

Portfolios Enhance Clinical Activity in Surgical Clerks

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OBJECTIVES: A change in German licensing legislation imposed a portfolio for surgical clerks. We aimed to analyze whether the implementation of the portfolio changed the amount of clinical exposure and activities during surgical clerkships.

DESIGN: The study was conducted with a modified pre-post design at the University Hospital of Tuebingen, Germany. Before and after the implementation of the portfolio on April 1, 2013, final-year students ($n = 557$) who had just finished their surgical clerkship were interviewed with an online questionnaire. A total of 21 basic surgical skills were evaluated.

RESULTS: Overall, 230 questionnaires were returned and analyzed; 51% were preintervention. Overall clinical activity for the whole study cohort varied for different activities between 98% and 32%. For 16 of 21 parameters, there was more clinical activity in the postintervention (portfolio) group. This difference was statistically significant for the following 7 activities: discharge, analgesia, local infiltration, patient positioning, drain in, blood transfusion, and emergency diagnostics.

CONCLUSION: The implementation of the portfolio did enhance clinical activity for surgical clerks in the study cohort. Nevertheless, overall exposure is still unsatisfactory low for some activities. Additional changes and studies are necessary to further improve surgical education. (J Surg Ed 72:927-935. © 2015 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: portfolio, surgical clerkship, workplace-based education, surgical teaching

COMPETENCIES: Medical Knowledge, Practice-Based Learning and Improvement, Professionalism

INTRODUCTION

A decline in medical students' interest in surgical careers has become evident in the past 10 years.¹ Departments try to counteract this decline by improving their teaching, as positive experience is regarded to increase students' interest to pursue a surgical career.²⁻⁴ This renewed interest in surgical education has led to an increasing amount of educational research in this field. Resulting studies have revealed significant gaps in clinical exposure during surgical clerkships. An exemplary study stated that only 58% of 116 surveyed students sutured during their surgical clerkship.⁵ Another study on program variations concluded that curricula from different schools differed greatly and that national standards are necessary to attain a minimal acceptable skill level.⁶

Owing to an awareness of these issues, a change in German licensing legislation for physicians was executed. Medical schools were asked to create and implement clerkship portfolios. A compulsory minimal standard was agreed on by all 37 medical faculties. This was hoped to establish a homogenous norm and increase clinical exposure by listing learning objectives.

Unfortunately, there is little sound evidence regarding the effectiveness of portfolios in students' education. Existing studies report that portfolios can be used in surgical training in general,⁷ they present a valuable list of learning objectives,⁸ and they guide the learning process.⁹ For postgraduate education, there is good evidence that portfolios increase personal responsibility for learning and support professional development.¹⁰

To further analyze the effectiveness of portfolios, we evaluated whether the implementation of our portfolio led to more clinical exposure and more hands-on activities in surgical clerks. We focused on clinical activities because of the recognized gap mentioned previously and owing to the

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fact that an increase in volume of clinical experience is known to enhance students' clinical skills.^{11,12}

METHODS

Study Design

The study was planned after the announcement of the upcoming change in licensing regulations. Once the surgical portfolio for the university was drawn up, the questionnaire was created, containing questions about 21 surgical skills, which were components of the portfolio. From November 2012 until March 2013, students who had just finished their surgery rotation were invited to complete a questionnaire about their clinical activity during their clerkship. At the time, the portfolio was not in use, had not been distributed publicly, and was not available to the students in any other way. On April 1, 2013, the portfolio was implemented (compulsory for all clerkship students). The same postrotation questionnaire was distributed to all students who finished their clerkships with required portfolios, from August 2013 through April 2014.

To rule out possible differences between cohorts, demographic data were gathered and analyzed.

Population

German medical students were target population of our study. The sample population was obtained from the University of Tuebingen.

Educational Setting

Surgical education differs in the 37 German medical schools, but all schools offer a 6-year curriculum. A compulsory surgical clerkship of 4 months is required at all schools in the sixth year to meet licensing regulations. This clerkship can be performed at the university hospital of the medical school or at associated teaching hospitals. Some students choose to spend their clerkship abroad. To ensure a quality standard, university authorities check and validate individual destinations. The same portfolio is used at all locations.

At the University of Tuebingen, surgical education begins in the second year with a seminar on working under sterile conditions, scrubbing, and operating room (OR) procedures. There are skills laboratory seminars on history taking and physical examination in the third year, which are evaluated with an Objective Structured Clinical Examination. Surgical education is continued with lectures from all surgical specialties in the fourth year. Regular workplace-based education is begun in the fifth year, with a training session of 2.5 weeks. Surgical education is completed after the surgical clerkship in the sixth year. Students may additionally choose 4 weeks of electives, seminars, and

miniclerkships in surgical disciplines. No curricular or organizational changes occurred during the time of the survey. There were isolated fluctuations in teaching personnel, but no major changes occurred.

Portfolio

The portfolio was created based on the minimal standard agreed on by the national board. It was supplemented with contents regarded essential or locally important (core competencies of surgical subspecialties located in Tuebingen). The drafting was done by the educational representatives of the 6 surgical specialties and verified by the faculty. The portfolio was distributed in an A6-sized booklet to allow carrying in coat pockets and scrubs.

It consists of a list of activities (Table 1) that are to be completed during the clerkship. The clerkship activities are typical performed on entrustment level 3 (trusted to perform activity with indirect supervision). There are boxes to be ticked for each individual activity; free space for additional note-taking is supplemented to facilitate students' reflection. Students receive regular feedback based on their documentation of activities. Because continuous high-quality observation and feedback is not always easily achievable in the workplace setting,¹³ 3 compulsory standardized feedback sessions were implemented and need to be documented in the portfolio booklet. Copies of the portfolio may be obtained from the author.

All students received their portfolio on the first day of their clerkship. Its use was explained, and it was clarified that the aim was to complete all listed activities. Once a student had performed an activity successfully, the achievement was documented in the portfolio booklet by a member of the surgical department.

Before the implementation of the portfolio, all surgical staff members were informed about the portfolio as a new teaching tool, and its use and handling were explained in detail. A short seminar on how to give feedback was included in the information session. Additional voluntary seminars are continuously offered by continuous professional development staff. The application of the portfolio was supervised by the educational coordinators of each surgical department. All portfolios were checked and signed by the chief teaching coordinator at the end of the surgical rotation.

Data Collection

The data collection took place between November 2012 and April 2014. An online, web-based questionnaire was chosen for feasibility reasons and comfort of participants. The online questionnaire was conducted and distributed using the web-based tool "oFb—der onlineFragebogen" from SoSci Survey.

All students of the cohorts 2012, 2012/2013, and 2013 received an e-mail with an invitation to participate in the

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