

## Draft recommendation (statement) details (Modified 9.8.17)

Phase- 1- Domain 1 - Scope

Serial# 1  
Code PID1.1

Recommendation **Goal: The ICC will produce consensus recommendations on “An integrated ultrasound curriculum” for undergraduate medical education (medical school) that will form the foundation for ultrasound as a core clinical competency for all graduates regardless of specialty choice or location of practice. (Approved in Lubbock. Need to define “integrated” in comment section.)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))

1	2	3	4	5	6	7	8	9
Inappropriate region			Uncertain region			Appropriate region		

### Comments / Rationale

The curriculum will prepare medical school graduates to appropriately use ultrasound to improve patient care and safety and increase access to quality healthcare globally. Ultrasound will be used in the curriculum to enhance student understanding of basic and clinical sciences critical to best practices in medicine.

## Draft recommendation (statement) details

Phase- 1- Domain 1 - Scope

Serial# 1  
Code PID1.2

Recommendation **The integrated ultrasound curriculum for undergraduate medical education will provide the foundation of ultrasound for all medical students, regardless of their location or medical degree. (Approved in Lubbock. Need to expand to MD, DO, MBBS, or equivalent in the comment section.)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))



### Comments / Rationale

All physicians in training can benefit from a medical curriculum that includes ultrasound to enhance learning and prepare the graduate to diagnose and care for patients with a wide variety of medical conditions.

## Draft recommendation (statement) details (8.9.17)

### Phase- 1- Domain 1 - Scope

Serial#	1
Code	P1D1.3
Recommendation	<b>The integrated ultrasound curriculum for undergraduate medical education can serve as a resource for other healthcare professionals such as nurse practitioners, nurses, physician assistants, and emergency medicine technicians.</b>

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))

1	2	3	4	5	6	7	8	9
Inappropriate region			Uncertain region			Appropriate region		

### Comments / Rationale

Considering the overlap in medical student educational content and skill with that of other healthcare professionals as set by their accrediting bodies such as nurse practitioners, nurses, physician assistants, mid-wives, dentists, and emergency medicine technicians an integrated ultrasound curriculum for medical students should prove to be a valuable and appropriate resource for the education of these other healthcare professional as well. (supported by standards of medical students (LCME), NP, Nurse, PA, EMT).

Considering the overlap in clinical responsibilities of physicians and these other healthcare professionals and the need to increase patient access to technology that improves patient care and patient safety, various clinical ultrasound applications in an integrated ultrasound curriculum for medical students would be appropriate for adoption into the curriculum of these other healthcare professionals. (supported by standards).

It has been demonstrated that non-physician providers such as nurse practitioners, nurses, physician assistants, and emergency medicine technicians can learn and competently use ultrasound in the clinical setting (Ref X).

With a common clinical skill like ultrasound, having a variety of health professionals involved in the care of the patient trained with a similar basic curriculum and even inter-professional training, will likely enhance the communication among members of the healthcare team, improve the coordination and continuity of care, and ultimately results in better patient care. In addition, the Liaison Committee on Medical Education (LCME), the accrediting body of all allopathic medical schools in the United States and Canada through its Standards for Accreditation encourages development of inter-professional collaborative skills and requires that “medical students have opportunities to learn in academic environments that permit interaction with students enrolled in other health professions” (Ref Y).

## Draft recommendation (statement) details

**Phase- 1- Domain 2** – US Curricular objectives (why to teach) (The original Domain #3 was switched to Domain #2 and #2 to #3 in Lubbock)

Serial# 8  
Code P1D2.1  
Recommendation **The integrated ultrasound curriculum will support medical student education globally, based on standards of accreditation and the local healthcare needs. (Approved in Lubbock.)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))



### Comments / Rationale

Standards of medical education have as an overall goal to improve the health of patients and society. Ultrasound education needs to be consistent with that goal.

## Draft recommendation (statement) details

Phase- 1- Domain 2 – US Curricular objectives (why to teach)

Serial# 9

Code P1D2.2

Recommendation **The integrated ultrasound curriculum will facilitate teaching and integration of basic and clinical sciences. (Approved in Lubbock.)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))

1	2	3	4	5	6	7	8	9
Inappropriate region			uncertain region			appropriate region		

### Comments / Rationale

An understanding of the basic sciences is critical to understanding pathological conditions and thus diagnosing and managing such conditions. Ultrasound can be used to help learners understand the basic sciences as well as bridge and integrate the basic and clinical sciences.

## Draft recommendation (statement) details

Phase- 1- Domain 2 – US Curricular objectives (why to teach)

Serial# 10  
Code P1D2.3

Recommendation **The integrated ultrasound curriculum will enhance the overall educational experience. (Approved in Lubbock.)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))

1	2	3	4	5	6	7	8	9
Inappropriate region			uncertain region			appropriate region		

### Comments / Rationale

Ultrasound can be used to help learners understand disease processes that assist in the diagnosis and management of patients. What begins as a tool for learning normal and pathological conditions becomes a clinical tool to improve patient care.

## Draft recommendation (statement) details

Phase- 1- Domain 2 – US Curricular objectives (why to teach)

Serial# 11  
Code P1D2.4

Recommendation **The integrated ultrasound curriculum can improve the medical students' ability to examine, diagnose, and appropriately care for patients. (Approved in Lubbock.)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))

1	2	3	4	5	6	7	8	9
Inappropriate region			uncertain region			appropriate region		

Comments / Rationale



## Draft recommendation (statement) details

Phase- 1- Domain 2 – US Curricular objectives (why to teach)

Serial#  
Code

11  
P1D2.5

Recommendation

**The ultrasound curriculum will foster competency-based medical education model with milestones, competencies, and entrustable professional activities (Not reviewed in Lubbock.)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))

1	2	3	4	5	6	7	8	9
Inappropriate region			uncertain region			appropriate region		

### Comments / Rationale

Ultrasound provides many opportunities to objectively assess a learner's knowledge and skill along a continuum from the ultrasound novice to the clinically competent. Milestones and competencies should be developed around a fundamental understanding of ultrasound, the acquisition of adequate ultrasound images, the interpretation of those images, and clinical decision making based on the interpretation of those images in the overall context of the clinical scenario.

## Draft recommendation (statement) details

Phase- 1- Domain 2 – US Curricular objectives (why to teach)

Serial#  
Code

12  
P1D2.6

Recommendation

**To serve the theme of a continuum of medical education and “backwards vision” in which the knowledge and skill necessary for best medical practice are identified and the curriculum is designed to develop that knowledge and skill in healthcare providers (Not reviewed in Lubbock.)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))



### Comments / Rationale

Ultrasound has been shown to increase patient safety and improve patient care in many clinical scenarios, in many clinical settings, and by a wide variety of practitioners. A medical student curriculum in ultrasound should be based on best practice knowledge and skills to ensure medical student graduates have developed the foundation in ultrasound to provide these best practices in care and/or be prepared to readily advance to the necessary ultrasound skills in post-graduate training to provide these best practices.

## Draft recommendation (statement) details

Phase- 1- Domain 2 – US Curricular objectives (why to teach)

Serial# 13  
Code P1D2.7

Recommendation **To assure learners' competency in relation to the appropriateness, safety, and feasibility of ultrasound as it will be commonly used throughout medicine in the near future. (Not reviewed in Lubbock.)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))



### Comments / Rationale

Ultrasound will play an ever increasing role in patient care and access to ultrasound for clinical providers will continue to increase. Medical school graduates need to be prepared to appropriately use ultrasound in virtually every clinical setting regardless of specialty choice.

## Draft recommendation (statement) details

Phase- 1- Domain 2 – US Curricular objectives (why to teach)

Serial# 8  
Code P1D2.8  
Recommendation **It has been shown that medical students can learn basic ultrasound relatively quickly and well. (Not reviewed in Lubbock.)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))



### Comments / Rationale

Ultrasound has been shown to improve patient care and in numerous studies, medical students have demonstrated that they can learn ultrasound well and without undue training. Thus, ultrasound should be taught to medical students to equip them with the knowledge and skill to provide better patient care.

## Draft recommendation (statement) details

Phase- 1- Domain 2 – US Curricular objectives (why to teach)

Serial# 8  
Code P1D2.9  
Recommendation **Ultrasound fits well into a competency-based approach to medical education.**  
**(Not reviewed in Lubbock.)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))



### Comments / Rationale

Medical Education is shifting toward a competency-based model. Ultrasound fulfills all the essential criteria for competency-based education with objective, measureable outcomes, the opportunity for self-directed learning and assessment, knowledge and skill that can be applied and assessed in the clinical setting, and knowledge and skill that makes a difference in patient care.

## Draft recommendation (statement) details

**Phase- 1- Domain 3** - US Curricular criteria (Originally Domain #2 – may need to change serial #s)

Serial# 2  
Code PID3.1

Recommendation **The ultrasound curriculum forms the foundation for ultrasound training along a continuum of medical education from undergraduate through graduate to continuing medical education. (Modified by TT March 2017)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))

1	2	3	4	5	6	7	8	9
Inappropriate region			uncertain region			appropriate region		

### Comments / Rationale

Acquiring ultrasound knowledge, skill, and application is a lifelong process. Medical school is the beginning of this lifelong learning process and it is critical that basic ultrasound knowledge and skill be learned well and form the best possible foundation for clinical applications and further learning in residency and continued into clinical practice.

## Draft recommendation (statement) details

Phase- 1- Domain 3 - US Curricular criteria

Serial# 3  
Code P1D3.2

Recommendation **The ultrasound curriculum supports undergraduate medical education and prepares learners for any additional clinical training and/or practice opportunities they wish to pursue. (Modified by TT March 2017)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))

1	2	3	4	5	6	7	8	9
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Inappropriate region      uncertain region      appropriate region

### Comments / Rationale

The general medical school curriculum is designed to provide a general medical education that adequately prepares students to pursue general or specialty practice in any field of medicine. The ultrasound component of the curriculum needs to be consistent with this overall educational approach.

## Draft recommendation (statement) details

### Phase- 1- Domain 3 - US Curricular criteria

Serial# 4  
Code P1D3.3

Recommendation The ultrasound curriculum is developed in accordance with accepted standards for medical education as defined by national and international accrediting bodies. **(Modified by TT March 2017)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))

1	2	3	4	5	6	7	8	9
Inappropriate region			uncertain region			appropriate region		

### Comments / Rationale

Ultrasound serves as an excellent teaching tool for the basic sciences and can effectively be used as a bridge between the basic and clinical sciences. Thus, ultrasound can be used to better understand both normal and pathological states.



## Draft recommendation (statement) details

### Phase- 1- Domain 3 - US Curricular criteria

Serial#	5
Code	P1D3.4
Recommendation	The ultrasound curriculum is a competency-based model that includes measurable outcomes and markers of progression toward those outcomes (milestones); and incorporates ultrasound knowledge, skills, attitudes, and professional judgement into entrustable professional activities (EPAs) as appropriate for patient care. <b>(Modified by TT March 2017)</b>

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))

1	2	3	4	5	6	7	8	9
Inappropriate region			uncertain region			appropriate region		

### Comments / Rationale

The structure of the ultrasound curriculum must be consistent with the most common model for medical education which is the competency-base model with milestones and competencies. Entrustable Professional Activities (EPAs) are likely to become a standard framework of evaluating student and resident overall ability to practice medicine and should be considered as curricular recommendations.

## Draft recommendation (statement) details

### Phase- 1- Domain 3 - US Curricular criteria

Serial#	6
Code	P1D3.5
Recommendation	The ultrasound curriculum enhances the learning of basic sciences that are relevant to the understanding of human pathophysiology and the practice of medicine. <b>(Modified by TT March 2017)</b>

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))

1	2	3	4	5	6	7	8	9
Inappropriate region			uncertain region			appropriate region		

### Comments / Rationale

A competency-based ultrasound curriculum is based on demonstration of ability and is not simply a time-dependent process of learning. Learning should be flexible to allow learner to progress at their own learning pace and develop life-long learning habits.

## Draft recommendation (statement) details

### Phase- 1- Domain 3 - US Curricular criteria

Serial# 7  
Code P1D3.6  
Recommendation [The ultrasound curriculum enhances the learning of clinical sciences through the integration of ultrasound into clinical problem solving and the care of patients at their point of care. \(Modified by TT March 2017\)](#)

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))



### Comments / Rationale

A critical component of competency-based education is the objective and measurable demonstration of appropriate application of knowledge, skills, and behavior in the clinical setting. The individual learner as well as the class of students must be assessed in this setting for ultrasound competency.

## Draft recommendation (statement) details

### Phase- 1- Domain 3 - US Curricular criteria

Serial#	2
Code	P1D3.7
Recommendation	The ultrasound curriculum includes opportunities for self-directed learning and assessment, and encourages life-long learning. <b>(Modified by TT March 2017)</b>

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))



### Comments / Rationale

Accrediting bodies have established standards to help ensure medical school graduates are prepared to continue their medical training with increasing patient responsibility. This includes demonstration of the knowledge, skills, behavior, and attitude expected of physicians by the profession and society.

## Draft recommendation (statement) details

### Phase- 1- Domain 3 - US Curricular criteria

Serial#	2
Code	P1D3.8
Recommendation	The ultrasound curriculum is based on evidence and expert opinion, and is consistent with recommendations and guidelines of well-established specialty organizations and regulatory bodies with significant experience in ultrasound. <b>(Modified by TT March 2017)</b>

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))



### Comments / Rationale

The literature, expert opinion, and experience of specialties that use ultrasound in practice should be used to identify ultrasound components considered fundamental to learning and using ultrasound. This will ensure the curriculum provides education applicable across virtually any specialty or practice setting the graduate may pursue.

## Comments / Rationale

Using a variety of learning methods to teach ultrasound and also combining different modalities of

### Draft recommendation (statement) details

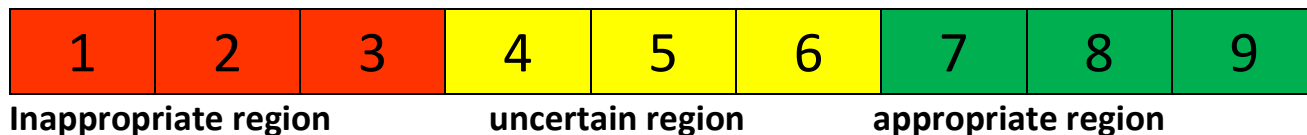
**Phase- 1- Domain 4** – US Curricular content (what to teach)

Serial# 14  
Code P1D4.1

Recommendation **Physics and technology knowledge (Not reviewed in Lubbock)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))



## Comments / Rationale

An understand of ultrasound physics and technology is important to the competent use of ultrasound as it aids in obtaining the best images and interpretation of those images, including those related to ultrasound artifacts. Knowledge of the physics and technology of ultrasound also helps ensure the safe use of ultrasound for the patient.

## Draft recommendation (statement) details

**Phase- 1- Domain 4** – US Curricular content (what to teach)

Serial# 15  
Code P1D4.2

Recommendation **Organ system approach (Not reviewed in Lubbock)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))

1	2	3	4	5	6	7	8	9
Inappropriate region			uncertain region			appropriate region		

### Comments / Rationale

Organ system approach to include anatomy, physiology, pathology, pathophysiology, pharmacology, physical diagnosis, and clinical applications, including pediatric and adult patients; multidisciplinary clinical expert opinion on what is appropriate and important for students to learn and when in their education it should be taught, multi-organ system ultrasound assessment to be included.

Systems may include

1. Cardiovascular system
2. Respiratory system
3. Gastrointestinal system
4. Endocrine system
5. Nervous system
6. Reproductive system
7. Musculoskeletal system
8. Genito-urinary system
9. Skin and soft tissue

## Draft recommendation (statement) details

**Phase- 1- Domain 4** – US Curricular content (what to teach)

Serial# 16  
Code P1D4.3

Recommendation **Ultrasound enhanced Physical exam Diagnosis (Not reviewed in Lubbock)**

Please rank the appropriateness of the above statement (*see footnotes*)

**My vote is** ([Click here to choose a number](#))

1	2	3	4	5	6	7	8	9
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**Inappropriate region**

**uncertain region**

**appropriate region**

### Comments / Rationale

Ultrasound has been shown to be more accurate than the traditional physical examination, provide important clinical information not obtained with the traditional physical examination, and due to its ability to provide immediate feedback to enhance learning of many traditional examination skills such as inspection, percussion, palpation and auscultation.



