

SURGICAL EDUCATION

SE01 THE EMERGING ROLE OF SIMULATION IN SURGICAL TRAINING

O. TRAYNOR

Royal College of Surgeons in Ireland, Ireland, Ireland

Traditionally, surgical trainees have acquired their technical skills whilst working in the operating theatre alongside more senior surgeons in an apprenticeship model. Recently, changes in surgical practice have challenged this traditional approach, including reduced working hours, decreased availability of operating theatre time, increased cost of operating theatre time and increasing complexity of surgical procedures. Most importantly, public opinion is increasingly resistant to having patients used as teaching material. Moving forward in the 21st century, we need to develop a new model of technical skills acquisition. Surgical simulation offers a means of practicing surgical skills in a laboratory environment with no risk to patients. Simulators range from simple bench models, which are relatively inexpensive, to high tech virtual reality simulators. The Royal College of Surgeons in Ireland has developed a syllabus for operative surgery which is based on simulation and all trainees attend the National Surgical Training Centre on a regular recurrent basis, six times each year, for concentrated skills training. Simulation allows the standardisation of teaching technical skills and, most importantly, standardisation of assessment of technical skills. Furthermore, simulation offers trainees “permission to make mistakes” – a valuable learning exercise. Our trainees are assessed in the laboratory setting and must demonstrate proficiency before moving to the next stage of training (proficiency based progression). Simulation has played a key role in this process.

SE02 THE VALIDITY OF AN INTEGRATED CLINICAL SIMULATOR FOR LEARNING LAPAROSCOPIC APPENDICECTOMY

J. A. WINDSOR, B. LOVEDAY, G. OOSTHUIZEN AND S. DIENER

University of Auckland, Auckland, New Zealand

Purpose Attaining procedural competence requires a combination of specific cognitive and psychomotor skills. The Multimedia Clinical Skills Trainer (MCST, GoVirtual Medical Ltd) is software program that integrates text, anatomy, video and simulation for teaching a range of procedures. The purpose of this study was to determine the face, content and construct validity of MCST for laparoscopic appendicectomy (LA).

Methodology The study was supported by the RACS. Basic surgical trainees (BST) in NZ were recruited and randomized into a control group and an intervention group. The latter received MCST for ad libitum use on their personal computers. Participant received three questionnaires: at the start of the study to determine demographics, at 2 weeks to assess knowledge and problem solving ability, and at four months to assess operative confidence and usefulness of MCST.

Results Fifty-eight BST's were randomized. The first questionnaire was returned by 46% of participants, and third questionnaire by 44%. The intervention group scored more highly than the control group in the second questionnaire (14.69/20 vs 13.48/20). This difference was more apparent for first year BST's (14.93/20 vs 12.13/20, $p = 0.04$). Operative confidence was similar at four months for the two groups. First year BST's scored MCST more highly for its usefulness (5.2/7 vs 3.7/7, $p = 0.04$).

Conclusions MCST has face, content and construct validity for BST's learning LA, is a useful pre-learning tool prior to clinical training opportunities, and can be used to measure knowledge and performance.

SE03 ANATOMY IN THE VIRTUAL WORLD

C. DOBBINS, A. KANHERE AND G. J. MADDERN

University of Adelaide, South Australia, Australia

Background Recently, the use of 3-dimensional virtual reality anatomy teaching tools has generated interest. Although they would appear to have the

potential to revolutionise the way in which anatomy is taught, further evaluation is required. The aim of this study was to evaluate the use of 3-dimensional virtual reality as a tool for teaching anatomy to basic surgical trainees.

Methods Basic surgical trainees from The Queen Elizabeth Hospital and Flinders Medical Centre in South Australia were invited to participate in an anatomy teaching session. Liver and pancreas anatomy were the topics covered during the session and these were taught using either standard or virtual reality teaching techniques. Participants were asked to evaluate the two modalities by way of multiple choice examination, pre and post session evaluation forms and commenting on their preferred teaching modality.

Results 16 participants were involved in the study. 1 of 16 participants preferred teaching with standard techniques. 14 out of 16 participants found teaching with virtual reality to be either good or very good. The number who thought their knowledge of anatomy had improved with either technique was similar (7 out of 16 with virtual reality, 6 out of 16 with standard techniques). Post teaching session test results showed similar improvements with both teaching modalities.

Conclusions The 3-dimensional virtual reality teaching method was very well received by participants and is at least as good as standard teaching techniques. The use of 3-dimensional virtual reality may offer a more interesting and useful option for anatomy instruction.

SE04 BIO-REALITY SURGICAL TRAINING MODELS

D. L. MURPHY

Skills Centre, RACS, Melbourne, Victoria, Australia

Purpose To create valid, re-vascularized tissue models for surgical training.

Method Re-established pulsatile flows were created in selectively cannulated arteries of the cadaveric tissues, being developed as training models. Venous flow was also re-established for some teaching models. Manual pump techniques were used to produce a pulsatile flow through these blood vessels.

Results Selected examples have been developed and used in Advanced Surgical training. Video examples to be displayed include Models for renal, vascular, micro-vascular and cardiac surgery.

Conclusion The ideal surgical training model needs pulsatile vessel preparations for many training circumstances.

A bio-reality, pulsatile surgical training model has been developed. It has application as a penultimate model for surgical skills training.

SE05 THE PRIVATE HEALTH SECTOR: A POTENTIAL SURGICAL TRAINING GROUND? – A STUDY OF THE PERCEPTIONS OF PATIENTS

L. P. S. WUN, L. M. WONG, J. SHAW, A. HERIOT, J. KECK AND D. VELLAR

St Vincent's Hospital, Victoria, Australia

Purpose The need for more accredited advanced surgical training positions has been identified by the Royal Australasian College of Surgeons. This study aimed to explore the perceptions of a sample of patients on surgical education and training in a private hospital setting.

Methodology This is a prospective study where patients undergoing elective surgery in a private hospital were recruited over a 6-week period. A Likert Scale questionnaire was used to assess patient perception on choice of private healthcare, the role of the surgical resident in a private hospital and surgical training within a private hospital environment.

Results Sixty-eight patients were recruited. Choice of surgeon was the most important reason for having private health insurance (59%). Almost all (97%) patients supported surgical training within a private hospital. There was support for a surgical trainee to liaise with the consultant surgeon about their care (95%), to perform minor procedures on the ward (91%) and assist the consultant at surgery (86%). Patients supported options for the trainee to perform part (73.4%), the majority (50.0%) and the entire operation (40.6%) under supervision of the consultant surgeon.

Conclusion A representative group of patients surveyed supported surgical training within a private hospital environment. The increasing demand for surgical training within the public environment necessitates the consideration of additional training resources such as the private healthcare system. It

appears that the private health sector could be explored as a potential avenue for provision of surgical education and training.

SE06 DOCTORS AND POWER; OR THE TRUE STORY OF SURGERY TOLD FOR THE VERY FIRST TIME!

R. J. CANTER

Royal College of Surgeons of England, Middlesex, United Kingdom

This presentation aims to discuss two ideas in particular; the 'biomedical' paradigm of evidence based medicine and 'power' in the medical encounter, to link them together to examine, and hopefully disturb, some basic assumptions that exist in medical decision-making. To keep the talk firmly rooted within the bounds of real life, all the ideas will be illustrated by reference to a simple surgical procedure and basic science experiments with a frog.

The gold standard for knowledge in medicine are 'facts' generated by a randomized, double-blind controlled trial, so called level 1 evidence. By drawing on the ideas postulated by the philosopher David Hume, the presentation will argue that such 'facts' do not fully comply with the requirements of causality, question the appropriateness of such a reductionist biomedical model in a world of complexity, raise questions about their generalisability and illustrate the tendency for the model to marginalize certain types of information.

As is often quoted, 'knowledge is power' so what power framework can be used to shed light on the medical encounter and the way medical 'facts' are used. How do doctors handle their power? Is this a question any of us ask of ourselves? By utilizing various contemporary models of power I hope to show how the ideas put forward by the French philosopher Michel Foucault and the English philosopher Steven Lukes can shed light on how we use our power in the medical encounter, and in turn how establishment power is used to manage the medical profession.

SE07 IMPLEMENTING A NEW CURRICULUM IN SURGERY: WHAT IS GOING WELL AND LESSONS LEARNED

R. J. CANTER

Royal College of Surgeons of England, Middlesex, United Kingdom

The project has been divided into five phases;

1. Development of standards and associated assessments; completed october 2005
2. Needs analysis of the educational resources, capacity and systems to eliver training; october 2004–april 2005
3. Piloting the new curriculum; october 2005–july 2007
4. Full implementation of the new curriculum; august 2007
5. Research programme to evaluate the new curriculum; october 2005 onwards and managed using a standard Kotter (1) organisational change model.

The needs analysis assessment of educational resources, capacity and systems involving all key stakeholders in the process uncovered serious concerns of corporate and financial governance in those agencies involved in surgical training. This can be succinctly described as:

1. Mixed allegiances
2. Unclear decision rights
3. Non transparent fund flows
4. Competing priorities and accountabilities concluding, along with an independent report, that "the quality of surgical education is deteriorating quite rapidly to such an extent that remedial measures are becoming increasingly urgent." To address this surgical training is being reconfigured around Postgraduate Schools of Surgery, with clear roles and responsibilities for key members of the surgical education team.

Lessons learned include the importance of understanding the political environment and the need for 'alignment' in order to be effective; how this can be seen as 'selling the profession'; that planning and implementation should be undertaken by the same group wherever possible; the difficulty of maintaining energy levels; and the importance of communication – you cannot have enough of it.

SE08 STUDENTS PERSPECTIVES OF A SURGICAL EDUCATION PROGRAM

J. HILLIS, A. DODDS AND J. P. COLLINS

University of Melbourne, Victoria, Australia

Background The purpose of the undergraduate surgical education program is to prepare students for their internship and eventual vocational practice. It is also an opportunity to sow the seeds of a possible career in surgery. **Methods** In order to understand students' perspective of their surgical program and the various factors which might impact on their learning, and the possibility of their choosing a career in surgery, a structured questionnaire was given to the 2006 cohort of final year medical students at the University of Melbourne.

Results Responses were received from 260 of the 285 students (91%). Bedside teaching, small group tutorials and clinical skills workshops were regarded as the most appropriate methods for learning surgery, with bedside teaching and the operating theatre (when surgeons were willing to teach) considered to provide the greatest learning opportunities. The most significant barriers were lack of anatomy teaching and lack of formal surgical teaching and difficulties accessing surgeons willing to undertake teaching. 25% did not feel adequately prepared for the surgical components of their internship. 32% were considering a career in surgery and lifestyle factors and poor experience with surgeons were given as some of the reasons for lack of interest in surgery. Increase in anatomy teaching throughout the course, and more bedside and formal teaching were considered the most significant ways to improve the course.

Conclusion Surgical education is at a crossroads and the findings of this study have important messages for preparing the future workforce and will be discussed.

SE09 TRAINING OF FINAL YEAR MEDICAL STUDENTS IN PROCEDURAL SKILLS: IS IT WORTHWHILE?

M. LUSHKOTT AND I. P. BISSETT

Auckland City Hospital, Auckland, New Zealand

Purpose Doctors graduating from medical school are immediately faced with performing many clinical procedures. This study aimed to assess whether the introduction of a new procedural skills course for final year students increased their confidence in performing these skills at qualification.

Methods Students attending the final year procedural skills course were asked to complete a pre-course, post-course and end of year questionnaire scoring their confidence and experience in each of the procedures. Fifteen skills were taught in a simulated setting including; instrument handling, suturing, knot tying, local anaesthetic administration, plaster application, rectal examination, male catheterisation, nasogastric tube insertion, arterial blood sampling and lumbar puncture.

Results The questionnaires were completed satisfactorily by 60, 64 and 93 students at the precourse, postcourse and end of year times respectively. There was a significant improvement in confidence for the 15 skills taught at the postcourse and end of year assessments over the precourse values ($p < 0.0001$ for all). By the end of the year (3–7 months later) there was a significant drop in confidence ($p < 0.05$) from the postcourse scores in 10 procedures that was not seen in local anaesthetic administration, rectal examination, preparing a sterile workplace, male catheterisation and arterial blood sampling. In these 5 procedures there was a significant increase in experience between the course and end of year.

Conclusion Teaching procedural skills to final year medical students results in increased confidence in these skills at graduation and confidence is maintained best in those with ongoing experience in the procedure.

SE10 SURGICAL TEAMWORK: SYSTEMIC FUNCTIONAL LINGUISTICS AND THE ANALYSIS OF VERBAL AND NON VERBAL MEANING IN SURGERY

J. CARTMILL, A. MOORE, D. BUTT AND L. SQUIRE

University of Sydney, New South Wales, Australia

Purpose Surgeons rely on teamwork, yet beyond an appreciation that some teams are more enjoyable to work in than others, or more effective, there is little understanding of the myriad complex interactions that make teamwork possible.

Techniques of systemic functional linguistics permit objective analysis of behaviour (often subtle or subliminal) that carries meaning; these techniques can be applied to surgical teamwork.

Methodology Linguists came into the operating room initially for unobtrusive note taking and sketching. Increasing familiarity over several months allowed detailed audio visual analysis of surgery. Surgical sequences were recorded and analysed using Elan software. Recurring patterns of meaning were identified and catalogued.

Results The techniques surgeons and their team members use to exchange meaning is made explicit in this study, which brings out the systemic character of the options for meaning available to surgical team members. A grammar, albeit one that encompasses meaning through gesture, touch, body position and gaze, as well as speech, is presented. This grammar captures not only the conventions, rules and consistencies of the surgical ensemble, it also brings out the rhythm, tone, and nuance of the teamwork interactions.

Conclusion It is possible to analyze the subtle nuances of interaction that constitute teamwork during surgery. We hope that this work will help demystify the operating room and make it easier for junior staff to understand what is being "said" while making it possible for more experienced staff to recognize and optimise the teamwork so essential for the realization of a complex modern operation.

SE11 DEVELOPMENT OF A PERSONAL SKILLS PROGRAMME FOR SURGICAL TRAINEES

O. TRAYNOR

Royal College of Surgeons in Ireland, Ireland, Ireland

It has been estimated that only 25% of the important events which take place during the surgical procedures are related to technical skills and that 75% relate to human factors such as decision-making / judgement, error management, communication, team work and leadership. Despite compelling evidence that human factors play a vital role in clinical outcome, surgical training has not traditionally included a systematic approach to human factor training. At the Royal College of Surgeons in Ireland we have developed a formal programme of human factor training, Human Factors in the Surgical Arena. This programme is based on a clearly defined syllabus. All surgical trainees (>450) attend the National Surgical Training Centre three times each year in groups of 30 for a full day of training according to the syllabus. Learning occurs in conjunction with trainees in anaesthesia and postgraduate nursing and the focus is on the team approach to patient care. Through small group discussions, role playing and realistic clinical scenarios, trainees explore the various human factors which come into play in surgical clinical practice. Trainees are given assignments which are designed to bring what they have learned in the classroom back to the workplace. The programme aims to give trainees "previously learned responses" to a wide range of clinical situations so that when they encounter such situations in real life, they will know how to utilise the resources available to optimise the outcome for their patients.

SE12 THE RELATIONSHIP BETWEEN BURNOUT AND EMOTIONAL INTELLIGENCE IN AUSTRALIAN SURGEONS AND SURGICAL TRAINEES

S. BENSON, P. G. TRUSKETT AND B. FINDLAY

Swinburne University of Technology, Victoria, Australia

The current study aimed to explore burnout prevalence rates and to examine the relationship between burnout and emotional intelligence in an Australian

surgical population. The sample comprised 126 participants (53 SSTs, 73 Fellows; Mean age = 44.03 years, SD = 13.29).

Method Participants completed a battery of self-report measures of burnout, emotional intelligence, and social desirability. Measures achieved reliability coefficients between .68 and .89, indicating adequate internal consistency.

Results A series of independent samples t-tests indicated that burnout levels were significantly higher for the surgical sample than for other normative populations, with 47.6% of the sample reporting high general burnout levels. As predicted, younger surgeons reported significantly higher burnout levels, regardless of career stage. Burnout correlated significantly with early retirement and/or retraining intentions, and was inversely related to overall emotional intelligence levels. A series of regression analyses revealed that emotional control, emotional recognition and expression, and understanding of emotions were significant predictors of burnout. An exploration of gender differences found that females reported slightly higher general burnout levels.

Conclusion A number of implications, limitations, and suggestions for further research were explored. It was concluded that burnout remains a significant problem for the surgical profession, with the potential for considerable personal, psychological, and societal impairment. The development of training interventions and further exploration of the aetiology of burnout was recommended, to ensure that impairment is minimised for individuals vulnerable to developing burnout.

SE13 ACCURACY, ACCEPTANCE AND COMPLIANCE IN THE USE OF A WEB BASED AUDIT TOOL – RESULTS OF PHASE 1

S. KHURANA, J. ORFORD, D. PREEN, J. LOGAN, P. GERA AND C. JACKSON

Princess Margaret Hospital for Children, Western Australia, Australia

Background Patient privacy related concerns are thought to be a major impediment to the use of modern web-based database systems in clinical audit and multi-centre research. Most new electronic health record systems are 'opt out' models in which all patients are included within the system by default.¹

Aim The aim of the first phase of this 'multi'-centre study is to assess the level of community acceptance of an 'opt in' model in which individual parents are given a choice of having their child's medical information stored on a customised, highly secure, commercially available web-based data management system.

Materials and methods Parents/guardians of all children presenting with any of a pre-determined set of conditions are invited to complete a questionnaire after reading an information leaflet. The questionnaire is designed to correlate community attitudes to web-based electronic health records with factors such as expected duration of requirement for health services, availability of mobile phone and internet services, usage of other web based services as well as parental demographics.

Results The recruitment rate of 'eligible' parents has been 100% so far. Overall, 64.5% have responded in favour of a web based databank, 17.5% were unsure and 17.5% not in favour of a web based databank. 90% of parents with children requiring 'medium' and 'long' term follow up were definitely in favour.

Conclusions Greater involvement of patients and clinicians may overcome one of the major impediments in the use of web based audit tools.

Reference

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SE14 COMPETENCY MODELS AND POLITICALLY MANAGING THE SURGICAL PROFESSIONS

R. J. CANTER

Royal College of Surgeons of England, Middlesex, United Kingdom

This presentation examines the nature of surgical competency and the drift towards what might be termed "models of competence", the advantages and disadvantages of such a model, from where has this model arisen, and the concerns the professions frequently sense but have trouble articulating about what is happening.

The development of simple checklist competency models arguably arises out of a combination of skill remix, appealing to simple 'assembly lines' models of healthcare delivery, and a behaviouralist model of management control. Awareness of the broader political context in which all of this is played out helps to make sense of what is happening as surgery becomes 'de-professionalised' and reduced to a technical activity. The development of simple competency models has the capacity to destroy the very thing it seeks to define so that there is genuine concern that an organisational model of healthcare delivery, so effective in industry, may be inappropriate to a profession.

The presentation takes a 'simple' surgical case and, as the case unfolds, shows how the 'technical' process of clinical surgical decision-making is actually very complex indeed, so complex that the literature on the subject struggles to define it at all. As one generation of surgeons passes down its skills to the next generation, how are we to define clinical decision-making and judgement? What are the implications for surgical training? How do we respond to being 'deprofessionalised'?

SE15 SURGICAL TRAINING IN AN ERA OF REDUCED WORKING HOURS

O. TRAYNOR

Royal College of Surgeons in Ireland, Ireland

Across the world, federal regulations are imposing work hour restrictions on postgraduate medical trainees. Whilst welcomed by some specialties, this poses major challenges for craft-based specialties such as surgery, which have traditionally relied on intensive exposure to a heavy caseload of clinical material to reach acceptable levels of proficiency. A new model of surgical training is required to ensure that reduced working hours and decreased clinical exposure do not impact negatively on surgical training or, ultimately, on patient safety. The Royal College of Surgeons in Ireland has developed a programme of surgical training which addresses the three major domains of surgical education: 1. Core Knowledge; 2. Technical skills; 3. Personal skills. The core knowledge component is delivered by a comprehensive online programme, SCHOOL for Surgeons. Cases are presented weekly and trainees are given assignments based on the cases. Assignments are submitted online, are graded by tutors and used as part of the annual performance appraisal. Technical skills are addressed in a surgical skills laboratory. Trainees attend six times per year and work to a defined syllabus for operative surgery. They are "signed-off" on specific tasks and procedures before they progress (Proficiency Based Progression). The personal skills component is addressed through a defined syllabus, Human Factors in the Surgical Arena. Surgical, anaesthetic and nursing trainees work/learn together in this programme, designed to improve team performance and patient outcomes. We have found that a delivered education programme, targeted at the principal domains of surgical education, can mitigate the effects of reduced work hours.

SE16 VIRTUAL REALITY LAPAROSCOPIC TRAINING IN AUSTRALIA

J. WOOD, R. C. COHEN, J. A. HOLLAND, A. SHUN AND E. R. LA HEI

Children's Hospital at Westmead, New South Wales, Australia

Opinions on the role of virtual reality simulation in surgical training are diverse and usually not evidence-based. Several adequately powered, randomised and blinded studies have demonstrated an improvement in the operative performance of those who have undergone virtual reality training. Nonetheless there remains reluctance by the medical profession to incorporate simulation into training.

This seems to be based on three misconceptions.

1. Simulators are expensive
2. It is difficult to incorporate them into an already overcrowded curriculum
3. The transfer of skill to the real world has not been demonstrated to reduce risk or improve patient outcomes.

We report on our attempts to assess the feasibility of establishing virtual training for local trainees and to assess its outcome on operative performance.

16 Basic surgical trainees were randomised into control and training groups. All underwent baseline testing of their psychomotor ability before the training

group were allowed 24 hour access to a LapSim virtual reality simulator. It was not possible to complete this study and we will discuss the reasons for this which we believe has important implications for the future use of simulation in surgical training.

16 final year medical students were also recruited, and similarly randomised and assessed before being allowed access to the simulator. After four weeks of training, we were able to demonstrate a significant improvement in their simulated laparoscopic surgical skills when compared with the skills of local specialists. Using an animal model, we were able to demonstrate the effect of this on their operative performance.

SE17 THE ROLE OF E-LEARNING IN SURGICAL EDUCATION

O. TRAYNOR

Royal College of Surgeons in Ireland, Ireland, Ireland

Surgical trainees have traditionally acquired their core surgical knowledge (theory of surgery) through self directed study in libraries or at home, participation in classroom based courses, or attendance at national or international scientific meetings. Such learning inevitably occurs at a distance from the clinical setting and trainees usually studied individually. But the knowledge base that underpins surgical practice in the 21st century is ever expanding, posing an immense pedagogical challenge to surgical educators and trainees alike. The Royal College of Surgeons in Ireland has developed an online learning programme, SCHOOL for Surgeons, which is designed to allow trainees access information in their workplace, at the "point of care". Clinical cases are presented (virtual grand rounds) and trainees have to work through the clinical presentation, differential diagnosis, investigation and management. The trainees work in "learning sets" and are given assignments which have to be submitted online. The assignments form part of their annual appraisal process. SCHOOL for Surgeons also incorporates an online journal club and also a "discussion room" for trainees. They may also download pod casts of keynote surgical presentations. The advantage of online learning is that it is available anywhere anytime, the content is focused and up to date and the medium is interactive. The development of an online programme allows standardisation of teaching across an entire country and has provided a more efficient way for surgical trainees to access and acquire core surgical knowledge.

SE18 A TALE OF TWO COLLEGES: DO SPECIALIST TRAINEES RECEIVE ADEQUATE HOSPITAL-BASED TRAINING?

W. M. ROZEN, D. KAPLAN, K. J. DRUMMOND AND R. J. MILLAR

Royal Melbourne Hospital, Victoria, Australia

Purpose Both medical and surgical trainees have a dual reliance on their specialist training college and their respective teaching hospitals to maintain standards in teaching and training. Although guidelines are in place for the administration of this teaching, hospital-based teaching has been minimally regulated. A review of trainee satisfaction with current levels of hospital-based training was performed, both to reflect the thoughts of trainees themselves and to highlight specific areas requiring improvement.

Methodology Sixty-four basic specialist trainees (44 surgical [BSTs] and 20 physician [BPTs]) were recruited from all of the major Melbourne metropolitan teaching hospitals and were each given an anonymous survey for completion.

Results Surgical trainees considered all areas of hospital-based training to be deficient, with overall dissatisfaction significantly greater for BSTs compared to BPTs ($P = 0.046$). A requirement for increased hospital-based training was similarly greater for BSTs ($P = 0.0072$).

Conclusion The present study confirms the need for a change in the regulation and administration of hospital-based teaching, particularly for surgical trainees.

SE19
CAN THE TRAINEE OPERATIVE LOGBOOK BE USED AS AN ASSESSMENT TOOL OF THE LEVEL OF SUPERVISION PROVIDED BY TRAINING CENTRES?

C. A. MCBRIDE and S. W. BEASLEY

Christchurch Hospital, Dept of Paediatric Surgery, Christchurch, New Zealand

Purpose Specialist trainees and the specialty boards of the College of Surgeons expect that levels of supervision will not remain static during training. As training progresses the level of supervision will change, from an assistant role and direct supervision towards independent practice with consultation available as required. The Summary of Operative Experience may provide a de facto measurement of this.

Methodology Assessment of the surgical logbook of an individual trainee to document the changes in the level of supervision that occur during a training term, the factors that influence it, and the degree of variation between posts.

Results Upon arrival at a new institution supervision for most cases is direct. For minor and intermediate surgery that supervision is rapidly relaxed once it has been confirmed the trainee has acquired and demonstrated the required skills. In areas of complex surgery (such as neonatal surgery) there is a clear progression observable over the training period. In the early part of the term the trainee is assisting in complex surgery, with the surgeon supervisor operating. By the end of the term those roles may have reversed, but there are significant variations between posts.

Conclusion It is possible to use the operative logbook as an indicator of the supervision provided by training centres to trainees. This could provide one mechanism to enable specialty boards to confirm that supervision for trainees is appropriate to their needs as they progress through their training. It also allows an indirect measure of the quality of the post for specialty training.

SE20
THE ANATOMY OF COMPLICATIONS IN THE UPPER LIMB

D. Y. W. LUO, E. TAI, T. S. LIM, B. STOKES AND P. MCMENAMIN

Department of Health, Western Australia, Australia

Complications in clinical medicine and surgery may arise from an inadequate knowledge of topographical anatomy. Consequently, a thorough understanding and knowledge of topographical anatomy is one of the major pillars in the training of many surgical and medical disciplines. In Western Australia, we have found that even simple procedures done on the ward by junior medical staff can result in a complication due to a lack of understanding of anatomy. For example, procedures such as intravenous cannulation at the wrist may result in superficial radial nerve injuries and debilitating neuromas.

The authors, with the support of The Office of Safety and Quality in the Department of Health have put together a teaching DVD which focuses on the applied anatomy of the upper limb, with a focus on procedures involving the peripheral vascular system. This DVD emphasizes vascular and related topographical anatomical features prior to introducing the viewers to procedures like intravenous cannulation, peripheral lines, peripherally inserted central cannulas and central venous lines. It thus raises awareness of possible complications that may arise from these procedures which can be avoided from understanding the anatomy.

The amount of topographical anatomy taught in medical school has been reduced compared to 30–50 years ago. This has been necessary to accommodate the increase in knowledge in other pre-clinical, para-clinical and clinical sciences. This DVD is a timely reminder of the importance of a sound knowledge of anatomy for those practitioners required to perform invasive procedures. We hope that this will be a prototype for further teaching material produced in collaboration with The Department of Health.

SE21
THE VALUE OF CLINICAL INDICATORS IN SETTING STANDARDS OR IMPROVING CLINICAL OUTCOMES

S. W. BEASLEY

Christchurch Hospital, Christchurch, New Zealand

Purpose The Australasian Association of Paediatric Surgeons (AAPS) has collected Clinical Indicator (CI) data from virtually all the paediatric surgical institutions of Australia and New Zealand for the last five years. These CI's were modified and expanded from the original ACHS/RACS specialty specific CI's. This study reviews the CI data to determine the extent to which they have set standards or influenced the management of several paediatric surgical conditions.

Methodology Analysis of AAPS CI data for pyloric stenosis, intussusception, appendicectomy and oesophageal atresia collected between 2001–2005 inclusive, and comparison with published outcome data for the same conditions.

Results To date, the data have been accessed only rarely. For some of the CI's, eg duodenal perforation during pyloromyotomy, the numbers have established a reliable benchmark rate (1.55% of 581 pyloromyotomies), and have already proved useful in the reconfiguration of services. For others, eg leak rate after repair of oesophageal atresia, the small numbers and complexity of confounding variables mean that they are unlikely to have any longterm value or application.

Conclusion Well constructed CI's provide data that can be useful to improve clinical outcomes. However, regular review is required to identify those that are unlikely to have useful application so they can be removed.

SE22
DEVELOPING A NEW SURGICAL CURRICULUM; THE UK APPROACH

R. J. CANTER

Royal College of Surgeons of England, Middlesex, United Kingdom

Surgical curriculum reform is set against a background of rising expectations of patients, and an increasingly managerial and litigious culture. It encompasses a broader notion of competence – in addition to technical expertise – of skills in: communication, management, team-working, multi-professional learning, clinical audit, reflective practice, and leadership.

Against very tight timeframes, the project set out to define all of this for the nine surgical specialties in the UK and to develop a model of increasing competence.

To counter naïve notions of competence, the project has adopted an Australian definition developed specifically for the professions: "Competence is a complex structuring of attributes needed for intelligent performance in specific situations . . . it incorporates the ideas of professional judgement" (1).

The UK surgical curriculum covers four levels of activity:

1. setting standards for what trainees should know, and do in terms of knowledge, surgical technique, professionalism and surgical judgement incorporating the CanMeds framework.
 2. developing national regulatory systems, informed by these standards, including a web-based surgical training management system; www.iscp.ac.uk
 3. developing educational resources to support local training programmes
 4. supporting learning and teaching in both their formal and informal aspects
- The project hit real concerns about clarifying learning objectives, developing valid and reliable assessment tools and expectations about what the next generation of surgeons must know and be able to do most particularly in relation to judgement considered an indispensable component of the curriculum.