

# Repeat audit investigating missed training opportunities in day-case surgery – are they still being missed?

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## Abstract

**Introduction:** Trainees receive a variable exposure to surgical cases across UK hospital trusts which does not necessarily fulfil the requirements of the Intercollegiate Surgical Curriculum Program. Previous audits at this unit highlighted training opportunities in Day-Case Surgical Units (DCU) were not being utilised for training.

The aim was to Re-audit DCU to quantify current trainee participation in day-case surgery at the Royal Derby Hospital and ascertain whether the previous audit had any impact on trainee participation.

**Methods:** All General and Vascular DCU surgical cases performed at the Royal Derby Hospital between 01-Dec-16 to 30-Nov-17 were reviewed by examining Operative Room Management Information System (ORMIS) case records. Each case was classified as consultant operating solo, trainees assisting or trainees as lead surgeon.

Staff grade surgeons were included and classified depending on their role: as 'consultant' when operating on a list as the named surgeon and 'trainee' when assisting on another consultant's list.

**Results:** 623 lists were audited, with 1754 cases performed. Trainees attended 763 cases (43.5%) and were lead surgeon in 104 cases (5.9%).

The 2010/11 audit included 1672 cases. Trainees attended 434 cases (26.0%) and led on 47 (2.8%).

**Conclusion:** Trainee attendance in DCU has increased in the 6-year interim period. Trainees are still absent from the majority of lists (56.5%) in DCU and as such are still missing out on valuable training opportunities. More options need to be explored to make best use of these opportunities. Rota coordinators need to ensure that day-case unit surgery is included in lists.

## Introduction

The core requirement of surgical competency and proficiency is acquisition of technical skills, which can only be achieved by supervised repetition in the operating theatre environment. This takes time, which is a commodity that all trainees have seen progressively cut-back over the past

three decades. Trusts have been made to alter working patterns and curb maximum hours worked in a week in response to various enquiries, and complex rotas have been implemented to adhere to the European Working Time Directive. This is compounded by surgical trainees being shouldered with additional non-operative demands as part of their day to day work. The sum of all these features is a demonstrable reduction in operative training received (1).

While quantity of procedures witnessed does not necessarily correlate directly with a technical skill acquisition and surgical competency, as with any skill, repetition is the key to success. Time spent performing surgery is key to surgical competency and attendance to cases is used as part of the criteria outlined in the Intercollegiate Surgical Curriculum Program (ICSP) to measure completion of training (2). The reduction in hours worked, both overall and time spent operating, has led to a wide variation in the volume of surgery that trainees are exposed to across UK hospital trusts (3,4), and in up to 33% of cases CCTs are being awarded to surgeons who have not achieved the indicative total operative experience as set out in the ICSP guidelines (3).

This trust has previously audited (5) and highlighted training opportunities in Day-Case Surgical Units (DCU) across all general surgical procedures that are not being utilised by surgical trainees. This piece was written following a re-audit across the same time period 6 years later. The findings of the original 2010/11 audit were communicated to the surgical teams at the time with the aim that they would prompt changes to rota allocations to improve trainee attendance at day case. The goal of the 2016/17 repeat audit was to identify whether previous audit findings have had an impact on trainee attendance at day-case surgery by quantifying current trainee participation in day-case surgery at the Royal Derby Hospital.

## Methods

All General and Vascular surgical cases performed at the Royal Derby Hospital day-case surgical unit between 01-Dec-16 to 30-Nov-17 were reviewed. Reporting was conducted by examining Operative Room Management Information System (ORMIS) case records. Data was collected on whether consultants were operating solo, trainees were assistant surgeons, or whether trainees were lead surgeon on cases. We defined the lead surgeon as being the individual named as 'surgeon 1' in ORMIS, with subsequent 'surgeon 2/3' being listed as assisting surgeons.

'Trainee surgeons' were classified as any surgeon operating below consultant grade. Staff grade surgeons were included in the audit and were classified depending on the role they were performing: classified as 'consultant' when operating on a list where they were the named surgeon, classified as 'trainee' when assisting on another consultant's list. This classification was to reflect the purpose of their attendance.

One flaw in our audit methodology was identified during the preparation of this piece for presentation; the reliance on entries in ORMIS to base conclusions on. In light of this it was decided a small sub-audit would be performed to quantify the discrepancy between ORMIS and operation notes. Twenty cases were audited across a two-week period in May-18 and results from ORMIS and the operative note entry compared.

## Results

There were a total of 623 surgical lists, with 1754 cases performed. Of these, 1753 met the inclusion criteria; a single case was excluded on the basis it was a non-surgical case. Of the 1753 cases, trainees attended 763 (43.5%), and were the lead surgeon in 104 (5.9%) cases.

The previous 2010/11 audit found a total of 1672 applicable cases were performed. Trainees attended 434 (26.0%) of the 1672 cases and led only 47 (2.8%) of them.

Findings from the sub-audit showed that of the 20 cases performed, ORMIS notes reported trainees participated in 8 of the cases (40%) of cases compared to 10 cases (50%) as per patient notes. Most importantly, the operative notes indicated 7 of the cases (35%) were either led or performed jointly between consultant and trainee, compared to a reported 0% on ORMIS across the same period.

## Conclusion & discussion

The Royal Derby Hospital (RDH) surgical teams have taken the approach that with increasing limitations being placed on both junior and consultant grades, the best way to optimise training is by increasing quantity of exposure. Day-case surgery is perfectly tailored to do this: high-volume case loads of routine procedures ideal for trainees to develop their surgical skills and knowledge of surgical practices while under senior supervision. For these reasons it was targeted as part the auditing process and results indicate that change has been made in the 6-year interim period resulting in better use of the training opportunities available in DCU. Trainee participation has risen from 26% to 43.5%, with the number of trainee led cases more than doubling from 47 in 2010/11 to 104 in 2016/17 (2.8% to 5.9% respectively). However, trainees are still absent from the majority of lists (56.5%) performed in DCU suggesting that junior surgeons are still missing out on valuable training opportunities at RDH. More options need to be explored to make best use of these opportunities for the next generation of doctors to enter surgical training. Several changes have been proposed, one such being the creation of a dedicated DCU core trainee grade position at RDH, giving an individual(s) protected time to develop operative skills and an exposure to surgery above and beyond that which they would be able to achieve in any other core trainee role.

Other trusts have suggested that the focus should be on quality of exposure, rather than quantity of surgical experience. The University Hospital of South Manchester (UHSM) ran one of sixteen Better Training Better Care (BTBC) pilots as supported by Health Education England (HEE) across 2012-2014 (6). The BTBC initiative was based on key recommendations from Sir John Temple's Time for Training (7) and Professor John Collins' Foundation for Excellence (8). In this pilot scheme, consultants were asked to protect a portion of their operating lists (approximately one eighth) for core surgical trainees (CST)s. Each 'BTBC list' was trainee-led from admission to discharge with consultant supervision throughout. The CST saw and examined the patient at admission, completed pre-operative work, took charge of the team brief and World Health Organisation (WHO) checklist before starting surgery and finally conducted the surgery under supervision. There were no findings suggesting that patient care had been compromised on CST lists, nor was there any change in patient satisfaction. Unsurprisingly, mean operating time was slightly increased in the trainee vs. consultant-led lists groups. As a consequence of the dedicated lists, there was a reduction in the number of cases that core trainees assisted consultants on i.e. inclusion of the

'high-quality' dedicated lists had reduced overall surgical exposure by the trainees. Ratings from core trainees that took part was that the protected lists were very beneficial to training (rated using a modified mini Surgical Theatre Educational Environmental Measure, mini STEEM), despite the reduction in overall surgical exposure.

When comparing the approach of each study to the ISCP guidelines, both clearly improve the ability of trainees to achieve the recommended criteria either by improving acquisition of skills or by exposure to surgery. Attending more surgical cases undoubtedly benefits trainees, though without an objectifiable measure it is difficult to discern the degree of benefit increased attendance has compared to protected training lists dedicated to the learning of the trainee. One of the most obvious benefits of increasing attendance to surgery over providing dedicated lists is the minimal impact on service provision. The Manchester BTBC study showed a slight increase in time taken to complete operations in the trainee led lists (89 mins compared to 74 mins for an open inguinal repair). Should this approach be utilised in at the RDH, one way around this problem would be to ensure the training lists were those with fewer cases on. This would minimise the potential for disruption to services.

As discussed in the methodology, reliance on entries in ORMIS was identified as a potentially major flaw in the study. There is no guidance on how to populate the data fields in ORMIS, which role the surgeons participating in should be listed under or whether the entries 'surgeon 1' and 'surgeon 2' accurately reflect the role each was taking in the surgery. Anecdotal evidence showed a great degree of variation with how entries were added, with some staff simply recording the list's consultant as lead surgeon in all cases. The consensus was that patient records and operation notes would be a better source of information and would be more likely to be accurate than the ORMIS entry. This potential problem was only identified after the initial audit had been completed. It was agreed by all parties that with the resource available, retrospectively working through 1754 patient files was not feasible in the timeframe given and may even have been impossible to complete. With more time and resource this would have been the best way to obtain accurate information regarding trainee participation.

It was decided a sub-audit should be performed to investigate the potential discrepancy between ORMIS and case-notes. This resulted in a number of inaccuracies being identified: of the 20 cases examined, ORMIS had trainee participation recorded in 8 cases (40%) compared to 10 (50%) as recorded in the patient notes. More importantly however, the operative notes indicated a significantly higher proportion of trainees took a more active role in the surgery, with 7 cases (35%) either led by trainees or performed jointly between consultant and trainee, compared to a reported 0% on ORMIS. These findings suggest that the initial audit may have slightly under-represented actual trainee participation but appears to be largely accurate. It does imply that trainees are more involved and may be gaining more benefit from the surgeries they attend, compared to the initial audit findings.

The findings of the audit need to be interpreted in light of the premise of this audit; that DCU could providing opportunities to help trainees meet the required case-load defined by the Intercollegiate Surgical Curriculum Program. The information from the audit is limited in that it simply looked at all procedures performed by general surgeons; there was no categorisation into sub-specialties, type or complexity of procedure. It was designed to simply look at trainee presence in day-case

surgery and whether day-case was being best used to help training surgeons obtain adequate exposure to surgery. The DCU was chosen as the focus of the audit as it was agreed by the senior consultant team that should change be implemented (be it DCU core training roles, dedicated training lists or another intervention), it offered the best balance between suitably complex procedures while minimising impact on service provision. This view was taken as the complexity of the majority of cases undertaken in DCU have a limited scope for over-running compared to main theatre lists.

Before implementing any change, future work may need to investigate the types of cases performed and categorising them based on difficulty/complexity to better identify those that would be suitable for a given level of surgeon. This needs to be cross referenced against trainee experiences in surgery. Methods for doing this are variable but specifically they need to ask trainees to answer the question “what is the best way to improve your experience and facilitate skill acquisition”? Suggestions for how to go about doing this include simple measures such as trainee experience surveys or log book auditing. This would then be able to guide whether further work needs to be done to simply rota trainees into day-case surgery or if indeed an alternative approach is required.

Prior to repeating the audit process, our recommendation is that a guideline for populating ORMIS should be produced. This will ensure accurate information is recorded consistently which reflects the surgery participants. This will allow future audits to be performed with more ease, more frequently and to generate more meaningful information.

Having demonstrated that trainee participation has increased, more work needs to be done to continue this upwards trajectory, while simultaneously identify how to maximise learning and benefit to trainees with the limited time available. The ultimate goal is for the Royal Derby Hospital to provide the best programme for the next generation of surgeons in training. We hope this audit can provide the basis for realising that goal.

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