Quantitative and qualitative situation analysis of the undergraduate ultrasound education at medical faculties in the German-speaking area

**General information**

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<thead>
<tr>
<th>Skillslab/ Medical Faculty:</th>
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<tr>
<td>Person responsible for ultrasound skills education:</td>
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<td>E-mail:</td>
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<td>Phone:</td>
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1. **How is the study program organized?**

- [ ] Traditional German medical curriculum
- [ ] Reformed study program
- [ ] Other (Please name!) _______________________________

2. **How is the study programme structured?**

- [ ] Semester
- [ ] Trimester
- [ ] Study year

3. **Are ultrasound courses offered at your medical faculty /your skillslab?**

- [ ] Yes
- [ ] No
- [ ] Not applicable

4. **Do you think that ultrasound skills education for medical students is useful?**

- [ ] Yes
- [ ] No
- [ ] Not applicable

5. **Why do you think that ultrasound skills education for medical students is useful/not useful?**

- [ ]
- [ ]
- [ ]
- [ ]
6. Who manages/organizes the ultrasound skills education?

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7. How is the ultrasound skills education financed? (Multiple responses possible!)

- Department of the university hospital
- Medical Faculty
- Dean’s office
- Third-party funds
- Other (Please name!) _______________________________

8. How is the ultrasound skills education integrated into the curriculum?

- Single unit
- Longitudinal
- Other (Please name!) _______________________________

9. Which medical disciplines are involved in the ultrasound skills education? (Multiple responses possible!)

- Family medicine
- Anaesthesiology
- Surgery
- Gynaecology
- Ear, Nose and Throat (ENT)
- Internal medicine
- Neurosurgery
- Neurology
- Ophthalmology
- Paediatrics
- Radiology
- Urology
- Not applicable
- Other (Please name!) _______________________________

10. Does a learning objective catalogue for the ultrasound skills education exist?

- Yes
- No
- Not applicable

11. If yes, is it handed out to the students?

- Yes
- No
- Not applicable

12. Which standards regarding ultrasound are represented?

- German Society for Ultrasound in Medicine (DEGUM)
- European Federation of Societies for Ultrasound in Medicine and Biology (EFUSMB)
- No standard
- Other (Please name!) _______________________________

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1 Adapted from sections of the DEGUM (www.degum.de).
13. How can students prepare for the ultrasound courses? *(Multiple responses possible!)*

- ☐ Course book
- ☐ E-Learning
- ☐ Lecture
- ☐ Not applicable
- ☐ Other (Please name!) ________________________________

14. Is there a website for the ultrasound skills education?

- ☐ Yes
- ☐ No
- ☐ Not applicable

If yes, please name! ________________________________________________________________

15. How often and to what extent are compulsory ultrasound courses offered? *(Multiple responses possible!)*

<table>
<thead>
<tr>
<th>Description of the course (If not listed, please use empty cells below!)</th>
<th>Is offered during semester(s):</th>
<th>Number of credit hours(^2)</th>
<th>Number of students per group</th>
<th>Number of instructors per group</th>
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<td>☐ Lecture</td>
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\(^2\) Alternatively, you can display course duration in periods of 45 min, please state!
16. How often and to what extent are elective ultrasound courses offered?  
(Multiple responses possible!)

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<th>Description of the course (if not listed, please use empty cells below!)</th>
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17. What serves as object of ultrasound examination? (Multiple responses possible!)

- □ Patient
- □ Simulated patient
- □ Participant/student
- □ Simulator
- □ Instructor
- □ Other (Please name!) ________________________________

18. Which organs-/ organ systems\(^4\) are examined? (Multiple responses possible!)

- □ Thyroid gland
- □ Abdominal vessels/-lymph nodes
- □ Pancreas
- □ Kidney
- □ Male genital organs
- □ Focused Assessment with Sonography for Trauma (FAST)
- □ Neck vessels/-lymph nodes
- □ Liver
- □ Spleen
- □ Urinary bladder
- □ Gall bladder/-tract
- □ Gastrointestinal tract
- □ Female genital organs
- □ Muscles and tendons
- □ Other (Please name!) ________________________________

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\(^3\) Alternatively, you can display course duration in periods of 45 min, please state!

\(^4\) Hofer, Matthias: Sono Grundkurs, pg. 4-5.
19. Which theoretical knowledge are the ultrasound courses supposed to impart?  
(Multiple responses possible!)

- Basic physics
- Ultrasound probes
- Indications and limitations
- Advantages and disadvantages
- Anatomical structures
- Not applicable
- Other (Please name!)

20. Which practical skills are the ultrasound courses supposed to impart?  
(Multiple responses possible!)

- Choosing ultrasound probe
- Applying contact pressure and ultrasound gel
- Orientation in sagittal and transversal plane
- Giving patient instructions (e.g. breathing maneuver, change of position)
- Doppler function
- Describing findings (e.g. organ structure, echogenicity)
- Not applicable
- Other (Please name!)

Knobology:
- Selection of patient
- Menu change
- Change of ultrasound probe
- Freeze
- Gain – overall
- Depth
- Time gain compensation
- Trackball
- Comment
- Body marker
- Measurement

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Hofer, Matthias: Sono Grundkurs, pg.10.
Resources

21. Who manages compulsory ultrasound courses? (*Multiple responses possible!*)

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23. Which qualification does the teaching staff have? *(Multiple responses possible!)*

- [ ] DEGUM – Certificate
- [ ] Master of Medical Education (MME)
- [ ] Own didactic seminars
- [ ] Medical Specialist (Please specify discipline!)
- [ ] Resident (Please specify discipline!)
- [ ] Not applicable
- [ ] Other (Please name!)

24. How many ultrasound machines are available for the education? ________________

25. Do you find education through peer-student-tutors (peer-teaching) useful?

- [ ] Yes
- [ ] No
- [ ] Not applicable

26. Why do you find education through peer-student-tutors (peer-teaching) useful/not useful?

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Assessment methods

27. Which assessment methods are being used? *(Multiple responses possible!)*

☐ No agreement

☐ Written examination

Number of questions: _______________________________

Multiple-Choice-Questions:  ☐ Yes  ☐ No

Open-ended questions:  ☐ Yes  ☐ No

Institute for medical and pharmacueutic examination questions (IMPP)-Questions  ☐ Yes  ☐ No

☐ Oral examination

Number of questions: _______________________________

Number of stations: _______________________________

Duration of examination: _______________________________

Checklists for examination questions:  ☐ Yes  ☐ No

IMPP-Questions:  ☐ Yes  ☐ No

☐ Practical exam

Number of stations: _______________________________

Duration of examination: _______________________________

Number of examiners: _______________________________

Checklists for examination questions:  ☐ Yes  ☐ No

☐ Objective structured clinical examination (OSCE)

Number of stations: _______________________________

Duration of examination: _______________________________

Number of examiners: _______________________________

Checklists for examination questions:  ☐ Yes  ☐ No

☐ Other (Please name!) ___________________________________________________________________

Number of stations: _______________________________

Duration of examination: _______________________________

Number of examiners: _______________________________

Checklists for examination questions:  ☐ Yes  ☐ No
Evaluation

28. How are the ultrasound courses evaluated?
- [ ] Via online questionnaire
- [ ] Via paper-based questionnaire
- [ ] Via SMS
- [ ] No evaluation
- [ ] Other (Please name!) ________________________________

29. Who conducts the evaluations?
- [ ] University Medical Centre
- [ ] Medical faculty
- [ ] Dean’s office
- [ ] Students’ representatives
- [ ] Skillslab
- [ ] Other __________________________________________________________

30. Who analyses the evaluations?
- [ ] University hospital
- [ ] Medical faculty
- [ ] Dean’s office
- [ ] Students’ representatives
- [ ] Skillslab
- [ ] Other __________________________________________________________

31. How are the evaluations published?
- [ ] Online
- [ ] Bulletin
- [ ] No evaluation
- [ ] Other __________________________________________________________

32. What possibilities do you see to improve the ultrasound skills education at your medical faculty/your skillslab?

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Thank you for your time!