

Surgical Teaching at Magdeburg University - Overview

Established and Innovative Teaching Aspects in Surgery at the Otto-von-Guericke University Medical School of Magdeburg (Germany)



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Exciting, enthusiastic, as well as active and influential teaching in a sustained manner is not only of enormous importance for basic education of students in human medicine to achieve a great effect but also for the appropriate and useful recruitment of long-term motivated young clinical trainees in the (near) future.

Aim & Method

Based on i) selective references from the topic-related scientific medical literature (obtained in a "PubMed" * search using specific English terms) and ii) own experiences obtained in surgical teaching, the specific surgical aspects as part of the whole study of human medicine are to be outlined by means of a narrative overview.

Results (corner points)

Surgical-Structural Basic Teaching Concept in Medical Studies [Werwick et Meyer] and "Manual – Surgical Education" (Content and Overview) [Kraus et al.]

Beyond content, robust structural components are crucial for fostering a vibrant, creative, and engaging medical education program. The Medical School at Otto-von-Guericke University (OVGU) of Magdeburg is committed to this mission with sustained enthusiasm and dedication.

The traditional lecture format, while valuable, should be enriched by numerous interactive, innovative, and practice-oriented learning and assessment models. These include block practicums, mandatory and elective seminars/courses, small group training, bedside teaching, individual practical exercises in the SkillsLab ("Skills Laboratory"), junior research groups, teaching/research projects involving students, scientific publications on teaching (including student contributions), and "teach-the-teacher" initiatives.

Although significant progress and numerous innovations have been introduced into surgical education in recent years, there remains a continuous need for improvement. This is especially critical given the rigorous, examination-relevant content outlined in the "National Competence-Based Learning Objective Catalog for Medicine" ("NKLM" – "Nationaler Lernzielkatalog Medizin") 2.0, which must be systematically addressed and fulfilled.

Current and Specific Education in Trauma Surgery [Piatek et al., submitted]

The clinical-curricular trauma surgery education at the University Hospital of Trauma Surgery, part of the Medical School at OVGU of Magdeburg, has evolved significantly.

The discipline-specific teaching of the Dept. of Trauma Surgery, as part of the clinical-curricular medical education at the OVGU Medical School of Magdeburg, serves as both:

1. An indispensable, discipline-specific component of surgical education with its diverse facets.
2. A seamlessly integrated element in the versatile profile of both established and newly developed teaching options within the broader field of surgery.

Specifics of Teaching in Vascular Surgery within an Interdisciplinary Surgical Setting [Barth et al.]

Vascular Surgery is also a valuable part of the surgical teaching profile.

In the coming years, vascular surgery education will need to shift toward a multimodal and multimedia approach. This includes a stronger emphasis on practice- and competency-oriented training and greater student integration into clinical workflows. Such changes are essential to address the challenges posed by exponential knowledge growth, rapid technological advancements, increasing workloads, and the evolving expectations of students.

The Role of Surgery in Medical Education – Student Perspective [Brinkema et al.]

In surgical practice, students are often valued as members of clinical and, in particular, operating teams, contributing to an additional clinical and operative teaching potential. The vast opportunities in surgery allow for a practical, innovative presentation of the specialty while focusing on knowledge- and skill-oriented education.

Despite these opportunities, significant room for improvement exists in the interactions between educators and students. Addressing this gap is critical to meeting the demands of modern surgical education – also from a student perspective.

Revisiting and prioritizing the perspectives of students on the field of surgery can provide valuable insights to strengthen surgical education and ensure its continued success.

SkillsLab

An Indispensable Component of Surgical Education [Reschke et al.]

The SkillsLab, combined with didactically trained student tutors, is now an essential teaching tool that:

1. Promotes efficient and enjoyable learning for students, tutors, and medical educators alike.
2. Requires ongoing support from faculty leadership and institutional management.
3. Continues to offer thematic and methodological potential for development.
4. Ensures successful application in the daily teaching environment of a medical school through innovative and unconventional approaches.

The SkillsLab serves as a model for effective and engaging surgical education, preparing students with practical skills and interdisciplinary knowledge essential for modern medical practice.

Magdeburg Model [Piatek et al.]

With the establishment of “**MA**gdeburg Medical Training Center for **BA**sic Skills” (MAMBA – in German: “**MA**gdeburger Ausbildungszentrum für Medizinische **BA**sisfertigkeiten”), opportunities for improved, practice-oriented surgical training were created. Student evaluations of the courses offered at the SkillsLab since 2011, along with structural changes, led to a restructuring of the curriculum. Additional elective courses, led by student tutors, have proven highly effective, particularly due to their interdisciplinary approach.

The practical surgical SkillsLab training efficiently prepares medical students for their future careers and imparts essential surgical basic skills that every prospective physician should master.

Strong involvement from the Dean's Office for Studies, acting as a crucial link between clinics and both curricular and elective teaching, is indispensable for organization and evaluation. The practical surgical SkillsLab curriculum should also be included in the planned NKLM.

Lastly, teaching projects are financially supported annually by the faculty as an incentive.

Clinical Clerkship and Practical Year (PJ) – Proven Practical Training Phases (New Concepts) [Stieger et al.]

Considering students' differing prior experiences from earlier internship phases, they are specifically taught broad, surgically interdisciplinary learning objectives that enhance “care competency”. This approach aims to enable students to gain greater benefits from the enriching and well-structured phases of their clerkships and “Practical Year” (“**Pr**aktisches Jahr” [PJ] – the sixth year of the study of human medicine).

Improving teaching through preparation tailored to the students' status, which focuses not only on typical internship tasks but also directly on medical practice, is expected to result in greater learning success and improved internship experiences. For practice-intensive disciplines like surgery, this presents unique opportunities to capitalize on the field's strengths early. Longitudinal concepts during the practical phases of medical education should be implemented to enhance clinical training and foster enthusiasm for the field.

Inspiring Enthusiasm for Surgery – (Semi-)Quantifiable Educational Effects in Clinical Clerkships [Werwick et al.]

The clerkship holds significant importance in shaping a student's career path. Medical students often use the clerkship to explore specialties they may consider for future training. Personal and external assessments or experiences related to a specific clinic or instructors significantly influence the choice of clerkship specialty and location. From the perspective of surveyed students, the content of the clerkship should align with what has been taught and learned during medical studies. Students expect to gain insights and participate in practical, cross-disciplinary, and even interdisciplinary activities in their chosen clerkship specialty. According to students, experiences during surgical clerkships strongly influence preferences for pursuing surgical specialties in the future, making these experiences an important predictor. So, it is evident that intensive teaching during the clerkship plays a critical role in guiding students toward a surgical career. For instance, preparatory seminars for the clerkship can enhance the overall experience, amplifying the preference-shaping effect of the clerkship. Positive clerkship experiences are perceived by students as increasing the attractiveness of the field and can strengthen the desire to pursue a surgical specialty as early as during medical school.

Teaching Documentation Tool Using the Example of a Practical Year (PJ) Logbook [Witzel et al.]

The clinical-surgical training of medical students during the PJ is a demanding part of the curriculum, where medical knowledge must consistently be transformed into practical medical competencies.

The presented Magdeburg logbook for surgical disciplines, independently maintained by students, fully complies with the MFA's (“Medical Faculty Association” – in German: “**Medizinischer Fakultätentag**” [**Medizinischer Fakultätentag** 2012]) requirements in its advanced and expanded form while being tailored to the conditions and teaching practices of the OvGU Medical School of Magdeburg.

Students are provided with a practical, clinically relevant document that, combined with a coherent training concept, enables them to acquire essential practical clinical competencies.

“Student Guide” or a Digital Logbook for Medical Students [Wacker et al., Wacker et al.]

The implementation of digital teaching content is a central focus of the reforms planned for 2026 regarding the medical licensing regulations. At the OvGU Medical School, a digital study logbook is being developed. The primary goals are usability for both instructors and students and integration into the institution's existing IT system, with particular attention to data security and cost efficiency.

Future plans include connecting external teaching hospitals and expanding the content to include nursing professions, aligning with the goals of an interprofessionally oriented teaching framework.

Role of the Teaching Faculty Using the Example of a “Habilitation” candidate [Paasch et al.]

The habilitation, as the highest academic qualification, also occupies a prominent position in academic teaching, including in medical education. Fulfilling this role in everyday teaching requires a high level of commitment and sustainability, which the habilitand must demonstrate early on as an almost indispensable requirement.

The habilitand plays a central role in surgical education. They effectively cover a broad spectrum of responsibilities, ranging from delivering and designing lectures, seminars, and block practicums to direct student supervision during clinical clerkships, the PJ, and doctoral research. This role also includes creatively shaping elective teaching concepts, ensuring that the habilitand remains a cornerstone of academic and clinical education.

Summary

It has been impressively demonstrated in a multifaceted manner how important surgical teaching is in the study of human medicine.

Surgical teaching is considered an important part in addition to patient care and research at the Otto-von-Guericke University Medical School.

Surgery has:

- participated in innovative teaching projects,
- established novel teaching and exam formats (and)

– always implemented the majority of innovations (“NKLM”, Master plan – Study of Human Medicine, new “Physician’s Approbation Regulations” [“ÄApprO”], Logbook of the [so-called] “Blockpraktikum” [block practicum, 4th year of the study of medicine], Logbook of the “Practical Year” [PJ, 6th year of the study of medicine] etc.) vigorously and with practical orientation for years.

In the process of implementation, SkillsLab “MAMBA” plays a substantial role, in particular, in facultative teaching.

Not only practice-related education but also mediation of superordinated competences such as scientific competence, interprofessional and medical conversation techniques are in the focus of surgical teaching parts.

In addition, digitalization of teaching has been greatly mastered.

Conclusion

Surgical teaching as part of the clinical curricular teaching in the study of human medicine can be considered a substantial facet of teaching – it integrates in the broad profile of the already established and innovatively developing teaching options in surgery. By means of excellent and innovative teaching, surgery tries to overcome personal, in particular, young surgeons’ shortage.

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