

ORIGINAL RESEARCH

PERIOPERATIVE MEDICINE

The Cappuccini Test: an audit of anesthesia supervision

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ABSTRACT

Background & Objective: Cappuccini test was launched on 22th May 2019, at Royal College of Anesthetists 2019 conference. This is an audit tool to improve the patient safety in anesthesia, based on lessons learned from Frankie Cappuccini's death. It has been incorporated into standards set by Royal College of Anesthetists and into their hospital accreditation process as a quality improvement tool. We conducted this audit to explore the current status of supervision of trainees in anesthesia in our hospital and to suggest potential improvement of training standards.

Methodology: This prospective audit was conducted in Shaukat Khanum Memorial Cancer Hospital & research Centre, Lahore, Pakistan. It was conducted for 6 weeks from June 20, 2021 to July 31, 2021. We used the tool kit provided by Royal College of Anesthetists and compared our practicing standards against Royal College of Anesthetists' newly set standard for safety of patients and healthcare staff.

Results: We collected twenty-one operation lists during the audit time period. All these lists had trainees under supervision by a consultant grade anesthetist (100%). In response to questions (1–3 and 6) related to trainees' knowledge about who was the supervising consultant, how she/he could be contacted if needed, being able to contact and supervisor able to attend if required, were all 100%.

The two questions (4 and 5) were related to supervising consultants, about their awareness of the operating list being supervised by them (90.5%) and accurate description of the nature of the work being supervised by them (81%).

Conclusion: The Cappuccini test is a simple safety and quality improvement tool. It provides assurance that the trainee is working in a safe environment and has full access to contact the supervising consultant. It is a useful indicator of supervision and potential improvement of training standards.

Abbreviations: AAGBI- Association of Anesthetists in Great Britain and Ireland RcoA-Royal College of Anesthetists UK; NCEPOD-National Confidential Enquiry into Patient Outcome and Death

Key words: Cappuccini test; Patient safety; Safer surgery; Supervision

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1. INTRODUCTION

Patient safety has always been of paramount importance, but it has attained a renewed interest in the recent past due to medicolegal consequences. All patients expect a

certain level of comfort and safety during the conduct of their surgical procedures. Anesthetists play a vital role in this regard. All efforts are being put in to improve patient care while getting healthcare services and at the same time the quest is to improve patient satisfaction thereof.

Appropriate training and teaching of resident doctors are at the core of maintaining these standards.

To maintain the standards of teaching and training, it is required to understand the process through which a trainee is trained to achieve the required competence with an aim towards excellence.¹ Trainees in anesthesia undergo competency based structured training program which includes work-based assessments. Training structure and workplace systems/protocols play an important role in the training of the anesthetist-to-be. The key is to safely expose trainees to increasingly challenging cases as they progress through their training years. Smith et al. defined the exposure to challenging tasks as a prerequisite of learning, while during training it may be somewhat different. This gives opportunity to work in challenging situations in a controlled manner and allows them to reflect on it in retrospective manner to enhance the learning process.²

Anesthesia as a specialty is considered to be stressful, it requires continuous support from the supervising consultant to trainees, to reduce their work stress. Improved patient safety and training structure helps the residents to live a balanced stress-free life.³

An increased level of stress in workplace, burnout and other negative health effects have been reported among the trainees which lack support by the seniors.⁴ Smith et al. also described the process of learning into phases. The delineation that learning a professional execution of the specialty, is different from the theoretical learning of the subject.

The knowledge has to get translated into a clinical application and tactical dimension before it becomes effective professional work. Daily work done under supervision in operating rooms adds to the theoretical knowledge of the trainees which can then be converted to tactical skills to achieve professional excellence. To ensure patient safety in all this is only possible if a supervised practice is done where the pathways of communication are well established and clear.⁵

The Cappuccini test is a six-question audit which is used as a tool to ascertain the level of supervision (above level 1 direct supervision) and the ease of seeking help in case of an emergency. It is used as an indirect measure of the availability of the consultant in real time to provide help if need may arise.⁶ These standards are endorsed by the Royal College of Anesthetists UK (RCoA) and The Association of Anesthetists in Great Britain and Ireland (AAGBI). These bodies govern the principles of provision of standard and safe anesthesia services to patients in the UK and Ireland. Thus, keeping in view, the same the audit was carried out in a specialized tertiary care oncological hospital in a low-middle income country to assess the level of supervised practice and

Box 1: The Questionnaire tool		
No.	Question	Response (please tick)
Q1	Did the anesthetist conducting the list know who was supervising them?	Yes/No
Q2	Did the anesthetist conducting the list know how to contact their supervisor?	Yes/No
Q3	Were you able to contact your supervisor using the method that they described?	Yes/No
Q4	<i>Was their supervisor aware that they were supervising the list that you contacted them about?</i>	Yes/No
Q5	<i>Was the supervisor able to accurately describe the nature of the work that the person they were supervising was doing (i.e. surgical specialty)?</i>	Yes/No
Q6	Was the supervisor free to attend if required?	Yes/No
Question 1–3 were asked from the trainee anesthetists, while 4–5 were reserved for the supervising consultants		

training of trainees according to the internationally accepted set standards

2. METHODOLOGY

The audit was approved by the Clinical Audit Committee of the hospital as per the trust wide policy and hence was exempted from ethical committee approval.

The audit was carried out in the Department of Anesthesia, Shaukat Khanum Memorial Cancer Hospital & Research Center, Lahore, Pakistan, from June 20, 2021 to July 31, 2021, on elective and emergency surgical lists, as well as an anesthesia provided outside the operating room.

A questionnaire was used as an audit tool as endorsed by RCoA (Box 1). We identified the ongoing lists in which the residents were involved in the conduct of anesthesia. Twenty-one of them were identified and were approached during their theatre lists at random time intervals. If the supervising consultant was in the theatre providing direct supervision, then no further action was taken (as level 1 direct supervision of anesthesia is not included in this audit). If the supervising consultant was not in the theatre, then the audit was initiated. The responses were recorded from residents of different seniority levels of residency program and the supervising consultants (Table 1).

The questionnaire tool consisted of six questions (Box 1). Question 1–3 were asked from the trainee anesthetists, while 4–5 were reserved for the supervising consultants.

The anesthesia trainees were asked (Question 1–2) if they were aware who was supervising them and how would they contact them in case help is required (Phone or office/ overhead page)?

Auditor then contacted the supervising consultant by the method provided by the trainee (Question 3). The supervisor was asked (Question 4–6) if s/he knew which list and resident they were currently supervising, any concerns related to the patient or the list supervised and in case of help required, would they be able to respond to it promptly?

The responses were recorded on a preset proforma as devised by the RCoA.

Data was analyzed using Microsoft Excel 2016 and was expressed as frequencies and percentages.

3. RESULTS

During the six-week audit time period, data was collected for twenty-one lists. All these lists had trainees under supervision by consultants. These lists had trainees at various levels of their training; only one (4.8%) trainee belonged to Year 1–2, 12 (57.1%) trainees to the Year 3, and 8 (38.1%) to the Year 4 and above, including clinical fellows. In response to questions (1–3 and 6) asked from trainees about supervising consultant on how to contact, and availability to attend if required, are all 100% (Table 1).

Two questions (4 and 5), relating to supervising consultants that if they were aware of their list and accurately described the work supervised, had mixed results. Consultant awareness about the list was 90.5%,

with 4.8% not aware at all and another 4.8% partially aware with some details missing (Table 1; Figure 1). When asked to accurately describe the nature of work supervised 81% were able to do so, 5.3% could not describe it at all and 14.3% partially described it with some details (Table 1; Figure 1).

4. DISCUSSION

The provision of healthcare in NHS is consultant directed and all trainees do the clinical work under supervision of a named consultant. All trainees are supervised during their training through the conduct of elective as well as emergency lists.

Supervision is defined by de Oliveira et al. as the clinical oversight to ensure quality when the named consultant is not the sole anesthesia care provider.⁷ The various levels of supervision are defined as per the competency level of the trainee defined by the year of training as well as the guidelines from the RCoA. The level of supervision is designed to assess the competency of the trainee in a holistic manner. This can be done by following different recommended levels suggested by the RCoA.^{8,9}

Effective supervision requires the supervisor to focus on the quality of training provided to the trainee and the care provided to the patient. Residents are the frontline workers which gives them a unique point of view regarding the patient safety events occurring in the healthcare setting.¹⁰

Residents deem inadequate supervision as a common cause of errors and adverse outcome. A survey of anesthesiology resident in training was conducted across United States to assess association between self-reported medical errors in anesthesia and trainee supervision; 604 residents responded to the survey (60.4% response rate). Of them, 24 (4%) reported mistakes that had negative consequences for patients, and 16 (3%) made repeated medication errors recently in the past one year.⁸

Trainee's perceived level of supervision was found to be inversely related to the reported mistakes and medication errors.⁷

Patient safety concerns with level of supervision were also explored in other specialties. Holliman et al. conducted a prospective study on 1000 patients in emergency department. It found that supervision of trainee helped avert life-threatening errors and improved ordering of investigation/ tests.^{11,12}

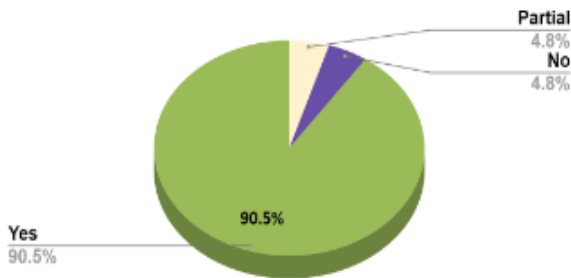
Thus, it can be deduced that adequacy of supervision requires attention allocation to not only the clinical supervision of the trainees and resident

Table 1: The responses by the trainees and the consultants to the questionnaire

Question No.	Response by trainee anesthetists (n = 21)		
	Year 1 & 2 1 (4.8%)	Year 3 12 (57.1%)	Year ≥ 4 8 (38.1%)
Q1	100%	100%	100%
Q2	100%	100%	100%
Q3	100%	100%	100%
Q6	100%	100%	100%
Responses by supervising consultants (n = 9)			
	Yes	No	Partial
Q4	90.5%	4.8%	4.8%
Q5	81%	5.3%	14.3%

doctors but also encompasses the safe healthcare provision to the patients.⁸

Q4: Was supervisor aware that they were supervising the list for which they were contacted?



Q5: Was the supervisor able to accurately describe nature of work that the person they were supervising was doing?

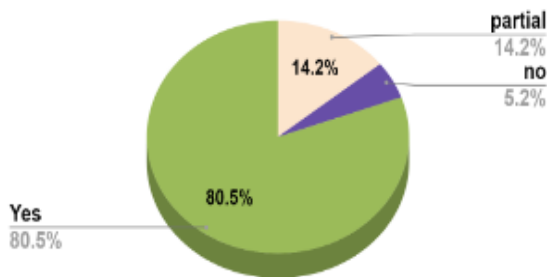


Figure 1: The response about the question number 4 and 5 given diagrammatically.

Despite all the recommendations by the RCoA, The National Confidential Enquiry into Patient Outcome and Death (NCEPOD) report - 'Functioning as a team?' in 2002 raised concerns about not being able to trace named supervising consultant in 5% of audited cases. It also raised concerns on competency of trainee to manage complex cases.¹³

After the NCEPOD 2002, RCoA conducted national audit in year 2003, with 2297 questionnaires from the 135 departments it looked into the role of the anesthetists and their supervision. It showed only a few (34%) departments to have a written policy on supervision and trainee competency to complexity of case. There is inter-departmental variation regarding risk acceptance, attitude to patient safety and organizational safety nets. Common barriers to provide immediate help when required, are consultants engaged in their own lists and not free to respond immediately (never free 30%; sometimes free 55%). Consultants found it stressful to fulfil these conflicting demands. Consultants too felt a more formal and organized system should exist not only to support trainees (named consultant) but also ensure consultant is free to attend if required.¹⁴

Clinical supervisor oversees clinical work and training aspects of resident. Clinical supervisor is recognized by The College of Physicians and Surgeons Pakistan (CPSP) and has formal allocation and responsibility for the named resident in training.

Sessional supervisors have a separate role from clinical supervisors. They are responsible for providing support and training of resident for a particular clinical work session/list. They give feedback to clinical supervisor, who based on these reports, assesses the resident. This audit is on supervisory role of sessional supervisor.¹⁵ The trainees may be involved in certain procedures requiring direct supervision of the consultant within the operating room, or local supervision within the hospital premises or distant supervision where the supervisor is at a remote location away from the hospital. The responsibility lies with the supervisor to ensure best and safe healthcare practices are followed.¹⁶

Different trusts and hospitals adopt these guidelines for the provision of safe anesthesia and healthcare services to patients and devise a local policy to be followed hospital wide. In our hospital these services are provided as per the standards of RCoA¹⁶ and American Society of Anesthesiologists (ASA),¹⁷ which states that all practice of anesthesia in the perioperative phase will be under supervision of the physician anesthesiologist and can be performed by the trainee anesthesiologist as per the competency assessment and privilege credentials which is done by the Department of Anesthesia.¹⁸

Different levels of supervised practice of anesthesia were categorized as follows:

- 1: Direct supervisor involvement being physically present in the operating Room.
- 2(A): Supervisor in theater suite; available to guide activity by active monitoring at regular intervals
- 2(B): Supervisor within hospital for prompt assistance provision
- 3: Supervisor on call from home provide assistance through phone call or non-immediate assistance.
- 4: Trainees are able to manage independently but inform the consultant as per local protocol.
- 5: Autonomously practicing anesthetist.^{6,16,17}

In our audit we found that the anesthetist conducting the list knew in all 100% of the instances the named supervising consultant for the list.

The vital piece of information regarding the supervising consultant and the trainee being supervised needs to be effectively communicated and easily accessible. Usually this is communicated via duty roster which has to be readily available. For this purpose, different means are

used: official email and displayed on board in Operating Room Complex.

In our audit, we found that 100% of the residents were aware of their supervising consultant and were able to tell how to contact their consultant in case help was needed. This is in accordance with the standards set by the RCoA.⁶ Adequate supervisions with a named consultant for the list is needed so that prompt response should be generated if the trainee needs help.¹⁸ This is endorsed by many societies including AAGBI.^{18,19} Having a named anesthesia consultant allocated to a list is considered as an indicator to gauge the quality of practice of anesthesia in any system or setup. McHugh et al. found in a national audit done in 2005 that the hospitals in Scotland had a more robust system of having a named consultant allocated to a particular list which reflected a better standard of care as it enabled the patients to know the name of their anesthetist. This practice is paramount in the development of trust of the patient regarding the institute and the system in general.^{20,21}

In our study, when the designated consultant was contacted as part of the audit protocol, by the means explained by the trainee, 100 % of consultants were contactable and responsive.

The means of communication to contact, in our hospital, is mobile phone and extension via switch board or personal phone. In case of any signal issues overhead pager is also available.

In two instances there was a discrepancy in the knowledge about the patient that was being anesthetized in care of the named consultant. The reason for both the cases was improper / incomplete hand-over between two fellow colleagues.

The importance of hand-over communication cannot be overemphasized and a standard hand-over process, that ensures all required information communicated, is cardinal in ensuring the patient's safety. Effective and timely communication is essential when help is required by the junior members of the team, as well as colleagues working in the same grade.²² Team building and work culture that does not see 'asking for help' as a sign of weakness, reduces the barriers to ask for help when needed.

All supervising consultants (100%) assured that they would be available to the trainee if asked to help. This is better than the international audit results where a delay was reported by the trainees in the arrival of consultants in case of 'call for help'.²¹

Time to respond is not explicitly mentioned but by directing on supervisory consultant physical location, it indirectly hints towards it. The multiple lists or

concurrent work puts pressure on the consultant, who may find difficult to be readily available if needed. This concern has been raised in RCoA National Audit 1, as well by the supervising consultants and about their conflicting responsibilities/commitments.²² Local departmental arrangements can help fine-tune/resolve this conflict in a better way rather than generic solutions which may lead to suboptimal resource utilization.

5. CONCLUSION

Our audit revealed that our anesthesia department's current level of supervision is in accordance with standards set by RCOA. Our robust systems and practices are effectively in place to provide support to trainees and ensure standardized safe healthcare delivery to patients. Further elaboration on the team dynamics and adequacy of communication is important to ensure an environment of teaching and learning.

6. Data availability

The numerical data generated during this research is available with the authors.

7. Acknowledgement

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8. Conflict of interest

The study utilized the hospital resources only, and no external or industry funding was involved.

9. Authors' contribution

RM: Concept, conduct the study, data collection, data analysis. manuscript writing, editing and correction, final approval

DF, AA: Searched the literature, data analysis. manuscript writing, editing and correction_ Final approval

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