

## SUPERVISORS' OPINION OF SKILLS REQUIRED OF GENERAL SURGICAL TRAINEES

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### ABSTRACT

**Objective:** To find the appropriate skills which a surgery resident should have acquired at the end of the first year of training.

**Study Design:** Descriptive study.

**Place and Duration of Study:** Department of Surgery Combined Military Hospital Rawalpindi (CMH), from Jan 2008 to Mar 2009.

**Methodology:** The study was conducted at CMH Rawalpindi to find the important skills expected to be acquired by a general surgery trainee at the end of first year of training. Important attributes/traits expected to be present in a surgery trainee were chalked out (after consultation with surgical supervisors). A questionnaire was formulated for ranking of each trait. Importance of each skill was assessed on an arbitrary scale ranging from 1 to 10 where, 1 stood for 'irrelevant' and 10 meant 'absolutely essential'. Each numerical rank of a quality was accompanied by a box to be ticked. It was sent by postal mail to 29 general surgery supervisors, all registered with CPSP, serving in Pakistan Army Medical Corps in all four provinces of Pakistan. Twenty two consultants (76%) responded to the questionnaire. The weightage/value assigned to each item was analyzed using statistical package for the social sciences software for Windows 16.

**Results:** Skills rated as most important by the supervisors surveyed came from the domains of clinical and team work skills. The team work skill of 'Seeks advice when beyond limit of competence/when in doubt' was rated the most important of all 77 skills; with 68.20% of supervisors claiming it was 'absolutely essential'.

**Conclusion:** Assessment of surgical trainees during training needs to be done objectively. An effort has been made to objectively define the qualities/skills according to which a trainee can be assessed and may be use a template for formulating further research and assessment criteria.

**Keywords:** Clinical skills, Questionnaire, Surgeons.

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## INTRODUCTION

The surgical resident in our setup is often unaware of what his trainer expects out of him. He is usually termed a good or bad trainee largely on subjective evaluation. The only objective method of assessment being used in Pakistan is examinations by College of physicians and surgeons Pakistan (CPSP). Examinations can assess an individual's knowledge only at a specific point in time. These are often found to be neither adequately evaluating surgical skills nor assessing the trainee's attitude towards patients and colleagues<sup>1,2</sup>. Professional attitudes such as leadership and initiative, are not evaluated/assessed high

lightened by these examinations. Theoretical knowledge of the subject is not enough justification for qualification to practice as a consultant. Stress should be on clinical and operative skills, as well as on their interpersonal skills<sup>3</sup>.

It has been widely acknowledged that objective, structured, and multimodal training is the key to success<sup>4</sup>. Such training requires deliberate and sound evaluation of the objectives and targets set by trainers<sup>5-7</sup>. Clearly predefined skills not only improve performance of a trainee but also make the laborious task of a trainer easy and directed. The assessment done in the end thus becomes reliable, valid and unbiased<sup>1</sup>.

Contemporary literature receive shows little guidance regarding skills required of general surgery trainees<sup>2,8-10</sup>. Guidelines of postgraduate

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colleges and medical councils also does not highlight the issues of clinical skills, performance in operation theatres<sup>2</sup>, communication, team-working, judgment and compassion<sup>1,10,11</sup>.

Also it is important to assign ranked importance to these skills<sup>12,13</sup>. The aim of study was to identify the skills and profound quality expected from general surgery trainees by their trainers.

## METHODOLOGY

A cross sectional survey/study was conducted at Combined Military Hospital Rawalpindi, from Jan 2008 to Mar 2009. The study instrument was an indigenously developed comprehensive questionnaire. It included a total of 77 skills jointly identified by interviews of four senior surgery supervisors at CMH Rawalpindi.

In phase-I, supervisors' opinion of skills required of general surgical trainees who had completed first year of residency in their units, was sought by direct interviews. The interviews were conducted by the author with four senior general surgery supervisors, registered with College of Physicians and Surgeons Pakistan and serving in Pakistan Army Medical Corps. The skill domains were divided into five main areas: technical/operative skills, clinical skills, communication with patients and relatives, application of knowledge and team work skills. There were a total of 77 skills identified which need to be assessed in a surgery trainee after 1 year of training.

The questionnaire/rating list was developed for ranking of each skill. Importance of each skill was valued on an arbitrary scale ranging 1 to 10. Whereas, 1 stood for 'irrelevant' and 10 meant 'absolutely essentials'. Each numerical rank of a quality was accompanied by a box to be ticked.

The questionnaire was sent by postal mail to 29 general surgical supervisors, all registered with CPSP, serving in Pakistan Army Medical Corps all over the four provinces of Pakistan. 22 consultants (76%) responded back to the questionnaire.

The weightage/value assigned to each item was analyzed using SPSS-16. Parametric statistics

were used. Mean value for each item are presented in order of the super-visors' judgment of importance.

## RESULTS

Skills rated as most important by the supervisors came from the domains of clinical and teamwork skills (table-I). The teamwork skill of 'Seeks advice when beyond limit of competence/when in doubt' was rated most important of all 77 skills with 68.20 percent of supervisors claiming it was 'absolutely essential'. Can initiate research' and 'Can complete research' qualities of application of knowledge domain were considered 'irrelevant' (score=1) and scored 2 respectively by highest 9 percent of supervisors compared to other skills, thus viewing these skills as least important.

Table-II shows that majority of surgeons regarded handling tissues gently and instruments safely as 'absolutely essential' and most important of all technical skills. Advanced operative/technical skills like completion of an anastomosis and operating in a confined space were not on the priority list of the supervisors.

In clinical skills, ability to identify the acutely ill and being able to take full history emerged as the most frequently marked as 'absolutely essential' (table-III). Correct documentation scored high as an important clinical skill.

'Seeks advice when beyond limit of competence/when in doubt', 'Accepts responsibility if there is any lapse in patient', 'Is punctual' and 'Can be trusted to carry out instructions' appeared as the most important traits and considered 'absolutely essential' by the majority (table-IV).

Qualities 1-4, making a trainee more sympathetic, human, absorbable and trustworthy with patients were considered more important than the technical aspects of communication skills in items 5-9 (table-V). Overall, communication skills were considered less important than other professional skills, but more important than application of knowledge (table-I).

Although, none of the items could score mean of 8, knowing natural history of a disease all over the four provinces of Pakistan, consider important in a general surgery trainee. These can

**Table-I: Skills considered most important by general surgery supervisors.**

S No.	Skill	Mean Weightage / Value
<b>Technical skills</b>		7.68
1	Handles tissue gently	8.32
2	Handles dangerous instruments safely	8.27
3	Able to close skin neatly	8.00
<b>Clinical Skills</b>		7.81
1	Takes full history	8.45
2	Can identify the acutely ill	8.41
3	Carries out thorough clinical examination	8.27
<b>Communication Skills</b>		7.44
1	Sensitive and empathic towards patient	7.90
2	Establishes a rapport with the patient	7.77
3	Able to allay anxiety	7.36
<b>Team Work Skills</b>		8.30
1	Seeks advice when beyond limit of competence/when in doubt	9.04
2	Is punctual	8.54
3	Can be trusted to carry out instructions	8.40

**Table-II: Nature and importance of technical skills required by general surgical trainees as identified by supervisors.**

S. No.	Technical skills	Mean Weightage/ Value	Percentage of supervisors judging the skill absolutely essential (score10/10)
1	Handles tissue gently	8.32	50
2	Handles dangerous instruments safely	8.27	36.4
3	Able to close skin neatly	8.00	18.2
4	Can distinguish abnormal tissue from normal	7.95	27.3
5	Able to control bleeding by suturing	7.91	22.7
6	Competent in tying all surgical knots	7.86	27.3
7	Demonstrates sound knowledge of anatomy	7.82	13.6
8	Able to position patient on operation table	7.82	22.7
9	Knows which instruments to use	7.77	18.2
10	Able to control bleeding by swab, sucker	7.73	22.7
11	Can use diathermy techniques	7.64	22.7
12	Makes incisions appropriately	7.41	4.5
13	Can identify and explore tissue planes	7.23	9.1
14	Considers the aesthetic appearance of wound	7.05	13.6
15	Anticipates movements during assistance	6.86	13.6
16	Is economical in movements	6.64	4.5
17	Demonstrates manual dexterity	6.50	0.00
18	Able to complete anastomosis	6.05	9.1
19	Able to operate in confined space (e.g. mouth)	5.00	13.6

was given highest importance (table-VI).

## DISCUSSION

This study has identified the skills that general surgery supervisors, all registered with CPSP, serving in Pakistan Army Medical Corps

be divided into five distinct areas: technical skills, clinical skills, team work skills, communication with patients and relatives and application of knowledge.

In contrast to the customary beliefs, underlying causes of adverse events during surgery

often originate from failings in non-technical aspects of performance (e.g. communication, teamwork, and situation awareness) rather than a lack of technical expertise<sup>14,15</sup>. In this study,

surgery trainees, not technicians operating day and night. This concurs with most recent thinking that technical skills are not, of themselves, sufficient to preserve patient safety and, there-

**Table-III: Nature and importance of clinical skills required by general surgical trainees as identified by supervisors.**

S No.	Clinical skills	Mean Weightage/ Value	Percentage of supervisors judging the skill absolutely essential (score10/10)
1	Takes full history	8.45	45.5
2	Can identify the acutely ill	8.41	50
3	Carries out thorough clinical examination	8.27	27.3
4	Extracts relevant information from history and examination	8.27	31.8
5	Conscientious in postoperative care	8.27	31.8
6	Pays attention to any changes in the clinical picture	8.23	13.6
7	Writes the date and time when he puts the notes on the patient's documents	8.18	40.9
8	Keeps accurate notes	8.18	27.3
9	Regularly uses his stamp with signatures at the end of his notes	8.10	36.4
10	Reviews diagnosis and management regularly	7.82	22.7
11	Decides quickly in an emergency	7.77	27.3
12	Listens to additional information from patients and relatives	7.77	22.7
13	Knows about the resources and investigations available in his own hospital and utilizes them efficiently	7.55	27.3
14	Knows when not to intervene	7.41	22.7
15	Knows how to do triage	7.41	27.3
16	Initiates investigations promptly	7.36	13.6
17	Uses information in referral letter	7.32	13.6
18	Knows when follow up is appropriate	7.14	13.6
19	Uses antibiotics judiciously	7.05	13.6
20	Generates and ranks differential diagnosis	7.00	4.5
21	Remains calm in an emergency	7.00	18.2
22	Adapts quickly if problem in operating/management arise	6.95	4.5
23	Can formulate a working diagnosis and give rationale	6.91	13.6
24	Interprets results with reference to other information	6.91	9.1
25	Knows when discharge is appropriate	6.86	9.1
26	Aware of cost and clinical value of investigations	6.45	9.1
27	Can improve where necessary	5.82	4.5

clinical and teamwork skills emerged as more important skills than the technical skills (table-I). The very high weightage attached to the basic clinical and teamwork skills signify that our senior surgery supervisors want well rounded

fore, attention needs to be paid to surgeons' non-technical skills<sup>16,17</sup>.

Non-technical skills for surgeons (NOTSS) are defined as "Behavioral aspects of performa-

nce in the operating theatre which underpin medical expertise, use of equipment and drugs"<sup>18</sup>. skills are not addressed explicitly in current surgical training, although with increasing attention

**Table-IV: Nature and importance of team work skills required by general surgeon trainees as identified by supervisors.**

S No.	Teamwork skills	Mean Weightage/ Value	Percentage of supervisors judging the skill absolutely essential (score10/10)
1	Seeks advice when beyond limit of competence/ when in doubt	9.04	68.2
2	Is punctual	8.54	50
3	Can be trusted to carry out instructions	8.40	45.5
4	Accepts responsibility if there is any lapse in patient management/ care	8.63	31.8
5	Able to communicate early with other staff members	8.13	31.8
6	Accepts feedback on own performance	8.13	31.8
7	Follows that the delegated work is executed	8.04	27.3
8	Reports gross negligence to the concerned person	7.90	18.2
9	Understands other staff members points of view	7.86	13.6
10	Aware of role of other specialties	7.81	13.6
11	Delegates to others where appropriate	7.36	13.6
12	Can cope with unreasonable colleagues	6.68	4.5
13	Able to offer constructive criticism to others	6.31	-

**Table-V: Important features of communication skills required by basic surgical trainees as identified by supervisors.**

S No.	Communication skills	Mean Weightage/ Value	Percentage of supervisors judging the skill absolutely essential (score10/10)
1	Sensitive and empathic towards patient	7.90	18.2
2	Establishes a rapport with the patient	7.77	13.6
3	Able to allay anxiety	7.36	0.00
4	Able to diffuse anger or hostility	7.13	4.5
5	Able to explain management in layman's terms	7.09	9.1
6	Explains any potential risks in treatment	6.90	4.5
7	Relates management to individual patient's needs	6.90	9.1
8	Aware of patient's social history	6.90	13.6
9	Able to explain diagnosis in layman's terms	6.77	9.1

**Table-VI: Important features of application of knowledge required by general surgical trainees as identified by general surgery supervisors.**

S No.	Application of Knowledge	Mean Weightage/ Value	Percentage of supervisors judging the skill Absolutely Lessential (score10/10)
1	Actively seeks out further information	7.63	18.2
2	Knows the natural history of disease	7.27	22.7
3	Can present material clearly	7.04	18.2
4	Knows relative merits of different treatment plans	6.63	13.6
5	Can teach or explain with enthusiasm	6.54	4.5
6	Can coordinate available information on a case	6.45	9.1
7	Can complete research	6.00	4.5
8	Critically evaluate published work	5.77	4.5
9	Can initiate research	4.81	4.5

These are clinical skills, team work skills and communication with patients and relatives. These to patient safety in surgery, the need to emphasize on NOTSS is beginning to be recognized<sup>19</sup>,

even in Pakistan, as shown by higher means scored by these traits in current study.

Surgeons of different surgical sub-specialties prefer different sets of qualities in their trainees according to the requirement of their specialty<sup>20</sup>. Therefore, only the general surgery supervisors were surveyed, so that traits expected only out of a general surgery trainee could be highlighted.

This catalogue of traits according to their importance identifies the required aptitudes and cognitive qualities of a surgical trainee. In turn, supervisors will be able to guide their trainees and periodically debrief them objectively. The process will create a behavior pattern and surgical personality, in addition to surgical hands in a trainee. The assessment based upon the traits categorized, will be purposeful, convincing and impartial.

Assessment of surgical trainees is meaningless if qualities of teamwork, communication with relatives and patients and application of knowledge are not assessed. Even if some part of our examinations addresses some of these traits, assessment is not workplace based<sup>21</sup> and pointless as the traits are not made aims or targets at the start of training. Other methods of assessment like logbooks and workshops also do not address the non technical skills in a surgery trainee.

General surgery supervisors have clearly given importance to clinical skills and team work skills more than technical skills. This gives way for a well rounded doctor, responsible, reliable and safe surgeon and a good team player who is ready to listen and improve. We have tried to objectively define these elusive/subjective qualities in this study. We also need to devise ways to train surgeons on these lines and develop methodologies to objectively evaluate/formatively assess surgeons in training for the sake of safe and good surgical practices.

## CONCLUSION

Assessment of surgical trainees during training needs to be done objectively. An effort has been made to objectively define the qualities/

skills according to which a trainee can be assessed and may be use a template for formulating further research and assessment criteria.

## CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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