Echocardiography (fECHO) or Targeted Neonatal Echocardiography (TNE)

- Presence of physiologically significant PDA
- Ventricular function assessment regarding pressor use
- R → L shunting: cardiac vs. pulmonary etiology of cyanosis



<http://www.neonatalechoskills.com/index.html>

<http://www.asecho.org/files/NICU.pdf>

## Use of Targeted Neonatal Echocardiography to Prevent Postoperative Cardiorespiratory Instability after Patent Ductus Arteriosus Ligation

Amish Jain, MD<sup>1,2</sup>, Mohit Sahni, MD<sup>1</sup>, Affif El-Khuffash, MD<sup>1</sup>, Emad Khadawardi, MD<sup>1</sup>, Arvind Sehgal, MD<sup>1</sup>,  
and Patrick J. McNamara, MD<sup>1,2,3</sup>

- Retrospective
- 62 infants post-PDA ligation
- LV output < 200 ml/kg/min 1 hour post-op was highly predictive of need for inotropes
- Early inotrope use was associated with lower rate of ventilation failure (15% vs. 48%,  $p = 0.02$ )

# Bladder Catheterization

- Setting: ER
- Imager: Pediatric ER Physicians
- Patients: Infants < 2 years
- Blind cath: 76% success on first attempt
- US directed: 96% success on first attempt
- Skill set allows for bladder tap

# Thoracentesis and Paracentesis for Fluid Drainage

- Relatively little data in Peds and none in NICU
- In adults, lower complication rate with post-tap pneumothorax with US guidance (risk decreased by ~50%)
- Simulation centers have developed models to train critical care personnel for such US guided procedures

# PICC/UAC/UVC Line Tip Placement

- Fleming et al. Ultrasound-guided umbilical catheter insertion in neonates. *Journal of Perinatology* (2011) 31, 344–349
  - 31 preterm infants underwent umbilical line placement with tip localization documented by either POC US or radiography.
  - Mean time to final placement was 75 vs. 139 min in the US vs. X-ray groups ( $p < 0.001$ ).
  - No. of X-rays taken was 2.3 vs. 4.1 in the US vs. X-ray groups ( $p = 0.003$ )
- Jain et al. The Use of Targeted Neonatal Echocardiography to Confirm Placement of PICC in Neonates. *Am J Perinatol* 2012;29:101–106
  - 22 premature infants, mean GA 26.5 weeks (25.4 – 28.8)
  - Underwent both TNE radiography for PICC placement
  - Sensitivity of radiographs in determining malposition was 64% with a specificity of 55%
  - TNE was more accurate and reduced the need for a second radiograph by 41%, thus significantly reducing potential radiation exposure
- CONCLUSIONS: For PICC, UVC and UAC tip localization, POC US may be more accurate, faster and result in decreased radiation exposure

# CVC/PICC placement

- Multiple organizations (e.g.)
  - AIUM [www.aium.org](http://www.aium.org) April 1, 2012—AIUM PRACTICE GUIDELINES—  
Use of Ultrasound to Guide Vascular Access Procedures
  - International Anesthesia Research Society [www.anesthesia-analgesia.org](http://www.anesthesia-analgesia.org) Anesthesia and Analgesia. 2012; 114(1) 46 – 72.
  - NICE [www.nice.org.uk](http://www.nice.org.uk) NICE Technology Appraisal Guidance – No. 49

have developed standards and guidelines for US guided placement (Radiologist or Non-radiologist) of

- Internal Jugular (IJ)
- Subclavian
- Femoral
- Peripherally Inserted Central Catheters (PICC)
- Peripheral IVs: may decrease # sticks, time to placement, avoid PICC



# Resistive Index (RI)

- Use POC US to determine change in RI as a reflection of change in intracranial pressure (ICP) in premature newborns with ICH and PHH
- ICP increase prompts LP decompression pending shunt placement
- Useful in infants too small for shunt placement; temporizing taps to keep ICP down for minimization of brain injury
- Same daily observer lends reliability to results

# Training Resources for MDs

**ULTRASOUND TRAINING SOLUTIONS**  
"Innovation in practice"

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**COURSES**

Courses > Ultrasound for Intensive Care

### Ultrasound for Intensive Care

Are you an intensivist wanting to learn ultrasound skills from experts in your field? Have you attended an ultrasound course previously but found it lacking in relevance? Are you struggling to use your machine?

Then this is the course for you. This three day course will give you the ultrasound skills you need to make critical decisions in the ICU. At the end of this course you will be able to demonstrate proficiency in performing and interpreting bedside ultrasound scans – including fluid collection assessment, DVT, vascular access, haemodynamic and basic cardiac assessment.

Our training philosophy optimises your learning experience with:

- Course development and delivery overseen by consultant intensivists
- Small class sizes maintaining a 4:1 student:trainer ratio
- A focus on practical skills acquisition with real patient models

More information is available on each course page.

Previous participants in this course also registered for:

- Introductory Ultrasound for Emergency Medicine - 5 day course,
- Emergency Ultrasound for Rural and Remote Medicine - 3 day course
- Echo in Life Support - 1 day course
- Introductory Ultrasound for Respiratory Medicine - 1 day course

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The globally recognized standard of excellence in ultrasound

Home » Credentials & Examinations

### Credentials & Examinations

Examination	Corresponding Specialty Exam	Credential Earned
<b>SPI</b> Sonography Principles & Instrumentation Examination	Abdomen (AB) Breast (BR) Fetal Echo-cardiography (FE) Neurosonology (NE) Obstetrics and Gynecology (OSGYN)	<b>RDMS</b> Registered Diagnostic Medical Sonographer
<b>MSK</b> Musculoskeletal Sonography Exam	Adult Echo-cardiography (AE) Fetal Echo-cardiography (FE) Pediatric Echo-cardiography (PE) Vascular Technology (VT)	<b>RDCE</b> Registered Diagnostic Cardiac Sonographer
<b>PVI</b> Physicians' Vascular Interpretation Exam		<b>RVT</b> Registered Vascular Technologist
		<b>RMSK</b> Registered in Musculoskeletal
		<b>RPVI</b> Registered Physician in Vascular Interpretation

**REGISTERED PHYSICIAN IN VASCULAR INTERPRETATION**

## PVI Prerequisites

**Prerequisites for the ARDMS Registry Exam in Ultrasound**

This lists the general prerequisites only. Specific application and documentation information is provided by the ARDMS and is subject to change at any time.

- One year of full-time clinical experience (2011 hours/week)
- Documentation of BCC exam (ORPFA completed, BCC or other form of documentation)
- Clinical Verification Form completed by ARDMS Sonographer in the same field of specialty
- No additional prerequisites apply

Requirement	RDMS	RDCE	RVT	RMSK	RPVI
Diagnostic Medical Sonographer	●	●	●	●	●
Radiologic Technologist	●	●	●	●	●
Respiratory Therapist	●	●	●	●	●
Occupational Therapist	●	●	●	●	●
Physical Therapist	●	●	●	●	●
Registered Nurse	●	●	●	●	●
Ultrasound Program Graduate*	●	●	●	●	●
Bachelor's Degree† (in University in vascular technology)	●	●	●	●	●
Doctor's Degree‡ (in any field of study)	●	●	●	●	●
Physician - MD or DO (Clinical experience in U.S. or Canada, including ultrasound or fellowship training in cardiovascular technology)	●	●	●	●	●
Physician - MD or DO (Thailand practice in U.S. or Canada, did not complete a post-graduate fellowship or fellowship in ultrasound vascular technology)	●	●	●	●	●
Registered Cardiac Sonographer (Training verified by Cardiovascular Credentialing International)	●	●	●	●	●
Registered Vascular Sonographer (Training verified by Cardiovascular Credentialing International)	●	●	●	●	●
Registered by ARST (Advanced Registry in Sonography, Vascular Sonography in Ultrasound)	●	●	●	●	●
Registered by Australian Society of Ultrasound in Medicine	●	●	●	●	●

**aium** communities.org  
Every ultrasound specialty. One professional network.

Registration open for Point-of-Care Ultrasound for the Emergency and Critically Ill Patient

Posted by AIUM on March 10, 2012 at 12:13pm in Emergency & Critical Care Ultrasound Community

Back to Emergency & Critical Care Ultrasound Community Discussions

Make Plans to Attend? Point-of-Care Ultrasound for the Emergency and Critically Ill Patient A Comprehensive Didactic and Hands-On Course for all Clinicians Involved in Treating Acutely Ill Patients

AIUM Postgraduate Course Presented in Cooperation with the American College of Emergency Physicians August 3-5, 2012 Caesars Palace - Las Vegas, Nevada Earn up to 21.5 AMA PRA Category 1 Credits™ (accepted by the ARDMS) or ARRT Category A Credits.

Course Co-Directors: Michael Blawas, MD, FACEP and Vicki Noble, MD, FACEP

Limited Registration! Space is limited to 100 registrants, and registration will be taken on a first-come, first-served basis.

Course Description This course will provide comprehensive coverage of basic and advanced point-of-care ultrasound principles, applications, and techniques. The course will focus on bedside ultrasound use in evaluating and treating perioperative, urgent, emergent, and critical patients in a variety of settings. A robust hands-on component and lectures by national experts that build on earlier principles will allow participants to attain excellent initial training and an understanding of a wide array of point-of-care ultrasound applications. Topics will cover the current breadth of point-of-care ultrasound applications becoming standards of care in a variety of clinical settings and practices. The faculty will cover a wide range of clinical backgrounds in point-of-care ultrasound. This diverse faculty will provide different points of view and expert-designed lectures in their topic areas. There will be ample time for discussion with faculty, especially during the hands-on components of the course.

View the Course Brochure (pdf)  
Register Online  
Register by Mail or Fax (pdf)

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ever evolving

IAC Launches QI Project for Physicians in Accredited Pediatric Echo Facilities Participants May Earn 20 MOC Part 4 Credits

Click here for more details

Welcome to the IAC

The International Accreditation Commission (IAC) provides quality accreditation programs for Vascular Testing, Echocardiography, NeuroVET, PET, CT/Chemo, Cardiac Imaging and Vascular Center Accreditation.

The IAC is comprised of a member division, each ensuring highly quality patient care and promoting health care within a specific medical specialty, all dedicated to one common mission: improving health care through accreditation.

Learn more about the accreditation programs offered by the IAC:

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- ECHOCARDIOGRAPHY | ICAE**  
About the program | [Join the IAC Echocardiography website](#)
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About the program | [Join the IAC Vein Center website](#)

NEWS FROM THE IAC

- IAC Vascular Testing Between New Changes to Standards 2012-2013
- IAC Release 2012 Standards for Cardiac Imaging Accreditation
- IAC Launches QI Project for Physicians in Accredited Pediatric Echo Facilities 2012-2013
- IAC Institute Research as a Key Strategic Goal: Establishing the IAC Research Award Program 2012-2013
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**Prerequisites for the CC1 Registry Exam in Ultrasound**

This lists the general prerequisites only. Specific application and documentation information is provided by the ACCMS and is subject to change at any time.

- High school diploma or GED
- 6 months full time employment (or equivalent) in the exam specific field of cardiac or vascular ultrasound
- 1 year full time (or equivalent) employment in the exam-specific field of cardiac or vascular ultrasound
- 2 years full time (or equivalent) employment in the exam-specific field of cardiac or vascular ultrasound
- No additional prerequisites

Requirement	RDMS	RDCE	RVT	RMSK	RPVI
No formal academic training in health care	●	●	●	●	●
Associate degree in health, science, natural sciences, nursing, or engineering (or CEU hours of college or uni)	●	●	●	●	●
Baccalaureate degree in health, science, natural sciences, nursing, or engineering (B.A. or B.S.)	●	●	●	●	●
Ultrasound Program Graduate program in CAMEP-accredited training focused on cardiac or vascular ultrasound	●	●	●	●	●
Ultrasound Program Graduate program is not CAMEP-accredited training is focused on cardiac or vascular ultrasound includes 1 year of specialized training with (DOP) clinical hours training must be in the exam specific area	●	●	●	●	●
Physiologic degree (PhD, MD, D.O.)	●	●	●	●	●

# Training and Certification Requirements

- What would be exam for Neonatologist?
  - little currently exists for Neonatology except fECHO/TNE
- Organizations for training/certification
  - RPVI: M.D., 500 supervised studies, course, exam
- Organizations developing guidelines
  - AIUM, ASE, SCA,
- “Stethescope”
  - don’t get certified, don’t charge, don’t document
  - use to gather info in clinical assessment

# Potential Imaging Combinations

## Perform Study

- Technologist
- Technologist
- Technologist
- Neonatologist
  - individual vs. group
- Neonatologist
- Neonatologist
- Neonatologist
- Radiologist

## Interpret Study

- Radiologist
- Neonatologist
- Neonatologist/Radiologist
- Neonatologist/Radiologist
- Neonatologist/Radiologist
- Neonatologist
- Radiologist
- Radiologist

# SUMMARY

- Evolution of fECHO/TNE will pave the way for other uses of POC sonography in the NICU with equipment access.
- Needed:
  - Development of training and credentialing pathways
  - Development of NICU procedure standards jointly by Neonatologists, Subspecialists and Radiologists (similar to AIUM vascular access guidelines)
- With appropriate standards and training, NICU POC US may lead to lower procedure complication rates and lower radiation exposure in a high risk population.