



“IDENTIFYING THE NEED FOR FOCUSED TRAINING IN SURGICAL SKILLS FOR SURGICAL RESIDENTS IN INDIA: A QUESTIONNAIRE BASE STUDY AMONG PRACTICING SURGEONS”

General Surgery

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ABSTRACT

The world of surgery has evolved from using a mixture of saltpeter and sulfur that was placed onto wounds and lit on fire to cauterize wounds in the stone age to using harmonic scalpel in the present day. The surgeon has to acquire a practical aptitude beyond clinical competence, of possessing technical skills, thus proving as a physician with a healing knife. Just as the field of surgery has seen paradigm shifts, so should the surgical training, to meet the evolving needs of the surgical education. The study is one of the very few studies which has inquired into the transformation required in the Indian Surgical Resident curriculum. It is one of the few studies in India ascertaining the need for a standardized training routine and a standardized objective assessment of technical surgical skills in addition to theoretical assessment and operation theater experience as opined by experienced surgeons themselves. The study was conducted among 50 practicing surgeons with surgical practice ranging from 5 years to 43 years over 2 months. The sample consists of General Surgeons and Super-specialists (including Neuro Surgeons, Plastic Surgeons, Surgical Oncologists, Urologists, Cardio-thoracic Surgeons) from four institutes; Nizams Institute of Medical Sciences, Osmania Medical College, MNJ Institute of Oncology, Siddhartha Government Medical College. The questions were generated from invoking conversations with our faculty and seniors during post operative discussions in the operation theater and changing rooms. The questions were framed such that the higher scores (4 point likert scale) reflected a need for introduction of more interventions into the present curriculum. There are three groups of questions A, B, C, D, E representing years of surgical experience and practice, open ended questions regarding the important attributes in the making of a skilful surgeon and the remedies they propose in the formation of a skilful surgeon, the importance of having technical skill training routines and objective assessments, interventions to be done in creation of a routine, interventions to create a formative assessment for the training. The questionnaire was piloted in a group of 10 faculty members (General Surgeons in our Institute). The questionnaire was then administered over 50 practising surgeons. The present day surgical curriculum as suggested by practicing surgeons who have studied under the conventional Indian system must include the below mentioned salient features as per the present questionnaire based study. Objective Assessment must include; defining the objective of the task, having the basic anatomic, physiologic knowledge specific to the task, taking relevant history, examine appropriately, decision making, performing the procedure with the right technique, defining and performing the pre and post procedure care. Summative assessment must include; case based discussions in seminar, clinical evaluation exercises in wards, out patient, emergency department, holistic approach including all the above. There should be a standard scoring system for assessment of technical surgical skills and it must include formative assessments along with the summative assessment taking references from the present assessment tools like Objective Structured Assessment of Technical Skills (OSATS): University of Toronto, 1990s Zwisch scale: Assessing the resident operative autonomy Miller's pyramid of competency, Work-Place.

KEYWORDS

Surgical Technical Skill, Surgical Technical Competence, Objective Skill Assessment, Objective Computer-aided Surgical Skill Evaluation, OCASE, surgical data science

INTRODUCTION

The world of surgery has evolved from using a mixture of saltpeter and sulfur that was placed onto wounds and lit on fire to cauterize wounds in the stone age to using harmonic scalpel in the present day. The surgeon has to acquire a practical aptitude beyond clinical competence, of possessing technical skills, thus proving as a physician with a healing knife. Just as the field of surgery has seen paradigm shifts, so should the surgical training, to meet the evolving needs of the surgical education. The study is one of the very few studies which has inquired into the transformation required in the Indian Surgical Resident curriculum. It is one of the few studies in India ascertaining the need for a standardised training routine and a standardised objective assessment of technical surgical skills in addition to theoretical assessment and operation theater experience as opined by experienced surgeons themselves.

OBJECTIVE

To ascertain the imminent need for introducing standardised intensive technical surgical training routines into the surgical residency curriculum.

Patients, Materials And Methods

The study was conducted among 50 practicing surgeons with surgical practice ranging from 5 years to 43 years over 2 months.

The sample consists of General Surgeons and Super-specialists (including Neuro Surgeons, Plastic Surgeons, Surgical Oncologists, Urologists, Cardio-thoracic Surgeons) from four institutes; Nizams

Institute of Medical Sciences, Osmania Medical College, MNJ Institute of Oncology, Siddhartha Government Medical College.

The questions were generated from invoking conversations with our faculty and seniors during post operative discussions in the operation theatre and changing rooms. The questions were framed such that the higher scores (4 point likert scale) reflected a need for introduction of more interventions into the present curriculum. There are three groups of questions A, B, C, D, E representing years of surgical experience and practice, open ended questions regarding the important attributes in the making of a skilful surgeon and the remedies they propose in the formation of a skilful surgeon, the importance of having technical skill training routines and objective assessments, interventions to be done in creation of a routine, interventions to create a formative assessment for the training. The questionnaire was piloted in a group of 10 faculty members (General Surgeons in our Institute). The questionnaire was then administered over 50 practicing surgeons.

OBSERVATIONS AND RESULTS

YEARS OF SURGICAL PRACTICE

10 Surgeons with a practise of 5-10 years
5 Surgeons with a practice of 10-20 years
35 Surgeons with a practice of more than 20 years

Analysis:

70% of the surgeons included in the sample have seen some of the major paradigm shifts in the field of surgery, evaluation and assessment in post graduate training of the world. They have both

learnt and taught in the due course of time

1. The key aspects a surgical resident should focus on during the training are
 - a. Effective Judgment and Decision making skills, Psychomotor skills.
 - b. Appropriate case specific peri-operative care.
 - c. Anatomic awareness and right technique.
 - d. Sincerity, hard work , perseverance , consistency, dedication, risk-taking attitude .
 - e. Developing a mentor-mentee relationship between the faculty, seniors and the junior residents.
2. The interventions that can be introduced into the curriculum to impart the important skills to the surgical residents are
 - a. Video based teaching of various surgical procedures, explaining the rationale behind the steps of the procedure, usage of the appropriate instruments, appropriate tissue handling, decision making
 - b. Dissection labs using cadavers, foams, and other analogues to human tissue to mock the operation theater experience to bring about anatomic awareness and practice surgical skills in parallel to the OT experience.
 - c. Simulation to recreate the operation theater and real life experience.
 - d. Airway management, central line placement, fluid and nutrition management, ICU- care practical training routines.
3. Formative assessments of the above inculcated skills.
- A. Need for a standardized distributed technical surgical skill training routine as part of the curriculum which includes critical evaluation and feedback from the mentors.

DISCUSSION

1. The guiding principles in accomplishing a surgical task
 - a. To define the objective of the task
 - b. To have the basic anatomic, physiologic knowledge specific to the task
 - c. To take relevant history ,examine appropriately, decision making
 - d. To perform the procedure with the right technique
 - e. To define and perform the pre and perform post procedure care
2. The methods which can improve the judgement and decision making skills?
 - a. Summative assessments .
 - b. Case based discussions in seminars.
 - c. Clinical evaluation exercises in wards, out patient, emergency department.
 - d. Holistic approach including all the above.

There should be a standard scoring system for assessment of technical surgical skills and it must include formative assessments along with the summative assessment. Reference from the present day standardized tools of assessment like Objective Structured Assessment of Technical Skills (OSATS): University of Toronto, 1990s, Zwisch scale: Assessing the resident operative autonomy, Miller's Pyramid of Competency at Work-Place.

CONCLUSIONS AND SUMMARY

The present day surgical curriculum as suggested by practicing surgeons who have studied under the conventional Indian system must include the below mentioned salient features as per the present questionnaire based study.

1. OBJECTIVE ASSESSMENT
 - a. To define the objective of the task
 - b. To have the basic anatomic, physiologic knowledge specific to the task
 - c. To take relevant history ,examine appropriately, decision making
 - d. To perform the procedure with the right technique
 - e. To define and perform the pre and perform post procedure care
2. SUMMATIVE ASSESSMENT
 - a. Case based discussions in seminars.
 - b. Clinical evaluation exercises in wards, out patient, emergency department.
 - c. Holistic approach including all the above.

There should be a standard scoring system for assessment of technical surgical skills and it must include formative assessments along with the summative assessment taking references from the present assessment tools like Objective Structured Assessment of Technical Skills (OSATS): University of Toronto, 1990s Zwisch scale: Assessing

the resident operative autonomy Miller's pyramid of competency, Work-Place.

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