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Short Communication

Inter Professional Education highly appreciated but resource demanding

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Abstract:

We have developed an interprofessional program for training of hands-on medical skills and interprofessional collaboration and communication in perioperative care for medical students and junior staff members. It has been implemented without jeopardizing patient safety or theatre turnaround times. We have evaluated the curriculum by a questionnaire including a modified version of RIPLS graded 1 to 10. In all 352 students, 142 medical students, 80 nurse students, 87 nurses having specialist training, and 43 junior doctors has taken part in the education program and responded to the evaluation questionnaire. The confidence in their professional role increased in average 1.5 out of 10 and their understanding of the other team members' roles and tasksincreased by in average 1.8 with no significant difference between student groups. The program was overall assessed as highly appreciated in average 9.5; highest among nurse students 9.7 followed by nurses having their special education training 9.6 and medical students and junior doctors both 9.4. The curriculum is resource demanding but highly appreciated among students and junior staff members. We believe that early interprofessional training improve medical staff understanding for the importance of collaboration and transferral of critical information in order to improving safe patient perioperative care.

Introduction:

Clinical teaching, introducing medical students, doctor and nurse students, junior doctors and nurses during specialisation, to patient work is an important part of medical education. The early clinical teaching in surgery and anaesthesia is challenging. It is a balance between student hands-on involvement, securing patients' safety and avoidance of major time delays in the theatre program. Simulator training has gained increasing interest and its place in medical education is obvious (1). Clinical anaesthesia and surgery training should however involve not only the direct patients' parts, e.g. starting an iv-line or suturing etc. but also the interprofessional collaboration and exchange of information in order to secure safe patient care (2). It should further provide insight about patient flow through the perioperative pathway. A teaching project was started at the Institution for Clinical Science Karolinska Institutet Danderyds hospital in 2011 with the goal to create a curriculum for interprofessional learning in the perioperativ process. The aim was to combine traditional supervisor hands-on clinical training but also to include and strengthen collaboration and communication between different medical professions.

Methods and outcome:

An interprofessional team of clinical teachers responsible for the clinical education of surgeons, anaesthetists, scrub nurses, anaesthesia and postanaesthesia care nurses was formed. The projected started with a literature review confirming that most existing educational systems commonly used are "parallel system", instead of being interactive process based training in interprofessional teams. Medical students, nurse students are only uncommonly training medical skills together, in collaboration. Likewise junior Doctors and nurse have their specialist training are usually training in separate programs without interaction, although the will they be dependent on each other when coming in practice.

A program consisting of 3 parts was developed; a pre-meeting to inform and present the schedule and work task for the actual hands-on training. The hands-on training included an elective routine hernia repair surgery under general anaesthesia as a day case where students' were to perform most parts under close surveillance of the clinical teachers and responsible Doctors. All students took part after leaving patients following in the recovery area in a follow-up discussions and evaluation session (figure 1 and 2).

Figure1: Interprofessional Education supervisor rescourse

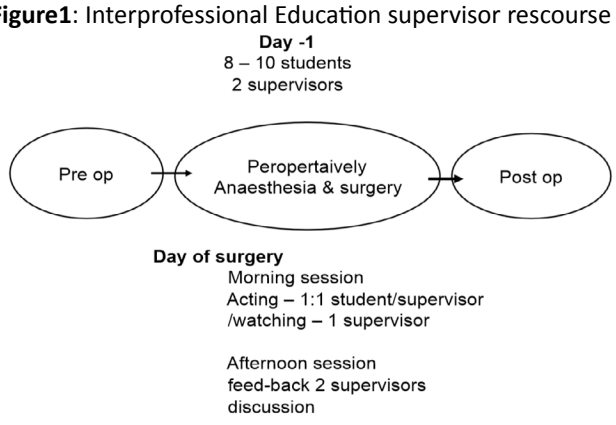
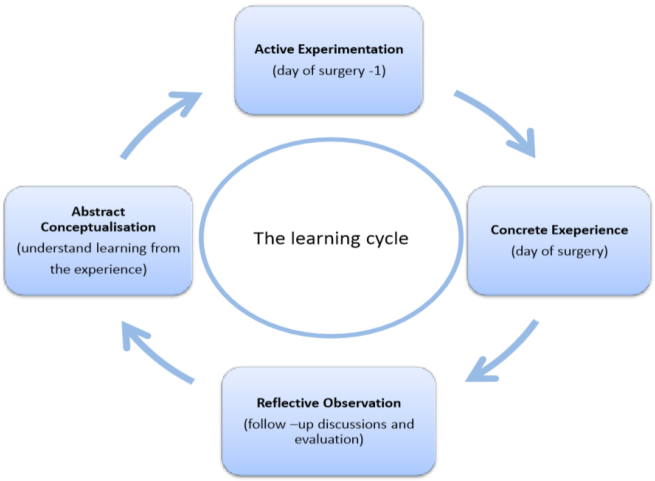


Figure2: The Learning cycle



A structured and explicit training manual was developed providing teachers explicit information around goals, educational tools, and timetables.

The education included not only the medical parts, staring an iv. induction and maintenance of anaesthesia for the anaesthesia personnel and incision, and hernia repair for the surgical student but extensive training in communication tools. Exchange of information was trained by so called loop communication "effectively communicate" – closed loop (3). The SBAR technique; Situation-Background-AssessmentRecommendation strategy was trained (4). The World Health Organizations checklist (WHO - http://www.safesurg.org) was use in accordance to guidelines before the induction of anaesthesia ("sign in"), before the incision of the skin ("time out") and before the patient leaves the operating room ("sign out").

The education program aimed at improving the learning cycle, create a constructive and analytic educational culture. An anonymous feedback form was used to evaluate the training program. The participants received a questionnaire before and after the training using a modified version of RIPLS including 3 main questions;

1. confidence in your coming professional role
2. understanding of the other team members' roles and tasks
3. the learning environment, Interprofessional education as a tool for practical perioperative training The scale ranged from 1 to 10.

The nature of this study does not fall under the Swedish Ethical Review Act from 2003 with changes made in 2008; the local ethical committee of Stockholm has therefore not assessed this study. The study has been performed in accordance with the 1964 Helsinki declaration and its later amendments.

Results:

The program was initially tested in 2011 and has since 2012 been part of the routine perioperative training for medical student (MS), nurse students (NS), nurses under special training for scrub nurse, anaesthesia and recovery room staffing (SN) and junior Doctor (JD) training. It has been implanted without major delays in theatre turn around and no adverse effects or patient safety concerns have been reported.

In all 352 students, 142 MS, 80 NS, 87 SN, and 43 JD has taken part in the education program and responded to the evaluation questionnaire. Base line evaluation of confidence in your coming professional role did not differ between the groups table 1 .

Table1: The assessment of confidence in your coming professional role before and after training

	2012 (n=121)	2013 (n=111)	2014 (n=120)	ALL (n=352)
MS (n=142)	5.3/7.0	5.4/7.1	5.4/7.0	5.4/7.0
NS (n=80)	5.8/7.5	5.7/7.1	5.9/7.2	5.8/7.3
SN (n=87)	4.7/6.5	5.1/6.2	5.8/7.0	5.2/6.6
JD (n=43)	5.4/6.7	6.7/7.6	5.7/7.0	5.9/7.1
All (n=352)	5.2/6.9	5.6/7.0	5.6/7.1	5.5/7.0

MS, medical students, Nurse Students, SN specialist nurse students, JD junior Doctors

The base line rating of how the participant had an understanding of other team members' roles and tasks was however significantly higher at base-line among JD as compared to medical students with the groups of nurses inbetween see table 2.

Table2: The assessment of understanding of the other team members' roles and tasks before and after training (Q2)

	2012 (n=121)	2013 (n=111)	2014 (n=120)	ALL (n=352)
MS (n=142)	5.5/7.5	5.7/7.7	6.1/8.1	5.8/7.8
NS (n=80)	6.8/8.5	6.0/7.8	5.8/7.8	6.2/8.0
SN (n=87)	5.9/7.5	6.5/8.3	6.3/8.0	6.2/7.9
JD (n=43)	6.6/8.0	7.2/8.3	6.7/8.3	6.8/8.2
All (n=352)	6.0/7.8	6.1/7.9	6.2/8.0	6.1/7.9

MS, medical students, Nurse Students, SN specialist nurse students, JD junior Doctors

All groups showed a significant increase in both confidence and understanding of the other team members' roles and tasks ($p < 0.001$). The mean increase in confidence (Q1) was highest for medical students 1.7 (SD 1.3) followed by nurse students and nurses under special training 1.4 (SD 1.4 and 1.6 respectively) and last junior doctors 1.2 (SD 1.1). The increase in understanding of the importance of collaboration and interprofessional collaboration was highest for medical students 2.0 (SD 1.5) followed by nurse students 1.8 (SD 1.6), nurses under special training 1.6 (SD 1.4) and junior Doctors 1.4 (SD 1.3). The overall score for the educational program as an important part of the perioperative training was 9.5 (SD 1.1) with no difference between groups or trend in change over the period studied see table 3.

Table3: Assessment of the Interprofessional education as a tool for practical perioperative training (Q6)

	2012 (n=121)	2013 (n=111)	2014 (n=120)	ALL (n=352)
MS (n=142)	9.3	9.5	9.5	9.4
NS (n=80)	9.9	9.6	9.7	9.7
SN (n=85)	9.6	9.8	9.5	9.6
JD (n=41)	9.6	9.1	9.5	9.4
All (n=348)	9.5	9.5	9.5	9.5

MS, medical students, Nurse Students, SN specialist nurse students, JD junior Doctors

Discussion:

The goal for this interprofessional curriculum was to create a structured easy to adopt learning program where students were to perform and act in the clinical situation as far as possible using their own knowledge and skills with close support from their supervisors and where the training standard clinical training included also interprofessional collaboration and communication. We found the this interprofessional training is highly appreciated and providing significant impact on student's assessment in confidence in their professional role as well as understanding of the importance of collaboration and other team members skills. Safe and effective surgery demands not only professional skills but also skills in collaboration and exchange of information. Improper collaboration and/or communication is not an uncommon cause for adverse events (2). The goal of the project was to develop a structured hands-on practical clinical training where all professionals interacted with each other as a part of the training. Traditional educational systems are commonly parallel systems where each category is training independently, instead of being an interactive process. Training, not only direct medical skill, but also communication, interaction and process thinking in medical education is of importance (5, 6). Adverse events may be prevented by better and more structured interprofessional communication. Better training in exchange of critical information may reduce patient risks (5).

Our program has dual goals; training the medical students and junior staff in clinical skills but also active training in collaboration and proper communication; securing transferral of critical information along the entire perioperative process. Interprofessional education is today a well-accepted concept where trainees from different educations train together. Inter professional learning with, from and about each other improve collaboration and the quality of care (7). We believe that interprofessional training starting at basic level and repeated at junior staff level although resource demand fulfil and important part of medical perioperative curriculum.

Implementation of such a program requires acceptance among all involved disciplines and demands trust of competence among teachers' not only to fulfil the teaching goals but in clinical patients work. Our program includes not only hands-on training but a follow-up discussion and evaluation. We believe that reflecting, as part of student's clinical practice, is an important step in the learning process (8, 9).

We found some differences between the groups, medical students, nurse students, nurses under special training and junior doctors. Difference in assessment of benefits from interprofessional education has also been shown in previous similar programs (10).

Our model is teachers' demanding. This educational model involves one supervisor from each profession and a surgeon as well as a anaesthetist attending the case. Thus the training is associated to a high teacher cost. We do believe however that this "cost" makes students better prepared and thus pay off in the end. There was during planning a fear that this kind of teaching activity could jeopardise the theatre turn around. We found early the importance to make a dedicated time schedule in order to optimize the logistics and minimize time delays in order to avoid delays. We have been able to keep more or less standard theatre times.

We have successfully developed and implemented a multidisciplinary inter-professional perioperative training program. Our interprofessional curriculum is highly appreciated by students. Similar program should be possible to implement elsewhere without jeopardizing patient safety and theatre delays.

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