

The Perception of Feedback and Strengthening the Feedback Process. A Qualitative Thematic Analysis Among Residents and Supervisors in Anaesthesia and Intensive Care

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Abstract

Background

Medical education worldwide is currently undergoing a shift through the implementation of Competency Based Medical Education (CBME). Feedback is a key factor for implementation of CBME as well as an important element in the process of continuous learning for healthcare professionals. We have investigated the perception of feedback and how to strengthen feedback processes among residents and supervisors in five anaesthesia and intensive care departments in Stockholm, Sweden.

Method

A survey was sent out to 101 residents and 168 supervisors in anaesthesia and intensive care in Stockholm. The data was analysed using thematic analysis.

Results

Our results show that both residents and supervisors had similar mental models of feedback. Feedback was considered to enhance teamwork, create positive reinforcement and support professional development. Our material provides insights to factors that inhibit feedback, such as psychological unsafety, lack of feedback culture and shortage of knowledge regarding feedback processes.

Conclusion

An organizational and systematic approach is needed to empower the use of feedback within the anaesthesia and critical care environment. Establishing good learning environments and strong feedback cultures is an investment for the future of medical education.

Background

Medical education is constantly evolving. A major milestone in medical education was the Flexner Report from 1910 (1) changing American medical education from a non-standardized apprentice-based system to a standardized time-based medical curriculum. Flexner's report transformed not only the American curricula but also had a tremendous impact on medical educational systems on a global scale. Medical education has of course changed since Flexner's time although many medical programs are still to this day time-based and do not clearly define competencies that graduates need to fulfil. (2) Medical education worldwide is currently undergoing a new shift through implementation of Competency Based Medical Education (CBME) (3). CBME aims to shift medical curricula from being time-based to competency-based models focusing on assessment and evaluation of learners (2).

Sweden had at the time of our study a population of approximately 9.7 million of which 2.2 million lived in Stockholm. Medical education in Sweden has undergraduate admission and spans over 5.5 years. This

is followed by a pre-licensure internship of 18 months, ending in a licensing procedure. Residency programs can be applied for by any licensed medical doctor.

Residency curricula at the time of our study used a combination of competency-based and time-based goals, spanning at least 60 months. Medical education is regulated by the Swedish National Board of Health and Welfare.

The curriculum for residency in anaesthesia and intensive care includes competence-based goals for theoretical knowledge, clinical skills, communication, leadership and scientific methodology. Learning is based on clinical rotations and additional courses. An individualized educational program and an individual supervisor is mandatory. The clinical supervisors (preceptors) are required by national regulations to have trained in medical pedagogy, including assessment and feedback.

The Swedish curriculum for residency in anaesthesia and intensive care has become influenced by CBME in recent years. Feedback plays a pivotal role in implementation of CBME (2) and is fundamental for acquiring new skill sets and to evolve from novice to master (4, 5).

Medicine and medical technology are rapidly evolving fields. Continuous learning and strong feedback cultures are fundamental to keep health care professionals up to date with technological and medical advancements and thereby providing high quality care to patients.

This study aims to explore the perception of feedback and how feedback processes could be strengthened among residents and supervisors in five anaesthesia and intensive care departments in Stockholm, Sweden. We consider this topic to be of the utmost importance, since it is a key factor for the implementation of CBME. We also consider feedback to be one way of enhancing continuous learning among doctors throughout their careers and thereby maintaining high standards of care within the Swedish healthcare system.

Method

A qualitative design with a thematic analysis was used (18). Thematic analysis aims to identify, analyze and present patterns within a data set. The method identifies themes capturing central features of the research question. A unique theme is not dependent of how many times it occurs in a given data set and the process to identify and refine themes is quite circular following six steps: familiarity with the data, generalization of initial codes, searching to themes in the data, reviewing themes, defining and labelling themes and finally present the report.

Sample/participants: The survey was sent out to all residents in the residency program for licensed medical doctors in anaesthesia and intensive care (n=101) and all supervisors (n=168) in Stockholm during February - March 2018.

Setting

All five emergency public hospitals located in the metropolitan area of Stockholm; Sweden were included.

Data collection

A web-based surveys were created by B.D, one for residents and one for supervisors to collect data. 22 questions were sent to supervisors and 21 questions were sent to residents. Demographic variables and a variety of multiple-choice questions and open-ended questions covering the topic of feedback were collected. For this study the six open-ended questions were analysed.

The Web-based survey were sent by email to the residency program directors (PD) of each Hospital. The PDs further distributed a digital link through email to all supervisors and residents at their department.

Open-ended questions:

- What is feedback to you in your daily work/within the framework of the residency program?
- If you consider not receiving enough feedback, what might be the reasons for that? Please describe.
- Have you ever experienced negative effects of receiving or providing feedback? If yes, please describe.
- Have you ever experienced positive effects of receiving or providing feedback? If yes, please describe.
- Please give three suggestions on how you and/or your colleagues can get better at delivering feedback.
- Please give three suggestions on how you and/or your colleagues can get better at receiving and using feedback.

Data analysis

Generated data was automatically transferred to the Microsoft Excel program for further analysis.

Table I. Included respondents by demographic variables gender, age and experience.

	Number of participants (n)	Number of respondents, n (%)	Female/Male n	Age in years
residents	101	78 (77%)	44/33	30-51
supervisors	168	88 (52%)	42/45	33-70

Responses from the open ended questions (six questions to the residents and six questions to the supervisors) were analysed using thematic analysis (18).

Our data was coded separately by four coders (ST, BD, ACF, JN). Initially the four coders individually analysed the data. The responses to each open question in the survey were coded into different themes. The coders autonomously decided what themes they identified and how many themes they could find among the replies to each question. The coders then discussed the themes that had been found for each question and used sample questions to enlighten differences and similarities among the individually chosen themes. One coder (S.T.) then gathered a common coding system based on the themes from the previously mentioned discussion. All the data was then re-coded separately by the coders using the themes that had been established in the common coding system.

A new discussion took place where the coding of each response was analysed and differences in the coding were discussed. The discussion resulted in some themes being adjusted. In other cases where responses had been coded differently by different coders it was noted that the responses matched several themes. In such cases the different aspects of the response were discussed in depth.

One of the coders (S.T.) performed a deepened analysis of the different structures within the themes for each question. Similarities and discrepancies among the resident and supervisor group were noted. The analysis was further discussed in a video conference attended by all four coders which resulted in a common understanding of similarities and differences among the two groups.

Results

A large proportion of residents (77%) as well as supervisors (52%) completed the survey. Age distribution and experience level varied greatly within both groups.

What is feedback?

The perception of feedback described by residents and supervisors were divided into five sub-themes. Four were identified in both groups: definition of feedback and its methods, coaching, reassurance and lastly evaluation. Among residents a theme of communication was found whereas among supervisors a theme of teaching was identified.

Residents as well as supervisors defined feedback as constructive criticism and reflection on past events aiming to initiate and support positive changes. Both groups stated that feedback should be given frequently, bilaterally, from all members of a team and through all layers of hierarchy. It can be provided informally and spontaneously in a daily setting or more formally during feedback sessions. Both groups described self-regulatory feedback loops used for self-evaluation. Residents and supervisors highlighted that feedback should cover all aspects of work, including practical skills, theoretical reasoning, attitudes, behaviours and teamwork abilities.

Reassurance and evaluation

Residents desired to be benchmarked against both set standards and fellow residents. They also described the importance of strengthening feedback and to be reassured that they perform well enough. It seems to be important for residents that feedback is a two-way communication process and “a time for discussion and bilateral exchange”.

Teaching

Teaching was noticed as a theme among supervisors but not residents. Supervisors described feedback as “constructive criticism with a formative ambition”, considering feedback to be more of a one-way process for supervisors to teach and instruct residents. The supervisor group did not mention feedback as an educational tool to be used for their own development.

Reasons for not receiving enough feedback

Both residents and supervisors deemed lack of time and priority major inhibiting factors for feedback. In addition, five different sub-themes describing why feedback did not take place were identified. The five sub-themes were identical for both groups and included fear for negative events, culture, lack of knowledge about feedback, lack of routines and habits and lastly the lack of personal responsibility.

Both groups seemed to be concerned about feedback being misinterpreted and not well received, leading to socially uncomfortable situations. It was also suggested that lack of regular feedback habits make the process unclear and frightening. One supervisor feared that feedback could lead to conflict, emphasizing that conflicts could be detrimental to well-functioning teams. The absence of a strong feedback culture was an important reason for not receiving enough feedback. Both groups suggested that if there is no well-functioning feedback culture at the workplace, there will be a natural resistance to feedback. A general absence of feedback culture in Sweden and especially in the Swedish healthcare system was highlighted. Residents described hierarchy as an inhibiting factor to feedback. The supervisors seemed to be even more aware of hierarchical structures being problematic, stressing that it is not culturally acceptable for senior colleagues to provide feedback to each other, describing that feedback sessions had resulted in personal attacks on themselves that led to long-lasting schism between colleagues. Intervening in other consultant’s management of patients was also described as a sensitive area. Misplaced or excessive respect and jealousy was also suggested to inhibit feedback among senior doctors. Resident painted a picture of senior colleagues not being personally engaged in educating residents, hence not giving much feedback.

Positive effects of feedback

Many residents and supervisors had encountered positive effects after providing and receiving feedback. Three common sub-themes could be identified in both groups; enhanced teamwork, coaching that contributed to development and feedback leading to positive emotional effects.

Both groups emphasized that feedback can promote teamwork, create stronger ties within a group, deepen trust between colleagues and create a better work atmosphere. Feedback had also been used to resolve conflicts and support personal growth. Constructive criticism, such as coaching creates a base for reflection and possibilities for further development. Feedback can also strengthen existing positive behaviours and positive emotions. It had stimulated respondents to take on new challenges and built self-confidence. In the resident group it was portrayed how it had been satisfactory to help colleagues to grow and develop.

Ways to improve feedback

Residents and supervisors were asked to give suggestions on how they and their colleagues could improve on providing and receiving feedback. Four sub-themes were identified in both groups; increased education and improved knowledge of the feedback process, changes to the working culture, changes to routines and habits at the workplace and lastly changes of individual approaches and mindsets.

Both groups expressed a wish for extended educational efforts, such as courses and regular practices sessions, to deepen the understanding of the feedback process. Both groups gave recommendations for how to deliver feedback i.e not too much feedback should be given at once and that timing was crucial. They stressed the importance of delivering concrete, honest and respectful feedback that focuses on behaviour instead of personality. It was also suggested that feedback should be based on the receiver's own experience in combination with directly observed examples to highlight important aspects.

Many initiatives of how to highlight the importance of feedback were described. Respondents suggested daily reminders, campaigns, competitions and awards. Raising awareness of the purpose and importance of feedback was considered a first step in creating a more feedback friendly work culture. Both groups stressed that giving and receiving feedback should cross all borders of hierarchy. Colleagues who are high on the hierarchy ladder were suggested to actively ask for feedback. Supervisors stated that good coaching and tutoring should become an integral part of medical practice. Residents and supervisors also emphasized that feedback must be given a higher priority in the organization. Feedback should be a natural part of everyday work life.

Discussion

Our study investigates the perception of feedback among licenced medical doctors during their residency in anaesthesia and intensive care and all supervisors in five anaesthesia and intensive care departments in Stockholm, Sweden. Through a deeper understanding of the perception feedback and the current learning environments, improvements within the Swedish healthcare system can be made to enhance the continuous education of doctors throughout their careers.

Mental models, learning environments and the aim of feedback

It is important that the learner and the supervisor share the same mental feedback model and that the model includes a coaching strategy intended to support the development of the learner (19, 20). We noticed a clear tendency for both residents and supervisors to focus more on feedback as a way of providing or receiving performance data. Less focus seemed to lie on the coaching process that intends to guide the feedback receiver to come to new insights, to move forward in his or her educational process and to improve performance to the next level. Hence, we see a need for educational efforts that raises the awareness and improve knowledge of the aim of the feedback process. Providing tools and training on how to engage in a feedback dialogue is also needed to facilitate the coaching part of the feedback procedure.

Making the feedback process a dialogue that promotes reflection and self-awareness for the learner is key to enhance progression and learning (6). In the resident group the importance of communication and dialogue was highlighted whereas the supervisors focused more on teaching and assessment of theoretical knowledge and technical skills. This could potentially be a sign of a slow shift in the mental model of the feedback process, where senior doctors might hold on to a more traditional way of educating and lecturing compared to the junior doctors who preferred educational dialogue which is a one of the cornerstones of adult learning theories.

A good clinical learning environment is of great importance to the outcome of the training and can be a predictor to the quality of future care provided by the learners (7–9). Adult learning theories form the basis for a well-functioning learning environment in medical education (10, 11). The learning environment needs to be adapted to suit the independent adult learner in order to stimulate the resident's intrinsic motivation to learn. Doctors attending a residency program have a wide knowledge base from previous education and working experiences. This base should act as a foundation to build suitable learning goals. Through educational dialogue the learner and supervisor can together form individual strategies and coaching methods that will support in reaching the goals in the most efficient way (6). The adapted strategies need to be evaluated and improved continuously with the growth of the learner, and not the teacher, being the main focus. It is important to create a learning environment where the learner understands the reasons for learning each skill, as well as engaging the learner in problem-solving and immediate application of newly learned skills. This also must be adopted by the teacher who need to develop pedagogical competencies to enhance learning.

Organizational changes to promote new feedback habits

Our result suggests that structural changes and implementation efforts in order to make pedagogical methods and feedback becoming an integrated part of the everyday work life is needed. Theoretical knowledge is highly regarded in the medical world and is rightly so given a high position on the agenda. How to best communicate and ensure a high medical competency within the profession has thus far received less attention. We suggest that focusing on creating a learning environment by giving pedagogy and feedback a high priority across the organization, new habits can be created that over time lead to the establishment of a strong feedback culture. Changes need to be made on all levels of the organization to promote feedback and pedagogy. Integration at a high organizational level may include integration of

pedagogy and feedback in curricula, mission statements and the general goals of the organization. The structural changes on a more practical level may include adapting scheduling routines to give people the opportunity to work together and thereby create opportunities for direct observations and feedback. Providing education and simulation training on feedback will lay the groundwork for creating a shared mental model of feedback within the organization. It is also important that all the co-workers understand the potential benefits of feedback on an individual as well on an organizational level.

The health care system is by nature a hierarchical system with clear ranks and responsibilities. Our analysis enlightened a hierarchical structure among residents and supervisors, depicting a culture where feedback is provided mainly from senior doctors to their younger colleagues. By creating mandatory feedback sessions spanning all hierarchical boundaries, the feedback process can become bidirectional. Feedback is then not only provided to colleagues in lower ranks but also is more likely to also be provided in between different professional groups, in between senior colleagues and also from junior to senior colleagues to promote life-long learning. Junior doctors are forced to keep up with the latest advancements in medicine during courses and subspecialized clinical rotations. Through bidirectional feedback this knowledge could be beneficial to the overall medical competency of the organization.

Changing pre-existing organizational structures and habits can be inconvenient at first, hence we promote the implementation of frequent compulsory feedback sessions to initiate the structural change. By changing old structures new routines can be created. Over time new routines can lead to the formation of new habits. The formation of new habits may change the culture of an entire organization.

Psychological safety

Fear and anxiety for strong feelings and reactions in response to feedback was clearly described in our study, mainly by the supervisor group. This depicts a certain level of psychological unsafety within the studied organizations. Psychological safety is a cornerstone to create a good learning environment where feedback and continuous learning can take place (12). It is also well known that psychological safety is a key factor for good communication and well-functioning teamwork in the healthcare setting (13). The health care system is a high-risk system where errors can lead to poorer patient outcomes (14). A psychological safe environment is an important factor for medical staff to dare to speak up about errors and to actively work to promote patient safety (14, 13). It should thus lie in every healthcare organization's interest to actively work to create a psychological safe environment in order to strengthen the learning environment and to ensure patient safety.

Continuous medical education

It takes a lot of experience to become an expert, but to have extensive experience in a field does not automatically make someone an expert (15). Learning a new skill set might initially require a lot of effort. With time the performance is gradually adapted to the demands and the behaviour becomes more and more automated. Unless active measures are undertaken to ensure continuous improvements of the performance the development of the skill might come to a halt (15). There can even be a negative correlation between years of experience and the level of performance (16). According to a study by

Choudhry et al (17) doctors with more experience might be less likely to follow current standards of care and may also provide a lower quality of care. They also suggested that experienced doctors might have a difficult time judging their own proficiency and need for further education. This highlights the importance of a continuous learning environment throughout the entire medical career.

The advancements in medical research as well as the rapidly evolving field of medical technologies makes continuous learning for health care professionals more important than ever before. To be able to deliver the best care possible, doctors need to achieve new competencies continuously throughout their careers. If senior doctors lack knowledge and understanding of the feedback process as a tool for continuous learning, this might lead to a less adaptive health care system and patients not gaining all the potential benefits of the fast advancements being made within the field of medicine (21, 22).

Can we learn from other professions?

Coaching and feedback is essential to other professionals, such as athletes and musicians. To picture a professional runner without a coach is almost impossible. In order to reach new heights in sports, the athletes and coaches set clear and measurable goals, they gather performance data, analyse it and through feedback and coaching processes make continuous improvements towards the set goals. Our study points to the fact that the more senior you become as a doctor, the less feedback you will receive. To compare this to a professional athlete is an interesting mind game. Would a soccer team or a professional runner consider not using a coach as soon as they reached a certain level of expertise or would they instead intensify their coaching efforts in order to reach excellency?

Competency based medical education and the culture

As Competency Based Medical Education is entering the stage, the world of medical education is changing. This shift focuses from assessing acquired competencies by measuring time, to instead focusing on actual competence. Feedback and assessment are important tools for building competence and are thus key factors in the implementation of CBME. To fully benefit from the advantages of this shift, the feedback and coaching processes need to become part of the culture of the healthcare systems. By changing organizational structures, implementing educational efforts on pedagogy and feedback and by promoting a psychological safe environment a strong feedback culture can be created. If we choose not to take these steps to strengthen the learning environment through the use of pedagogical tools such as feedback, we will miss out on the potential benefits of CBME. Not only will CBME only become empty words in a medical curriculum, we will also miss out on shaping a new generation of continuous learners within our healthcare systems.

Limitations

Validity and reliability are central concepts for quality in quantitative research (23). In qualitative research trustworthiness depends on three criteria (24). 1) Credibility. In this study we have used self-reported data from the respondents in a web survey. 2) Dependability related to the degree of stability and consistency in the data. All steps in the analysis have been presented in this study and all four researches have been

involved in the thematic analysis when generating initial codes and applying those on the data set. The coding process has been compared and in the few cases of disagreement this has been discussed until consensus has been reached. 3) Transferability. This study is unique to the Swedish context but the codes and themes generated through this inductive analysis enables researchers in other context to use these codes and themes on their own context. Hence, the results are transferable. (24).

Conclusion

We suggest that focusing on establishing good learning environments and strong feedback cultures is an investment for the future of medical education. Further studies are needed to investigate how healthcare organizations can incorporate feedback in their organizational structures and how clinical learning environments can be strengthened. It is also important to further investigate how residents are best trained and coached in order to acquire the needed competencies. Further investigation is also needed to establish how continuous learning can be maintained throughout doctors and healthcare professionals' entire medical careers

Declarations

Ethics approval and consent to participate

This study does not require ethical approval according to the Swedish Ethic Review Act (2003.460), 3 paragraph. All methods were carried out in accordance with relevant guidelines and regulations. Informed written consent was obtained from all participants before taking part in the survey.

Consent for publication

Not applicable

Availability of data and material

The datasets used during the current study are available from the corresponding author on reasonable request.

Competing interests

None

Funding

None

Authors' contributions

ST: Participated in the coding and wrote a first draft of the manuscript.

BD: Designed the study and created the web-based surveys and participated in the coding.

ACF: Participated in the coding and writing of the manuscript.

JN: Participated in the coding and writing of the manuscript. Also involved in the design of the study and creation of the web-based surveys.

All authors have read and approved the manuscript.

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