UNIVERSITY HOSPITAL OF SOUTH MANCHESTER

Better Training Better Care (BTBC) Pilot Site Evaluation Report

Dedicated Core Surgical Trainee BTBC Lists

David Jones Aqsa Siddiqui

1/10/2014

Maximising learning opportunities in the time available for core surgical training by the provision of dedicated training lists and cadaveric simulation.

Introduction

1. Background

1.1 Rationale and drivers

The need to improve core surgical training in the time available for training.

There has been a reduction in the amount of operative training for Core Surgical Training, due to a variety of compounding factors. There has been a reduction in the number of hours available for training following the implementation of the European Working Time Regulation (EWTR).

Cases previously suitable for core surgical trainees may no longer be commissioned where training takes place or performed as waiting list initiatives with no trainee involvement.

Review of trainee logbooks at the pilot site had confirmed suboptimal volumes of operative core surgical training.

The pilot aimed to reverse this trend by developing ways to increase the amount of training delivered in the time available by provision of dedicated training lists and to safely enhance the development of surgical and professional skills by cadaveric simulation.

2. Approach and engagement

2.1 Project development

The Director of Postgraduate Medical Education and the Postgraduate Medical Education Manager were responsible for the initial development of the project. The bid for the pilot was led by the Chief Executive.

A project team responsible for developing and implementing the pilot was formed. A Consultant Surgeon (D J Jones) was appointed as the Clinical Lead. A business case was submitted by the Department of Postgraduate Medical Education to recruit a full time administrator (Aqsa Siddiqui) to manage the project alongside the clinical lead. Other members of the project team included:

- Surgical Training Coordinator for Core Surgical Training in HEE North West
- Postgraduate Medical Education Manager
- Director of Postgraduate Medical Education.

Consultant Surgeons were sought as Better Training Better Care (BTBC) champions for each surgical specialty in the Trust.

Trust Board support was sought to approve the protection of a proportion of operating sessions for Better Training Better Care lists (BTBC lists).

The BTBC clinical lead made contact with the Manchester Surgical Skills and Simulation Centre which opened in April 2013 to develop Cadaveric Surgical Skills workshops using fresh frozen cadavers.

The aims of the BTBC pilot were to:

a) Improve core surgical training be ring-fencing a proportion of existing operating lists as BTBC Lists

b) Develop cadaveric skills workshops to allow trainees to develop skills in a safe environment which could be transferred to the clinical setting as part of their training timetable.

c) Deliver improved training without compromising patient care. (As the procedures performed by Core Trainees are already associated with good outcomes and low morbidity) it was accepted that it would be unrealistic to demonstrate significantly 'Better Care'.

2.2 Engagement

Chief Executive and Trust Board support facilitated middle management engagement.

Trainers and trainees were invited to attend a number of pre-launch events. There were numerous meetings between the BTBC Lead, supported by the BTBC Administrator and trainers and trainees to seek engagement with the BTBC pilot.

The nature of the project and updates during the pilot were submitted to the Trust Board Trainee ownership and allocation of trainees to BTBC lists was essential.

An Academic partner was not needed as the trainees were enthusiastic to analyse the project themselves. A more senior trainee in the Department of Surgery had previous experience in the evaluation of Medical Education. The funding initially allocated for the Academic Partner was used to fund the Cadaveric Skills workshop with approval from the HEE, BTBC team.

2.3 Project management and governance

The project was managed and implemented by the clinical lead and the project administrator with support from Emma Scales and Chris Munsch. The Trust Board were kept informed of the pilot. The provision and utilisation of BTBC lists were monitored by the BTBC Administrator. Frequent meetings were held to disseminate progress. Several processes were put in place to ensure that BTBC lists were arranged and constantly delivered in all participating surgical specialties. The flow chart (appendix 2) demonstrates the process of how BTBC lists were arranged and managed.

3. Resources

3.1 Staffing

A full time administrator and a Clinical lead (1 PA per week) were required to develop and implement the project. Consultant Champions were enrolled to deliver dedicated theatre lists as part of their existing Job Plans in the time allocated for Direct Clinical Care (DCC) and Supporting Professional Activities (SPAs)

3.2 Other key resources

- Simulation models of inguinal hernia and varicose vein for trainees in General and Vascular Surgery to practice index procedures
- iPad for admin purpose

4. Achievements and outcomes

4.1 Overall achievements and critical success factors

The amount of supervised operative training for Core Surgical Trainees has been significantly improved in most participating specialties using existing resources within the time available for training.

The pilot has also delivered 'affordable' cadaveric simulation using fresh frozen cadavers.

Model 1 – BTBC Lists

- Within the existing resources of the Schedule Care Directorate, CSTs were able to enhance surgical skills in theatre under the supervision of a consultant surgeon
- No change in practice and training was made, only a change in organisation of the practice and training was required

Model 2 – Cadaveric Surgical Skills Workshop

- Cadaveric simulation has the potential to help trainees develop technical skills which can be transferred to clinical practice
- A study carried out on the workshop confirms simulated operations using fresh frozen cadavers to be of educational value.

Multi-professional learning environment was created as Operating Department Practitioner (ODP) trainers and trainees were invited to join the workshop.

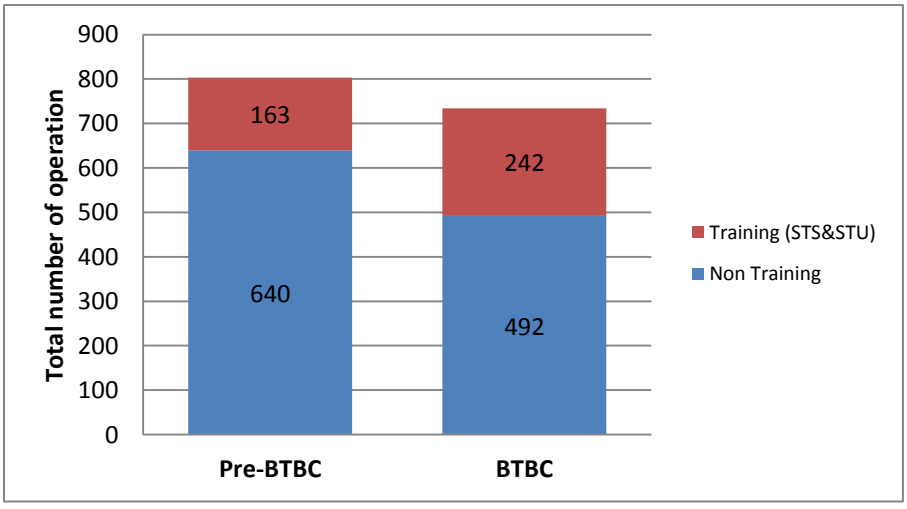
4.2 Delivered outcomes

For trainees

1. *Quantitative study of CSTs the proportion of supervised training*

Direct supervised training was defined as procedures with Consultant Trainer either scrubbed (STS – Supervised Trainer Scrubbed) or unscrubbed but in the operating theatre (STU – Supervised Trainer Unscrubbed).

Proportion of supervised training of CSTs in theatre was evaluated. Number of supervised operations performed by pre-BTBC cohort (Aug 2011 – July 2012 inclusive) was compared to BTBC cohort (Aug 2012 – July 3013 inclusive). In General Surgery, there was a significant increase in the proportion of operations with a training component (example below).



There were 8 trainees in each group (4 x 6 Months attachment in each group). BTBC cohort - Chi squared = 31.7 P < 0.01.

Breast and Trauma and Orthopaedics Surgery showed improvement in CSTs' training. Data for the Vascular, Plastics, Cardiothoracic, and Otolaryngology specialties are still subject to analysis and interpretation.

2. *BTBC Lists evaluation*

The quantitative experience was evaluated using a modified 10 point mini Surgical Theatre Educational Environment Measure (mini-STEEM). BTBC trainees were invited to complete a questionnaire after each case from February 2013 to July 2013. The overall mean score (38) lies above the 27 midpoint and the Standard deviation is 3.76. Therefore, the overall educational experience was over 2SD above the midpoint and therefore strongly positive.

(Awaiting an abstract - Consultant-supervised, Core Surgical Trainee-led theatre lists – successfully maximising learning opportunities in the time available).

3. Qualitative study based on interviews with trainee

A qualitative study based on interviews with individual trainees to address the satisfaction level of training received by trainees and the perceptions of incentives and barriers to surgical training is completed and undergoing analysis.

For trainers

Qualitative study based on interviews with trainers

A qualitative study based on interviews with individual trainees and trainers to address the satisfaction level of training received by trainees and provided by trainers and the perceptions of incentives and barriers to surgical training is currently being conducted.

For patients

1. Patient safety and experience

A Surrogate marker for quality of care is the hospital readmission rate. Operation records of all the patients on BTBC Lists from August 2012 - July 2013 were analysed. None of the patients on the BTBC lists required readmission for a problem relating to their operation (table 1)

Readmissions of patients on BTBC lists

Specialty	No of total BTBC lists	No of readmission for the same procedure
Breast	6	0
ENT	6	0
General	34	0
Orthopaedics	13	0
Plastics	14	0
Vascular	7	0

2. Impact on hospital activity

All the BTBC lists have been delivered using the existing allocations of theatre sessions. A study (appendix 4) as a part of the pilot has evaluated the length of time to perform an inguinal hernia repair on a BTBC list compared to a patient on conventional (non-BTBC) list. The study shows an increase in length of time to complete the operation. The effect of this increase of time on service is subject to discussion and further analysis. It is not clear whether the increased time would materially affect the number of cases on a list. The actual numbers of hernias treated would increase slightly compared to a similar period prior to the introduction of BTBC lists.

Across the wider MDT

1. Multi-professional Cadaveric Surgical Skills workshop

Multi-professional Learning involving CSTs and ODP Trainees and their respective Trainers and Educational Facilitators has been explored as part of the Cadaveric Surgical Skills Simulation Workshops with encouraging feedback. A study (appendix 5) confirmed that simulated operations using fresh frozen cadavers are of excellent educational value.

2. Multi-professional BTBC lists

Multi-professional learning in theatres involving CSTs and ODP Trainees is to be developed in the workplace during the remainder of the pilot. A multi-professional theatre list was trialled in November 2103.

That provides value for money

The funding requested for the research fellow was used to develop the Cadaveric Surgical Skills Workshop. The workshop has the potential to help trainees develop technical skills which can be transferred to clinical practice.

A study (appendix 5) conducted on the Cadaveric Workshop evaluated the feasibility and educational value of simulated operations on human whole body fresh frozen cadavers for Core Surgical Trainees to compliment BTBC lists.

Simulated operations using fresh frozen cadavers are of excellent educational value. The costs are reasonable and potentially affordable. With careful timetabling of procedures and use of material for concurrent workshops, the cost efficiency may be improved to make cadaveric simulation sustainable and adoptable for trainees. The role of a cadaveric workshop is undergoing further evaluation.

There were various benefits of including trainees to evaluate the pilot:

- The money requested for a research fellow was put to better use and resources were not wasted
- Trainees were given the opportunity to enhance their CV by submitting abstract to various conferences for publication.

(Awaiting abstract - Enhancing Core Surgical Training: A sustainable model for simulated operations on whole fresh frozen cadavers).

5. Experienced challenges

One of the challenges experienced was selling this idea to the consultants and middle management to introduce the roll out of the BTBC lists. Once it was understood that “this is not a change in practice and training, but a change in the organisation of practice and training”, consultants and middle management were on board. Buy in was obtained by promotion of the project by the BTBC Clinical Lead and BTBC Administrator.

Following the introduction of BTBC list, the project started to gain momentum and Consultant Champions as well as management became more enthusiastic and committed towards the progress of the BTBC pilot. Two specialties (ENT and Urology) did not participate at the start of the pilot. They are now participating successfully, driven by trainee pressure and positive feedback from other specialties.

Another challenge was the cancellation of some BTBC lists at the last minute. Confirmed BTBC list were cancelled at later stages as trainees were unable to attend theatres for various reasons. Consultants Champions were encouraged to rearrange BTBC lists where possible. The process of rearranging the cancellation of the BTBC lists was managed by the BTBC Administration.

6. Lessons learnt and recommendations

6.1 Lessons learnt

One of the lessons learnt was that enhanced training can be provided within the existing resources and time available for training without changing the practice and training but by changing the organisation of practice and training.

Involvement of Operating Department Practitioner (ODP) trainees and their Educational Facilitators as part of the Cadaveric Simulation workshops has resulted in better multi-professional working and training in the clinical workplace.

Additional benefits realised was the Cadaveric Surgical Skills Workshop. As mentioned previously the simulated operations using fresh frozen cadavers are of excellent educational value. It is also reasonable and potentially affordable if the workshop is planned carefully.

6.2 Recommendations – project enablers

- Training opportunities in operative surgery can be improved by dedicating a proportion of existing theatre lists allocated to Clinical and Educational Supervisors for training CSTs.

- Trust Board Support at Chief Executive Officer and Medical Director Level for the pilot model and protection of training lists is essential.

- Cadaveric Surgical Workshops can be incorporated to a Core Surgical Training programme using existing SPA (Supporting Professional Activity) time of Educational and Clinical Supervisors and with prudent planning can be delivered at a reasonable capital cost.

- Multi-professional Learning for Surgical trainees and Operating Department Practitioner Trainees improves teamwork in the workplace with an emphasis on patient safety.

- The pilot provides evidence to explore commissioning of surgical training by Local Education and Training Boards (LETBs).

7. Sustainability and adoptability

The BTBC Administrator was essential to the success of the project. A business case has been developed by the Postgraduate Medical Education Manager to maintain this role within the department to ensure Sustainability within the Trust. At present all Surgical Departments deliver BTBC lists.

The BTBC Clinical Lead envisages the Surgical Tutor or designated deputy taking over responsibility for the ongoing delivery of the project supported by the 'BTBC Administrator' supported by the Department of Postgraduate Medical Education.

The outcomes for patients on BTBC lists are monitored to ensure clinical standards are improved. Reports will be submitted to the Trust Board.

8. Feedback and testimonials

General comments about the pilot

"It is not a change in practice and training but a change in organisation of practice and training" Mr David Jones, BTBC Pilot's Clinical Lead

"Revolutionary approach to postgraduate surgical training. Supervised, non-pressured training, with excellent hands on teaching and assessment." First year core surgical trainee in general surgery.

"Back to the traditional value of team approach to surgical training, creating a safer environment." Consultant Orthopaedic Surgeon

"BTBC has provided trainees with the opportunity to practice their craft in a supervised learning environment, whilst continuing to provide a service." Postgraduate Medical Education Director

"BTBC is like a time bank. By managing the time we have effectively, it has been able to invest itself in training." Postgraduate Medical Education Manager

"BTBC has made us sit down and think about how we currently do things and look at how we could do things more effectively." Core Surgical Training Coordinator, Northwest Deanery

"The Better Training Better Care pilot has enhanced engagement between trainees and trainers. The programme has improved trainee feedback, encourages safe surgery, team working and mapping of clinical progression. A highlight has been the cross-disciplinary cadaveric course, which generated huge enthusiasm from participants and faculty." Consultant Vascular Surgeon

Comments on BTBC lists

"Found it very useful, gave me the chance to lead the theatre checklist, learn how to do the procedure and do various aspects of it, with the supervising consultant scrubbed and offering guidance when I got stuck." Second year core surgical trainees in Vascular Surgery

"It took a while to arrange a BTBC list, but the list itself was excellent. It had been adjusted to allow time for the consultant to take me through the procedure without feeling rushed." First year core surgical trainee in Cardiothoracic Surgery

"Good opportunity to do the entire procedure under direct supervision of consultant and consultants not scrubbed in." First year core surgical trainee in Plastic Surgery

Comments on the Cadaveric Surgical Skills Workshop

"Extremely useful for both CST in years one and two. Invaluable experience without stresses of acute setting and time pressure. Realistic and clear dissection, fantastic support from staff and consultants." Core surgical trainee in General Surgery

"Should be compulsory to training." Core surgical trainee in Cardiothoracic Surgery

"A very worthwhile day, once again enjoyed by all and an excellent learning environment for the trainee ODPs to learn alongside future surgeons." Operating Department Practitioner (ODP) Educator

"Excellent teaching opportunity, very enjoyable session." Consultant Urology Surgeon

"A fantastic learning environment which enhances theatre practice and multi-professional team work. A well thought-out day." Operating Department Practitioner Trainee

Acknowledgments

Mr A Sharma	Mrs S Duff	Mr A MacDonald	Mr A Ramesh
Miss K Telford	Mr I Welch	Mr S Galloway	Miss R Umaar
Mr M Lovell	Mr C Peach	Mr J Ghosh	Mr L Barr
Mr J Harvey	Mr A Camilleri	Mr A Birzgalis	Mr V Pothula
Mr J Hobson	Mr Kanitkar	Mr H Khan	Mr Babar
Mr R Montague	Mr K S Rammohan	Mr R Shah	Mr I Kadir
Mr P Krysiak	Mr R Venkateswaran	Mr P Waterworth	Mr J Pollard
B Bibleraaj	K Oommen	Ms T Onon	Dr M Zeiton
Dr L Glancz	Mr K Tan	Miss L Patel	Dr J A'Court
Miss P Bijoor	Mr P Coe	R Koutsavakis	S Bell
P Boyle	G Marmash	J Houghton	B Derbyshire

Appendices

Appendix 1: BTBC – Learning agreement objectives
Appendix 2: Process of how BTBC Lists were organised and managed
Appendix 3: Abstract – A study on the impact BTBC list on hospital activity
Appendix 4: Abstract – A study on the cadaveric workshop
Appendix 5: Theatre Scrub Team

Appendix 1 BTBC - Learning agreement objectives

UHSM hospital runs Better Training Better Care (BTBC) lists. These are intended to give CS trainees the opportunity to perform supervised (trainer scrubbed) operations and complete work based assessments. The frequency of lists depends on consultant trainers and appropriate case availability.

On each operative list the trainee is expected to:

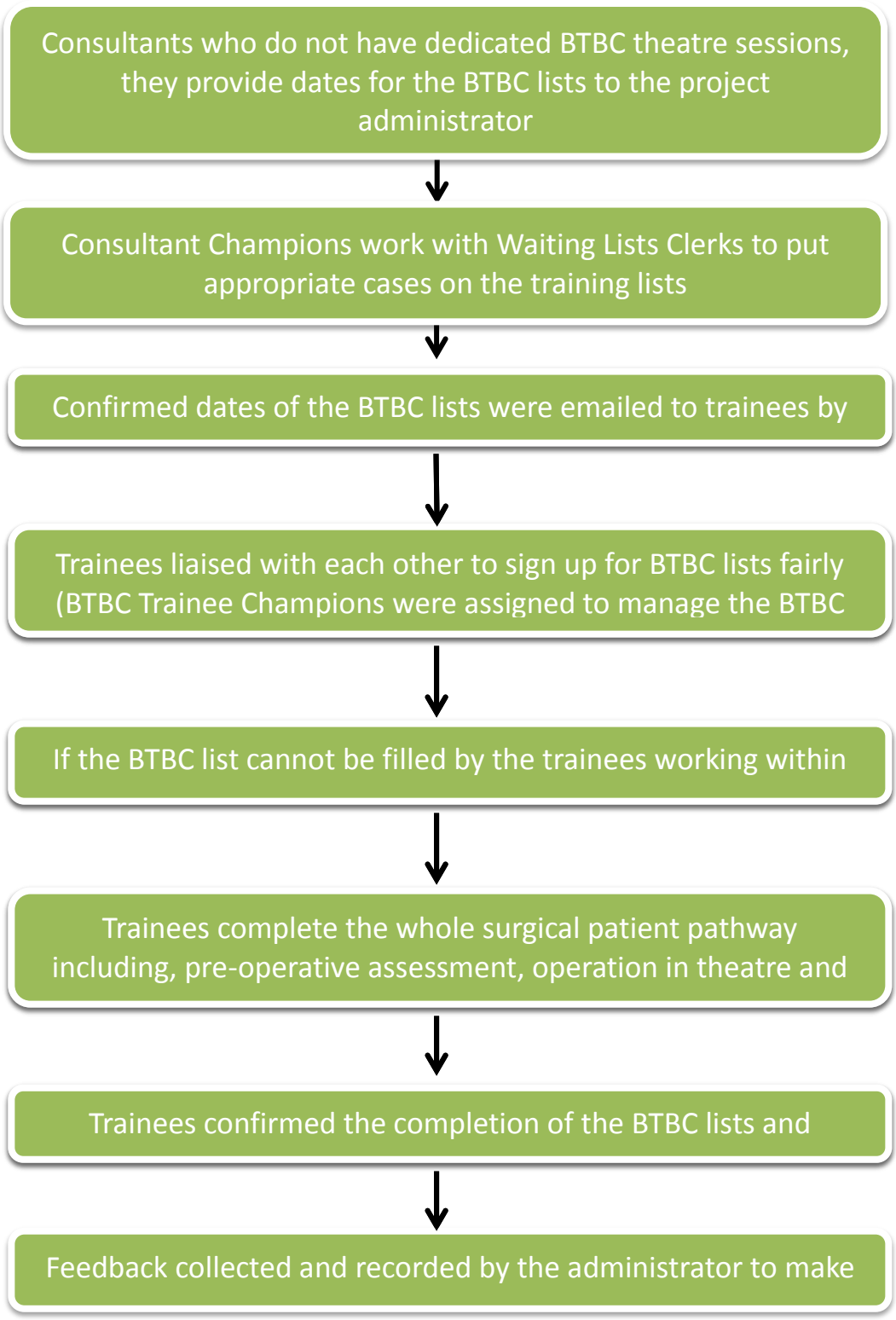
- Consent patients (preferably under supervision)
- Perform the WHO checklist
- Write the operation note, follow up and post-operative care.

In addition it is expected the trainee(s):

- Completes feedback forms at the end of each list to allow continued improvement and quality monitoring
- Are responsible for utilising this resource. Arranging within departments which trainee operates on each list and arranging another trainee to do the list if they are unavailable.

Appendix 2

Process of how BTBC Lists were organised and managed



Appendix 3: Abstract – A study on the impact BTBC list on hospital activity

Time for Training on dedicated core trainee operating lists

Background

Better Training Better Care (BTBC) pilots are a Health Education England (HEE) initiative to maximise learning opportunities in the time available for training. This pilot is developing a model to provide dedicated training lists for Core Surgical Trainees which is sustainable and adoptable. A previous early study investigating the time taken to complete an open inguinal hernia repair on a BTBC list showed that it took 11 minutes longer than in an historical group of patients. This has implications when planning training and service and has been evaluated in a larger study.

Aims

To investigate the time taken to complete open inguinal hernia repairs for patients undergoing surgery on a BTBC list compared to those on non-BTBC lists during the first 12 months of the BTBC pilot.

Methods

The length of time to complete the operation (skin-to-skin) was obtained from the Operating Room Information System (ORMIS) for patients treated at the Trust during the first year of the BTBC pilot. All BTBC operations are completed with a Consultant Supervisor Scrubbed. A Procedure Based Assessment is completed at the end of the procedure. The times taken were compared using a two sample two tailed t-test.

Results

122 patients underwent open inguinal repair between August 2012 and July 2013. 24 were on BTBC lists and 96 on non-BTBC lists. The mean length of time to operate was 89 minutes (SD ±19) for a BTBC procedure compared to 74 minutes (SD ±20) for a non-BTBC operation ($p < 0.01$). The proportion of BTBC cases completed as day cases was 46% compared to 31% for non-BTBC cases.

Discussion

Supervised Core Surgical Trainees take longer to complete an inguinal hernia operation. This needs to be taken into consideration when commissioning for surgical procedures and training.

Appendix 4: Abstract – A study on the cadaveric workshop

The role of simulated operations using a human fresh frozen whole body cadaveric model

Peter Coe, James Pollard, Angela Susan Bell, Aqsa Siddiqui, David J Jones
University Hospital of South Manchester.

Background

Better Training Better Care (BTBC) pilots are a Health Education England (HEE) initiative to develop sustainable and adoptable models to maximise learning opportunities in the time available for training. Cadaveric simulation has potential to help trainees develop technical skills to transfer to clinical practice.

Aim

To evaluate the feasibility and educational value of simulated operations on human whole body fresh frozen cadavers for Core Surgical Trainees as part of a BTBC pilot providing dedicated training lists.

Methods

Core Trainees in all surgical specialties at the BTBC pilot site were invited to participate in a cadaveric workshop. Index operations were performed on human unembalmed cadavers in the Manchester Simulation and Surgical Skills Centre (MSSSC) in the University of Manchester with a Consultant Supervisor Scrubbed. Workplace Based Assessments (WBAs) were completed at the end of each operation. Supervised Operating Theatre Practitioner Trainees acted as scrub staff.

Procedures included a Team Brief, WHO Checklist and simulated sterile field. The costs of the course were recorded and the educational value assessed using a feedback form and a modified Dundee Ready Educational Environment Measure (DREEM) survey.

Results

21 trainees completed 43 operations with WBAs over two days using two cadavers. Trainees used removed material for an anastomotic workshop at a separate station when not operating. All trainees found the cadavers to be *similar* or *very similar* to live tissue. They all found the workshop to be *very useful* or *useful* to improve their surgical skills and confidence. A modified DREEM score of indicated the workshop to be an "*excellent educational experience*." The costs were approximately £180 per operation.

Discussion

Simulated operations using fresh frozen human cadavers were shown to be of educational value. With careful planning, efficient time management and use of material for concurrent wetlabs, the cost efficiency may be improved to make cadaveric simulation sustainable and adoptable

Appendix 5 Theatre Scrub Team