

An assessment of surgical curriculum on “practical year” by students of Pomeranian Medical University in Szczecin

Andrzej Żyluk^A✉, Zbigniew Szlosser^B, Piotr Puchalski^C

Pomeranian Medical University in Szczecin, Department of General and Hand Surgery, Unii Lubelskiej 1, 71-252 Szczecin, Poland

^A ORCID: 0000-0002-8299-4525; ^B ORCID: 0000-0002-7334-7932; ^C ORCID: 0000-0002-0865-1647

✉ azyluk@hotmail.com

ABSTRACT

Introduction: Modifications to teaching medicine introduced 5 years ago consisted of abolishing the internship, changing the surgical curriculum in the last year of studies by introduction of a so called “practical year”. The objective of this study was investigating how the practical year was undertaken at the Pomeranian Medical University in Szczecin in the academic year 2017/2018.

Materials and methods: A study was carried in a group of 154 students of the 6th year of Faculty of Medicine, just before the final test-exam in surgery. The questionnaire used in the study consisted of 11 closed questions concerning the organization, course, and accomplishment of the provided program.

Results: The questionnaire results show that the assumed aim of the curriculum, which was a skill/competency-oriented

teaching of surgery, was half executed. Students were insufficiently engaged in typical doctor’s activities. One-half of them considered their practical-year as no different from classes practiced in the previous years. Ward-round teaching and the performance of manual skills was considered the most valuable portion of the surgical curriculum. Seminars were scored the lowest, as the least useful. Organization of the classes and the engagement of tutors were evaluated positively by the majority of students. The results of this survey show the grade of accomplishment of the assumed educative aims in teaching surgery in the practical year, and have revealed some drawbacks, which should translate into an improvement of teaching in the forthcoming years.

Keywords: surgical curriculum; undergraduate medical education; teaching methods; teaching outcome measures.

INTRODUCTION

A reform of the post-graduate medical education system introduced a few years ago consisted of replacement of the internship with a so called “practical year” in the final year of study. The assumption was that it would enable students to acquire enough skills to begin their medical practice soon after graduation. These changes forced medical universities to adjust the contemporary methods of teaching to the new requirements. In 2016, the Ministry of Health restored the internship year, yet the model of the practical year was not cancelled. Rather than embarking upon a discussion about the sensibility of this change, we intend to investigate how the practical year was undertaken at the Pomeranian Medical University in Szczecin over the academic year 2017/2018, in part concerning the surgical didactic.

Practical classes in the 6th year were conducted in 9 departments (clinics), of which 5 had a general surgical profile and 4 were profiled in a particular surgical specialty: vascular, hand, thoracic or cardiac surgery. The classes were held in 6-person groups for a total duration of 20 days, of which the first 10 days were spent in one department, and the next 10 days in another. The allocation of students to either clinic was random. The programs of the classes were not uniformly determined, but, in assumption, should comprise the following elements:

- ward rounds (taking history from patients and physical examination of patients supervised by a tutor),

- dressing room activities (changing dressings, performing simple procedures, i.e. removal of stitches, placing plaster splints or casts),
- attending outpatient clinics with a tutor,
- attending operative theatre (learning how to scrub hands, theatre rules and behaviour, observing and assisting in operations),
- attending the emergency department and/or admission room (usually during a duty),
- learning practical skills, i.e. catheterizing a urinary bladder, rectal examination, wound suturing,
- learning practical skills on models, i.e. suturing wounds on a pig limb,
- learning practical skills on simulators and dummies.

The manner of holding classes was highly dependent on the clinical profile of the department, the engagement and enthusiasm of the tutor (assistant or resident taking care of the students) and on the chief of the department who is responsible for whole educative process in the institution. According to the assumed aims dedicated to the practical year and the requirements of the syllabus, practical/skill-oriented teaching is more desirable (favoured, i.e. examination of patients, treatment proposals, practising simple procedures and writing medical documentation) than is an observational/passive setting.

The objective of this study was an investigation of how the surgical component of the practical year was accomplished in

the academic year 2017/2018 at the Pomeranian Medical University in Szczecin.

MATERIALS AND METHODS

A questionnaire-survey was carried out in a group of 154 6th year students of the Medical Faculty just prior to the final test-exam in the subject of surgery. The time allocated for this survey was 15 min. A custom-made questionnaire dedicated to the assessment of quality of teaching surgery in the practical year was designed by the 1st author of the article (AŻ). The questions/items were proposed by faculty members at the Medical Faculty who were involved in teaching surgery. The proposed questions were discussed, analysed, modified and then either approved or rejected; the final version consisted of 11 items (see Appendix). Main topics of the questionnaire items concerned the students' opinions of the course, its quality, overall organization of the classes, and accomplishment of the program of the practical year. The questions also concerned the expected usefulness of the acquired surgical knowledge in future medical practice and the acquired manual skills. In 2 questions the

students were asked for short remarks concerning specific topics: structure-organization of classes in the practical year and the reasons for rating seminars poorly as a tool in the educative process (this problem appeared in earlier-performed studies).

RESULTS

The first 2 questions were about the activities performed by the students during classes in the practical year. Six activities, typical for undergraduate surgical teaching were included. Most students (82%) assisted the tutor in the work in the outpatient clinics and removed stitches from patient wounds. Almost $\frac{2}{3}$ assisted in operations; the remaining 3 activities were performed by only half of the students (Fig. 1). The 2nd item asked about the activities the students performed most frequently (the 1st question concerned works which they did at all). One-third of the students changed patient dressings after operations, slightly more than $\frac{1}{4}$ were involved in writing patient notes on the ward, and 21% most frequently assisted in operations. Only 7% assisted the tutor in work in the Emergency Department, or examined patients admitted to the ward (Fig. 2).

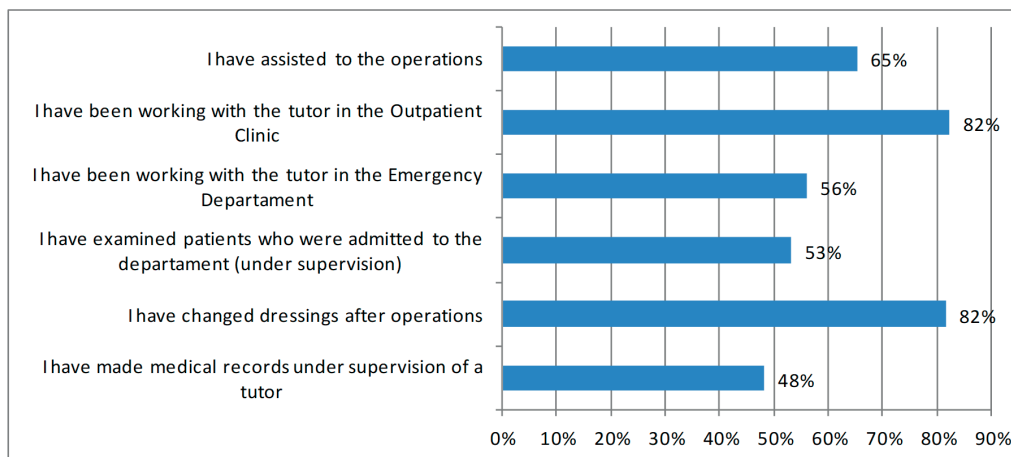


FIGURE 1. Distribution of answers to the question about activities that students performed during their practical year – multiple answers could be marked

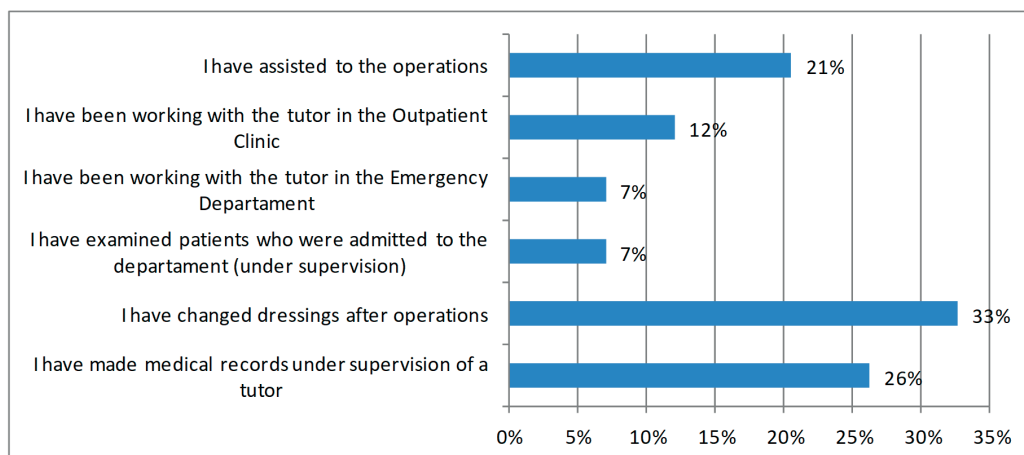


FIGURE 2. Distribution of answers to the question about most often performed activity

The 3rd item concerned the manual activities students learned during classes (Fig. 3). The most frequently performed work was stitch removal from an operative wound – 74%, followed by examination of a patient’s abdomen at the ward or in the admission room – 72%. Slightly more than 1/3 of the students sutured patient wounds in the Emergency Department or during operations. Every 5th student performed urinary bladder catheterisation and rectal examination. The least number learned immobilization of the limb with a plaster cast and wound suturing on a pig’s leg.

The 4th item asked about compliance with organization rules stating that 2 students should be assigned to 1 supervising doctor (assistant – tutor). Most responses (46%) showed that this rule was not always met, for 28% it was never met, and for 26% it was always met.

The 5th item concerned opinions about the tutor looking after them during classes. This item included 2 extremes: “competent/experienced vs. incompetent/inexperienced” and “engaged (interested) in teaching vs. non-engaged (not interested) in teaching”. One half of the students reported their tutors to be competent but not particularly interested in teaching; almost one-half had tutors they declared competent and interested in teaching. Only 3% of students considered the tutor incompetent and lazy.

The 6th item compared the status (participation in real activity of the ward, assignment certain tasks to perform, ability to take care of their time) during the practical year with the status in the previous 5th year, in which the classes were held in a standard format. One half considered their status the same as the previous 5th year, 1/3 felt more professional as they were involved in the current work of the ward, but for 1/5 the practical year was worse than standard classes: they felt unnecessary, alienated, and unprofessional among busy doctors and nurses.

The 7th item concerned the opinions of the students about the effectiveness of particular methods of holding classes (teaching) in acquiring knowledge and/or skills which will be useful in their future medical practice (Fig. 4). The most useful method of holding classes appeared to be ward rounds and exercises at the patient’s bed, as indicated by 42% of the students. One-third of the answers rated the highest learning was wound suturing on a pig’s leg, and work in the outpatient clinics. Attending seminars was considered the least useful for acquiring knowledge and skills.

The 8th item asked about the lowest rating of seminars among all forms of teaching surgery. Forty percent of responders showed the low interest (engagement) of tutors holding

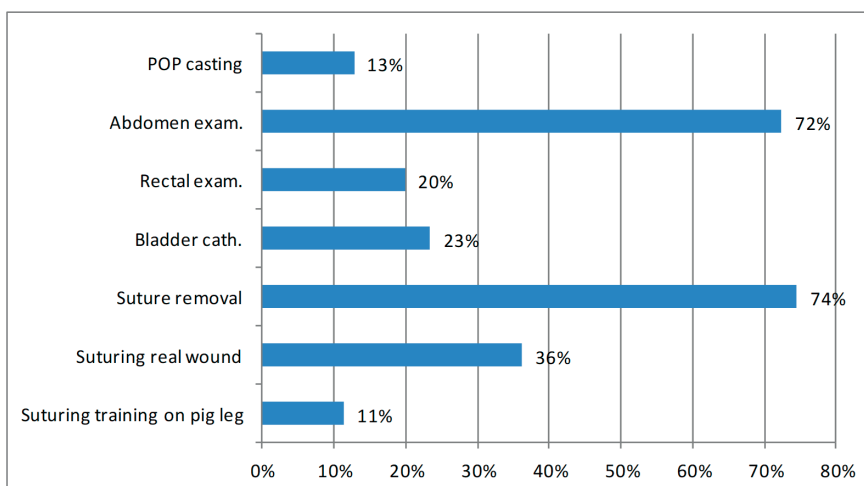


FIGURE 3. Distribution of answers to the question about which manual tasks have students performed. Multiple answers could be marked

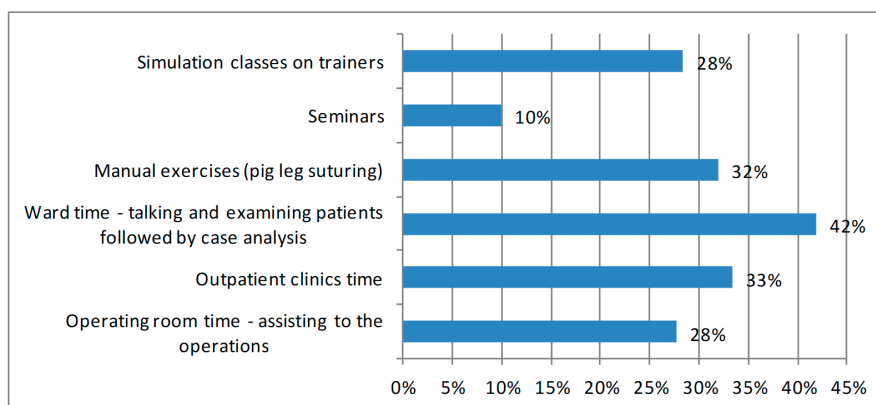


FIGURE 4. Distribution of answers to the question about what type of classes were most valuable – resulting with gaining knowledge or manual competence in future work

the seminars as the principal cause of the poor rating. One-third considered seminars to be out of fashion in this era of the Internet, and with easy access to good manuals. Nineteen percent of students declared the low professional level of seminars, incompetence, and poor professional apprenticeships of assistants as the principal cause of low-rating of seminars.

The 9th question asked about the students’ opinions on the organization of the practical year in the form of 2 ten-day rounds in 2 clinics profiled in different surgical specialties. Most (83%) considered this model optimal and better than the earlier planned twenty-day classes in just 1 department, although 40% of them suggested certain modifications to the program. For 17% of the students the organization of the practical year was not optimal.

The 10th issue was the students’ satisfaction with the classes held in the practical year. Two-thirds were rather satisfied with this new model of teaching. The opinions of the remaining 1/3 were divided: 19% were very satisfied and 18% were rather disappointed.

The 11th item asked about the students’ opinion on the usefulness of the knowledge from particular surgical sub-specialisations in their future practice (Fig. 5). Students believed that the most useful in daily practice would be the knowledge acquired from general surgery (82%). Fewer showed oncologic and vascular surgery, and only single students regarded knowledge from surgical sub-specialisations as potentially useful.

DISCUSSION

According to the traditional model of teaching medicine, students attending practical classes are “guests” and “observers”, participating only minimally in the real activity of the ward. The staff of the department perform their duties and the students watch. Their principal goal is acquiring knowledge but not carrying out tasks. Such a method may provoke the students into feeling unnecessary, alienated, and unprofessional among the busy doctors and nurses. A comparison between the activities of internship doctors and the practical class students shows distinct differences:

- Internship doctors do work (are professionals), while students only observe (are amateurs).
- Internship doctors have their duties (are useful), while students do not (are not useful).
- Internship doctors know how to take care of their time, while students rely on the tutor (when left alone, they just occupy desks or are wallflowers).

The introduction of the “practical year” in the 6th year of studies would result in quite a significant change in this model, in favour of students who would gain a “nearly-internship doctor” status. In assumption, they should be assigned certain tasks to perform and the ability to manage their time, which would give them the chance to acquire many practical skills unavailable during the traditional model of teaching. Results of this study show the actual grade of accomplishment of these wishes.

The first 2 items asked about the skills typical of medical practice which students performed in practical year. In answering the 1st question, it is alarming that only half of them had examined patients admitted to the ward or participated in examinations in the emergency department or admission room. Learning practical medicine should be performed with frequent student contact with patients. It seems that accomplishment of this task by only a half of the students is insofar insufficient. This has been confirmed by findings from the 2nd item showing that less than a half of the students participated in the preparation of patient notes and other documentation at the ward, under the supervision of the tutors. This task typically belongs to internship doctors and – although commonly considered boring – constitutes an important element in building up correct (desirable) habits in medicine students. It is obvious that taking history and examining of the patient is obligatory prior to writing an observation in the patient notes. Only relevant information should be recorded in the notes and less important items can be omitted. The records should include the data which may be important for the National Health Fund in a case of eventual checking, or may be relevant in medicolegal aspect, although not necessarily meaningful for the treatment itself. Therefore, the students’ participation in this part of the doctor’s

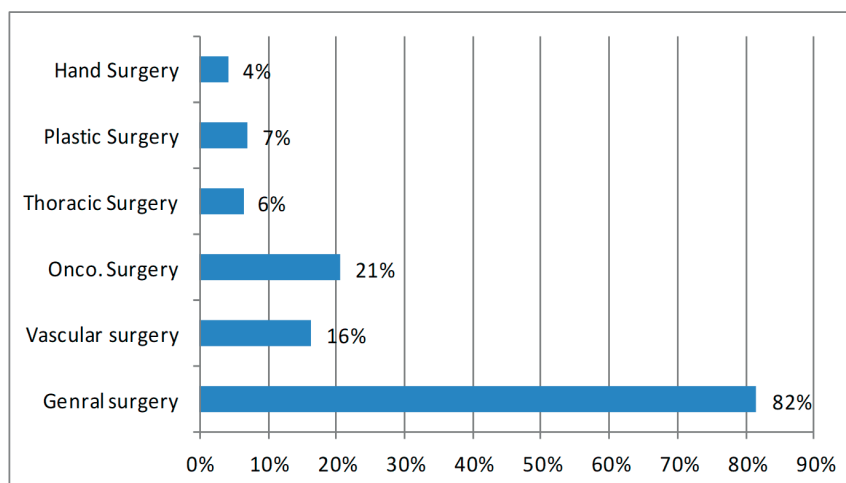


FIGURE 5. Distribution of answers to the question about which surgical sub-speciality will be most useful in future work

activity is important. Unfortunately, the results of this survey showed that this element of education was half accomplished. Participation by 80% of the students in work in the outpatient clinics and dressing rooms should be rated positively.

One of the items asked about the manual activities performed by the students during classes. This showed that almost $\frac{3}{4}$ of them examined a patient's abdomen and removed stitches, which seems optimistic. Another $\frac{1}{3}$ of responders had the opportunity to suture a real wound, most frequently while assisting in operations. Catheterizing of a urinary bladder and rectal examination were practiced by only every 5th student, which is highly inadequate. An encouraging sign is that most of the students performed these tasks in the 4th year of studies, during classes in urology. Likewise, immobilization of the limbs is more frequently practiced during classes in orthopaedics.

Three questions focused on the organization of the classes in the practical year. The relatively demanding rule of assigning 2 students to 1 tutor was met in most clinics. Also, students' opinions about the competence and involvement of the tutors in teaching were overall satisfactory. However, the feeling regarding the students' status in the practical year, compared to the previous years of teaching, were less optimistic: only $\frac{1}{3}$ of them felt more professional than the previous 5th year, as "nearly-internship doctors", having a certain range of duties and the ability to manage their time. This result shows the need to modify classes in some clinics, mostly through greater involvement of students in the current work of the ward and sharing them typical doctors' duties.

For the effectiveness of particular methods of teaching in acquiring useful knowledge and skills, ward rounds and outpatients' clinics classes were rated the highest [1, 2, 3]. These are traditional methods of teaching future doctors, demanding for the teachers, as they require devoting them time and interest, and – if well done – affording students and young doctors substantial benefit, as confirmed by numerous studies [4, 5, 6, 7, 8, 9]. Classes "at the patient's bed" and ward rounds are the most demanding for tutors as they require full engagement and concentration on this one element. Another very well rated and beneficial mode of teaching for the students is assisting the tutor in the work in the outpatient clinics. The students have an opportunity to face several patients the same day suffering from the same disease, in various stages of diagnosis or treatment, confronting theoretical knowledge from textbooks and seminars with clinical practice; it substantially aids in fixing this knowledge into the students' memory. Classes in surgical dressing give the students the chance to change dressings from operative wounds, removing stitches and participating in creating medical records. What is surprising, operative theatre classes and simulation teaching have attracted only moderate appreciation. Assisting in operations is a recognized method of teaching surgery and is a very popular class technique at Polish medical universities. For the group of students standing behind the surgeon's back, attempting to perceive something in the operative field has usually been a waste of time, which is confirmed by our earlier studies and literature data [1, 2, 3, 10, 11]. The authors do not suggest that students should not be

taken into the operating theatre for lessons. However, it is best to show them simple operations understandable by a non-surgeon (e.g., inguinal hernia or excision of the appendix) or those in which students can examine (touch, cut) a dissected organ, e.g. a gallbladder or part of a large intestine with a tumour. Then such classes can accurately give the idea of a surgical disease, the way it is treated, and can be remembered. Students of the practical year also had the opportunity to exercise in a simulation centre. Some of them participated in training courses and could perform parts of a virtual laparoscopic operation.

Seminars are a traditional method of transferring knowledge and are frequently practiced in medical studies. The results of this survey showed that seminar classes (such as films and computer demonstrations) were very poorly rated in the context of acquiring useful knowledge [1, 2, 3, 12]. The actual causes of this negative estimation may vary, but 2 seem most likely. First, it is the suspicion that seminars in their traditional form are slightly old-fashioned, providing no updated knowledge and do not enrich them in any other valuable (i.e. ethical) elements. In the era of easily accessible excellent manuals and the Internet, transferring knowledge in seminars via static slides seems to be rather unappealing. The second drawback of seminars mentioned by the students in their "free comments", was the lack of interactivity during seminars: in most cases the seminar was delivered in the form of a monologue, with no active participation from the students. This model of seminar also seems to be old-fashioned, a problem which unfortunately is not recognised by most teachers (including professors) [13]. In an interactive seminar, the participants are not just passive listeners, but can actively create questions and comments. Modern interesting presentations (lectures) should be interactive, if useful and well rated by the listeners.

The suitability of knowledge from the individual surgical disciplines in future medical practice, in the scope of "general surgery" and oncological surgery, will – according to students – be more useful in medical practice than the more specialized knowledge. This is a result that was rather expected, although for specialist discipline teachers, surgery can be puzzling. Similar results were obtained in our earlier work, in which doctors' opinions were examined a few years after graduation, regarding the suitability of knowledge of particular surgical specialties in their current medical practices [1, 2, 3]. Regardless of the specialty chosen by the graduate, the basic information resource of general and oncological surgery was perceived as a valuable element of medical education.

CONCLUSIONS

The results obtained in this survey show the expectations of students about the surgery curriculum during the "practical year" and the respective degree of implementation. The demonstration of some shortcomings should have an impact on modifications to the curriculum and methodology of surgical training during classes in the "practical year", which – in assumption – would replace the internship year.

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A questionnaire to assess quality of teaching surgery on “practical year” of studies in Pomeranian Medical University in Szczecin.

1. Which of the below-listed activities you attended or performed during your practical year?
 - a) preparation of patients’ notes under supervision of tutors
 - b) changing patients’ dressings after operations
 - c) examination of patients admitted to the ward under supervision of the tutor
 - d) attending emergency department and/or admission room with the tutor
 - e) participation in work in the outpatient clinic with the tutor
 - f) assisting in operations.
2. Which of the below-listed activities you attended or performed during your practical year the most frequently?
 - a) preparation of patients’ notes under supervision of the tutor
 - b) changing patients’ dressings after operations
 - c) examination of patients admitted to the ward under supervision of the tutor
 - d) attending emergency department and/or admission room with the tutor
 - e) participation in work in the outpatient clinic with the tutor
 - f) assisting in operations.
3. Which of the below-listed manual tasks did you perform during 4th year classes?
 - a) wound suturing using a pig trotter or other model
 - b) suturing a real wound (in a patient)
 - c) removal of stiches
 - d) catheterizing urinary bladder
 - e) rectal examination
 - f) examination of the abdomen
 - g) placing plaster splint or cast on the extremity.
4. Was the rule of assignment of 2 students to one supervising doctor met during practical year classes?
 - a) yes, it always was
 - b) not always
 - c) no, it was not.
5. What is your opinion about the tutor who looked after you during practical year classes?
 - a) competent, experienced and sufficiently engaged (interested) in teaching
 - b) competent, experienced but not particularly interested in teaching
 - c) inexperienced, but highly interested in teaching
 - d) inexperienced, incompetent and not interested in teaching.
6. Comparing your status during classes in the practical year with your status at previous, 5th year:
 - a) I felt more professional, like “nearly-internship doctor”
 - b) I had similar feeling as during classes at 5th year
 - c) I felt unnecessary, alien and unprofessional, nobody looked after me.
7. Which of particular methods of holding classes do you consider the most effective in acquiring knowledge and/or skills which will be useful in your future medical practice?
 - a) operative theatre classes – assisting in operations
 - b) assisting the tutor in his/her work in outpatient clinics
 - c) interviewing and examining patients, exercises at the patient’s bed, ward rounds
 - d) practicing manual skills, i.e. placing sutures on porcine limb model
 - e) seminars
 - f) simulating teaching on simulators and dummies.
8. Results of recent studies show that seminar classes are very poor rated by students, comparing to other methods of clinical teaching, in the context of acquiring useful knowledge. Which is, in your opinion, the principal cause of this?
 - a) seminars, in the era of easy accessible manuals and the Internet present old-fashioned style, provide no updated knowledge and do not add any other valuable, i.e. ethical elements
 - b) poor professional level of seminars is a principal cause of their low rating
 - c) low interest (engagement) of teachers presenting seminar lecture is main cause
 - d) other (write briefly).
9. Do you believe that organization of practical year in form of two 10-day rounds in 2 clinics profiled in different surgical specialties is an optimal one?
 - a) yes
 - b) yes, but some modification in organization would be desirable
 - c) no, it is not.

If you marked „no”, write briefly, which classes arrangement would be better, please.
10. Are you satisfied of organization of classes in clinics you attended during practical year?
 - a) definitely yes
 - b) rather yes
 - c) no, I am not.

Your opinion concerns BOTH or only ONE of the clinics (sign).
11. Knowledge from which of the below-listed particular surgical specialties learned at practical year will be – in your opinion – the most useful in your future practice (mark only one)?
 - a) general surgery
 - b) vascular surgery
 - c) oncologic surgery
 - d) thoracic surgery
 - e) plastic and reconstructive surgery
 - f) hand surgery.