

The Health Education England Extended Surgical Teams (HEEST) Pilot: Year 1 Report



This report has been supported by:



CoPSS

**Confederation of Postgraduate
Schools of Surgery**



Front page:

Left picture:

Extended surgical team
Countess of Chester NHS Trust – Countess of Chester Hospital

Right picture:

Extended surgical team
Barking, Havering and Redbridge University Hospitals NHS Trust
– King George Hospital & Queen’s Hospital

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Summary

1. The extended surgical team can function in a variety of settings, both emergency and elective
2. The extended surgical team is acceptable to patients
3. The extended surgical team is acceptable to trainees
4. The extended surgical team is safe
5. The extended surgical team improves pathways and efficiency in acute settings
6. Extended surgical team roles offer opportunities for further professional development for the NHS workforce



Foreword

I would like to thank the pilot sites for their enthusiasm and the progress they have made at a time of unprecedented pressure in the NHS. Surgical training has been particularly affected, yet the sites have all shown professionalism and dedication in their desire to transform.

The extended surgical teams show us that the flexibility of having theatre-based practitioners and multi-professional teams may help individuals develop rewarding healthcare careers, address workforce challenges and help doctors in training meet their individual learning needs. We have heard that rotations and shift patterns can leave doctors struggling to feel part of a surgical team, but effective multi-professional team-working may help to address this and to provide support that helps both morale and wellbeing, and improves patient care.



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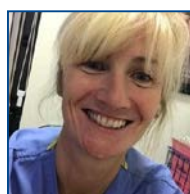
A common feature in the delivery of good patient care and high-quality education and training is an effective team. If a team has repeated gaps or lacks a stable foundation and leadership, it is difficult to deliver either. The extended surgical team project looks at potential ways to bring more stability and consistency to the surgical workforce, so improving care, and allowing those learning in that environment to be freed up to access the opportunities they need. This pilot aims to explore and highlight potential workforce models and to develop solutions to improve the surgical experience for patients and learners alike.



Dr Paul Sadler

Postgraduate Dean, Wessex
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The world of medical postgraduate training has been hugely affected by the pandemic, those in surgical specialities more so than most. Logbook statistics demonstrate the stark effects of redeployment, cancellation of routine operating and lack of elective intensive care facilities. It is clear that any measure that might facilitate flexibility within surgical teams and allow trainees more time learning their craft should be encouraged. In addition to that, it is vital that the NHS adapts to retain its workforce and offer opportunities for the development of roles within trusts. This pilot project demonstrates a potential method of achieving both those aims.



Miss Gill Tierney

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Executive summary

This report has been written by the Health Education England Extended Surgical Teams (HEE EST) pilot team with input, modification and comment from the extended surgical team (EST) pilot community and the Association of Surgeons in Training (ASiT). The Joint Committee on Surgical training (JCST) and Confederation of Postgraduate Schools of Surgery (CoPSS) have also contributed.

The extended surgical team is a trained multi-professional team supporting the entire surgical care pathway. It is made up of consultant surgeons supported by doctors in training as well as staff and associate specialist (SAS) doctors, complemented by an EST comprising, for example, advanced clinical practitioners (ACPs), physician associates (PAs), prescribing pharmacists and surgical care practitioners (SCPs). Members of the EST are developed in role (80 per cent service, 20 per cent training) in core skills, enabling the most advanced and experienced EST members to function clinically at the equivalent level of a core trainee.

The initiative has been introduced through eight pilot sites across the NHS in England, and has been evaluated to enable shared learning and adoption at scale. Funding was awarded to these sites following an application and blinded scoring process. In September 2020, HEE submitted a business case to its senior leadership team for a pilot project to assess the impact of the EST in surgery and its impact in supporting surgical trainees. At this point, an evaluation of the Improving Surgical Training (IST) initiative was underway, and the development of the EST had been recognised and reported as one of the most significant enablers of improving surgical training. Recognising the strong links and balance between training and service, HEE were keen to support this initiative and test a new way of working.

The development of an alternative workforce has been welcomed by key stakeholders within surgery and deemed one of the most successful elements of the Improving Surgical Training initiative. Most importantly for those in surgical training, the EST frees up time for those in surgical training posts to attend workplace training opportunities and provides stability to rotas. The EST is expected to support the delivery of services that are at least as safe and effective as the traditional workforce model and may have the potential to reduce clinical risks when compared to “usual practice”. It is hoped that by providing a cost-effective alternative to “usual practice” staffing models, we might see improved system efficiency and improved workforce longevity and productivity. Balanced with these benefits is the potential risk of losing senior skilled members of the wider NHS workforce. However, the career opportunities and potential professional development available may help to retain these staff members in the NHS.

The pilot is a reproducible model that may see service improvement and added value for surgical units. An externally commissioned health economist has developed a ‘gold standard’ business case that will support all trusts across the country in creating a bespoke supporting pack.

Novel service developments in the pilot include Same Day Emergency Care (SDEC) projects, the development of an ‘emergency village’ to improve patient pathways, and, with North West Ambulance Service, direct paramedic referral into SACRU to avoid Emergency Department admission. These benefits will be explored further within the second year of the pilot alongside a number of other ambitious plans.

Background & introduction

The Shape of Training, Securing the Future of Excellent Patient Care report¹ in 2013 was a review of all postgraduate medical education and training in the United Kingdom. It demonstrated a need for change in order to provide trainees with appropriate skills to match the needs of the population.

Health Education England commissioned The Royal College of Surgeons of England (RCS England) to investigate further how these findings might be applied to surgical training. Its proposal for a pilot surgical training programme, Improving Surgical Training (IST), was published in 2015². A key recommendation of this document was that a non-medical workforce should be developed to deliver surgical care by supporting junior surgeons and, in some cases, by sharing on-call responsibilities.

The following year, RCS England published its report on the EST, entitled A Question of Balance³. This recognised that, in order to improve care for patients and to enhance the training experience for trainee surgeons, new models of care were required. The 2018 Future of Surgery document predicted that the “multi-disciplinary and multi-professional surgical care team will become increasingly important in developing and delivering care of the highest quality. They will be able to provide more aspects of care and may take over some areas of surgical care currently delivered by surgeons⁴.” HEE has commissioned an independent evaluation of the IST pilot, which is due to report in December 2021. Early evaluation of the pilot has shown that access to the EST is a key part of the model and essential to success.

The HEE EST pilot commenced in September 2020. It was aimed at new ‘extended’ surgical teams, which include consultants, doctors in training and SAS doctors, but the focus of this pilot was the role of the other, non-medical practitioner team members. It is recognised that, to date, development of these practitioners has not been coordinated nationally.

Recognising the links between the Improving Surgical Training initiative and the EST, the project teams merged to become the Improving Surgical Care Assurance Board, with representation from all key multi-professional stakeholders. The first task was to submit plans and rationale to gain funding to support the EST sites. The plans were supported and funding was gained from the HEE Directorate of Education and Quality Senior Leadership Team (DEQSLT). The governance for the workstream sat under the Medical Education Reform Strategic Oversight Group. The EST project team was created with the appointment of a senior responsible officer, a clinical lead and a multi-professional project team.

¹ Shape of Training, Securing the Future of Excellent Patient Care, GMC, 2013 https://www.gmc-uk.org/-/media/documents/shape-of-training-final-report_pdf-53977887.pdf

² Improving Surgical Training, proposal for a pilot surgical training programme, Royal College of Surgeons of England, 2015 <https://www.rcseng.ac.uk/library-and-publications/rcs-publications/docs/improving-surgical-training/>

³ A Question of Balance The Extended Surgical Team, The Royal College of Surgeons of England, 2016 <https://www.rcseng.ac.uk/library-and-publications/rcs-publications/docs/question-of-balance/>

⁴ Future of Surgery, Royal College of Surgeons of England, 2018, p12 <https://futureofsurgery.rcseng.ac.uk/report/Future%20of%20Surgery%20Report.pdf>

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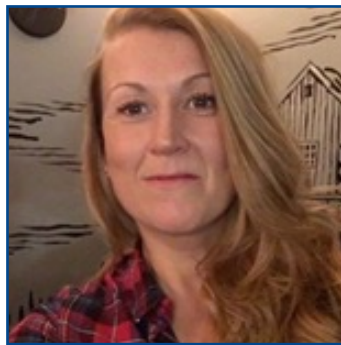
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Baseline survey

A survey was sent out on 10th September 2020 via HEE ACP Leads and DMEs. The purpose was to undertake a scoping exercise to provide data on current workforce models within all surgical units across England. This information was utilised to support both the IST initiative and the development of the EST by ascertaining the number and roles of practitioners, but also the different professional models being used to support surgical services and junior doctor training. The survey closed on the 9th October 2020.

On 21st September 2020, we had received 64 responses from trusts (some were partially completed). Initial findings are set out below.

Completed application

Role	Number Completed
ACP Lead	8
Consultant Nurse	2
Medical Consultant	28
Medical Consultant/ Clinical lead	1
Medical Consultant/ Surgical Tutor	7
Medical Consultant/ Head of School	1
Medical Consultant/ TPD	4
Medical Consultant/ DME	2
Management Role	8
HR	2
Information Analyst	1

Table A: Responses provided by profession.

- 13 stated they did not wish to be contacted to discuss further, while 43 stated they were happy to be contacted. Eight did not respond.
- **Responses:** There was a good range of responses from regions. A small number of trusts submitted two or more entries from different specialities with varying data.
- **IST:** 14 of the sites that responded were from the 40 IST sites. The challenges cited were financial from seven sites, and managerial/ institutional from three sites. There were no notable differences in the challenges or EST at either IST or non-IST sites.
- **Make up of EST teams:** A variety of surgical models were outlined in the responses. The CNS role was used in most trusts across several specialities. Across respondents, the ACP role appeared to be utilised most within the EST and across all surgical pathways. The 'consultant' numbers were difficult to judge as many sites entered numbers of medical consultants rather than EST members functioning at consultant level.

Role	MSW	CNS	SFA	SCP	PA	ACP	Consultant*
Number of trusts that had role	5	50	15	22	24	28	12
Main specialities	Upper GI Lower GI Vascular Urology T&O Plastics	Breast Upper GI Lower GI Vascular Urology T&O	Breast Upper GI Lower GI Vascular Urology T&O Cardio-thoracic	Breast Upper GI Lower GI Vascular Urology T&O Cardio-thoracic	Upper GI Lower GI Vascular Urology T&O Cardio-thoracic	Utilised across all surgical specialities	Breast Upper GI ENT T&O Urology
On-call	1	3 – two trusts at FY2/CT level, one trust didn't state level	None	1- Mon-Fri within daytime hours	None	3 specified FY2/CT level	None

Table B: Number of professions working in surgical specialities and on call.

- **Curriculum:** 21 the respondents 'didn't know' whether their EST members followed a national or local curriculum. 29 respondents stated the EST did follow a curriculum and eight stated it didn't.
- **Barriers:** 26 survey respondents cited 'financial' as a barrier to effective EST implementation. 12 stated 'institution' and 'management' as challenges. Two noted that Physician Associates being unable to prescribe was a barrier in their trusts, and only one noted the challenge of recruitment.

24 of the respondents specifically stated that the challenge was ongoing. 20 trusts responded to say they have overcome some barriers, due to finding suitable funding, management support or the "personal drive from the person now in post". There were requests for job descriptions, and potential business case models to help overcome the challenge in implementing extended surgical teams.

Introduction to the pilot

The project team consists of HEE staff, surgeons, and EST members. A health economist has also been commissioned to create a value proposition. A Microsoft Teams event was held in November 2020 to publicise the pilot to all NHS trusts. The event presented information about the pilot and offered a question-and-answer session. This event was attended by 60 people, and it demonstrated significant interest and engagement with this pilot from a wide variety of NHS trusts. The pilot application window was open for the month of November 2020. Extensions were offered to those trusts wishing to submit bids but unable to do so owing to pressures from the COVID-19 pandemic. Bids were received from 28 trusts.

The bids described projects in trusts utilising EST members in a variety of clinical settings, both elective and emergency, and in various areas of surgical practice including general surgery, trauma and orthopaedics, cardiothoracic surgery, plastics, and urology. There was also a clear vision for the ongoing professional development, supervision and retention of the EST members in every trust. All bids were anonymised and scored by six panel members. The panel members comprised senior educators from surgery, advanced clinical practice, and anaesthetics. Bids were scored against the criteria outlined in the specification and application form (provider engagement, provider readiness, training and supervision, workforce future-proofing, and receptiveness for support). The application form asked for clear evidence of support from heads of school of surgery, trust finance and human resource departments. Each site was asked to name a pilot lead.



The highest scoring bids were discussed at the panel meeting and, in December 2020, the final decision was made on successful bids (Table C). All sites were notified of the outcome by letter. The funding is a mix of Medical Education Reform Programme and workforce development budgets.

All sites have been advised in their outcome letter that the funding for this year is a one-off, non-recurrent payment. As part of the bid, sites were asked to provide written support from their finance team and demonstrate how the pilot would be funded in future years without financial support from HEE.

A webinar took place in which the successful sites met and described their pilot plans in an open forum to allow sharing of best practice and innovation. The EST project team facilitated this session and engendered a sense of 'virtual community'. An important lesson learnt from the IST pilot was the vital role of communication and shared learning during the pilot.

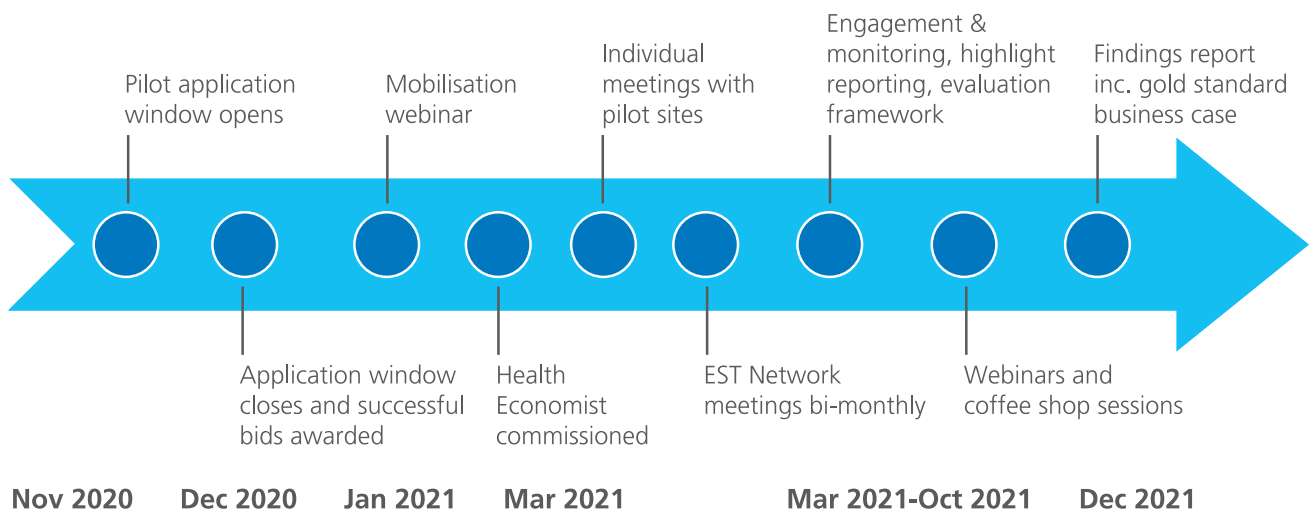


Diagram A: Timeline of project activity.

Site	Specialty	Elective / emergency	EST	IST
East Suffolk and North Essex NHS Foundation Trust – Ipswich Hospital	T&O	Both	ACP	Yes
Manchester University NHS Foundation Trust – Wythenshawe Hospital	General surgery	Emergency	ACP	Yes
Hull University Teaching Hospitals NHS Trust	Cardiothoracic and plastic surgery	Elective	SCP/ACP	No
Countess of Chester NHS Trust – Countess of Chester Hospital	General surgery	Emergency	ACP	No
Barking, Havering and Redbridge University Hospitals NHS Trust – King George Hospital & Queen’s Hospital	General surgery, T&O, ENT	Emergency	ACP	Yes
Bolton NHS Foundation Trust – Royal Bolton Hospital	General surgery	Emergency	ACP	Yes
Leeds Teaching Hospitals NHS Trust – St James University Hospital	General surgery	Emergency	ACP	Yes
University Hospitals of Birmingham – Heartlands/ Good Hope/Solihull/Queen Elizabeth Hospital (self-funded)	General and vascular surgery, urology, ENT	Both	ACP	Yes

Table C: Successful EST pilot sites

Trainees

The landscape of surgical training has been exposed to various factors in the lead up to and delivery of this pilot. We highlight two as background to our report.

The Improving Surgical Training (IST) pilot project led by the Royal College of Surgeons of England (RCS England) and Health Education England (HEE) has been a planned change. This project aimed to recruit sites able to provide an enhanced quality core training experience. The philosophy behind the pilot was one of service delivery, combined with an enhanced education and training component, with the aim of providing dedicated blocks of elective training with quality educational supervision. There was a focus on simulation in training, the use of introductory boot camps, and the inclusion of non-medical members of the surgical team as part of this initiative. The final analysis of the pilot is awaited, however early reports suggest the deployment of the EST has had a positive effect.

The pandemic was, of course, an unplanned change. JCST statistics clearly show a decrease in logbook numbers in all surgical specialities and grades for elective and emergency cases. Trainees have been hugely affected, particularly at core level. There have been novel ARCP outcome codes, cancellation of examinations and courses, and redeployment often to non-surgical posts as part of the NHS emergency response. As part of the recovery of training, there is a clear focus on maintaining the quality of surgical training and maximising opportunities in the workplace. We hope that the EST can contribute to the flexibility and agility of the surgical team as a whole to future-proof against unforeseen training crises.

Coincident with this HEE pilot, The Association of Surgeons in Training (ASiT) hosted a modified Delphi Consensus on the Barriers to the Implementation of the Extended Surgical Team (BEST). Available results of the BEST Delphi study are detailed on [page 64](#), from the BEST Working Group on behalf of ASiT. We are grateful to ASiT for sharing this work to inform the HEE EST pilot.



What is advanced clinical practice?

Advanced clinical practice (ACP) is a defined level of practice within clinical professions such as nursing, pharmacy, paramedics and occupational therapy. This level of practice is designed to transform and modernise pathways of care, enabling the safe and effective sharing of skills across traditional professional boundaries.

Advanced clinical practitioners (ACPs) are healthcare professionals, educated to master's (MSc) level or equivalent, with the skills and knowledge to allow them to expand their scope of practice to better meet the needs of the people for whom they care. ACPs are deployed across all healthcare settings and work at a level of practice that pulls together the four ACP pillars of clinical practice, leadership and management, education, and research.

A definition of ACP, its underpinning standards and governance, can be found in the Multi-professional Framework for Advanced Clinical Practice in England⁵.

The roles undertaken by ACPs are determined by the needs of the employer and how they require the level of practice to be deployed within their setting.

The SCP and PA curriculums are currently being reviewed.

Application to the surgical setting

Within surgery, ACPs utilise a multitude of titles, including: advanced nurse practitioners (ANP), surgery ACPs, surgical care practitioners. The important consideration is that ACP is a level of practice that requires the practitioner to meet the definition and demonstrate through a portfolio of evidence that they meet the requirements. It is this latter point where practitioners are often challenged, as not all academic programs or employers request this evidence of capability. It is also important to acknowledge that performing a skill that is beyond the scope of a traditional role such as nursing does not equate to advanced clinical practice; autonomous practice, knowledge, clinical reasoning and an ability to manage complications are some of the essential attributes to an advanced level of practice.

Enhanced level practice

Enhanced clinical practitioners are qualified health and social care professionals who are working at an enhanced level of practice with specific knowledge and skills in a field of expertise. They manage a discrete aspect of a patient's care within their current level of practice, which will be particular to a specific context. This is in contrast to advanced clinical practitioners, who have developed their knowledge and skills to an advanced level of practice and would manage the whole episode of a patient's clinical care, from the time they first present, through to the end of the episode.

⁵ Multi-professional framework for advanced clinical practice in England, 2017 <https://www.hee.nhs.uk/sites/default/files/documents/multi-professionalframeworkfor-advancedclinicalpracticeinengland.pdf>



Enhanced clinical practitioners work as part of the multi-disciplinary clinical team across a wide range of settings, including hospitals, community clinics, individuals' homes, and in dental and general practices. Specific examples of settings in which enhanced clinical practitioners work include critical care units providing complex interventions to critically ill patients, and GP premises providing specialist services for patients in the community.

Enhanced level practice requires level 6 (degree) attainment and there is now an apprenticeship (not integrated) for this.

Advanced level clinical practice

The ACP development is guided by the Multi-professional Framework for Advanced Practice in England (HEE, 2017)⁶. In Scotland and Wales, similar ACP frameworks have also been developed. All refer to the concept of four pillars of advanced clinical practice that underpin practice, and include:

- Management & leadership
- Education
- Research
- Clinical practice.

⁶ Multi-professional framework for advanced clinical practice in England, 2017 <https://www.hee.nhs.uk/sites/default/files/documents/Multi-professional%20framework%20for%20advanced%20clinical%20practice%20in%20England.pdf>

Each of these also identify the required underpinning principles, which include:

- Autonomous practice
- Critical thinking
- High level decision making/problem solving
- Managing risk and uncertainty
- Values-based care
- Improving practice.

Academically, each country has debated the level of education required to work at advanced level practice and a consensus found that master's (MSc) level education should underpin all ACP roles. However, HEE does not stipulate a full MSc, but a minimum award of postgraduate diploma (PGD).

The development of a higher-level integrated apprenticeship in advanced clinical practice is likely to result in the majority of practitioners exiting with a full master's award and, where a higher education institute has been awarded accreditation by the HEE Centre for Advancing Practice, practitioners will be able to go directly onto the directory as an advanced level practitioner. If they have also followed an approved HEE credential they may be annotated as credentialed in whichever area they evidenced. For example, a practitioner exiting their MSc having followed the surgical ACP curriculum will exit as an ACP credentialed in surgery on the HEE directory.

Consultant level practice

The consultant level practitioner is structured around four functions, taken from the Consultant Level Capability and Impact Framework (HEE, 2021)⁷.

- Expert practice
- Strategic and enabling leadership
- Learning, developing and improving across the system
- Research and innovation.

This level of practice is at the pinnacle of the clinical career ladder and provides career opportunity where service requires this. An emphasis on strategy and system working is seen within this document, as well as clinical expertise, but this is likely to be more limited to a specialist area and would not anticipate a practitioner working on call as an equivalent to a consultant surgeon.

⁷ Multi-professional consultant-level practice capability and impact framework, HEE, 2021 <https://www.hee.nhs.uk/sites/default/files/documents/Sept%202020%20HEE%20Consultant%20Practice%20Capability%20and%20Impact%20Framework.pdf>

Who are the EST?

The extended surgical team (EST) consists of healthcare professionals who are not in surgical training, including for example SAS doctors, surgical care practitioners (SCPs), surgical advanced clinical practitioners (SACP), and physician associates (PAs), among others. Alternative language associated with this group includes “the wider workforce”.

The EST forms a large and hugely important part of the surgical team that enables surgery to function safely and effectively, and who can facilitate improving the training experience of surgeons in training when implemented and utilised effectively. EST roles vary in capability; HEE published the Multi-professional Framework for Advanced Practice in England (HEE, 2017)⁸. This document identifies the capabilities required to work at advanced level practice. Some EST roles work at this level, some above are also referred to as “enhanced level” (table D).

A number of roles within EST work at advanced level practice, including surgical care practitioners (SCP) who may or may not work at this level depending on service needs. Surgical ACPs, however, should all work at advanced level if they utilise the term “advanced”, and are encouraged to evidence their capability at this level of practice by completion of the SACP credential.

Surgical care practitioner

“A registered non-medical practitioner who has completed a Royal College of Surgeons accredited programme (or another previously recognised course), working in clinical practice as a member of the extended surgical team, who performs surgical intervention, pre-operative care and post-operative care under the direction and supervision of a consultant surgeon⁹.”

Physician associate

“Physician associates (PAs) are healthcare professionals with a generalist medical education, who work alongside doctors, physicians, GPs and surgeons providing medical care as an integral part of the multidisciplinary team. Physician associates are dependent practitioners working with a dedicated supervisor, but are able to work autonomously with appropriate support¹⁰.” (Faculty of Physicians Associates, Royal Colleges of Physicians, 2021).

PAs work under the supervision of a doctor, and therefore a supervision model is important. The PA role is not currently regulated by a professional body. The lack of regulation currently limits practice to a certain extent, in particular an inability to prescribe, administer medicines or request imaging requiring radiation.

The Royal College of Physicians (RCP) developed a Faculty of Physician Associates and is supporting PA development. The PA has the opportunity to be entered onto a managed voluntary register (MVR) held by the RCP. PAs are also one of the professions that sit in the HEE Medical Associate Professions (MAPs) workstream led by HEE, along with anaesthetic associates (AAs), SCPs, and advanced critical care practitioners (ACCPs).

⁸ Multi-professional framework for advanced clinical practice in England, 2017 <https://www.hee.nhs.uk/sites/default/files/documents/Multi-professional%20framework%20for%20advanced%20clinical%20practice%20in%20England.pdf>

⁹ The Curriculum Framework for the Surgical Care Practitioner, The Royal College of Surgeons of England, 2014 <https://accreditation.rcseng.ac.uk/pdf/SCP%20Curriculum%20Framework%202014.pdf>

¹⁰ Faculty of Physicians Associates, Royal Colleges of Physicians, 2021 <https://www.fparcp.co.uk/about-fpa/Who-are-physician-associates>

PAs should develop skills according to service need and following assessment of competence by a medical practitioner. To demonstrate they are maintaining competence, PAs are expected to undertake an exam every six years. A challenge with this is that the exam is a generalist exam, and the PA is likely to be working in one area and may not have had contact with various client groups for a period of time when they re-sit their exams.

There are differences in accountability and responsibility between the ACP and PA, largely due to the varying degrees of regulation.

Healthcare scientist/clinical scientist

Healthcare scientists provide the scientific backbone of the NHS, helping to prevent, diagnose and treat illness through knowledge and application of science. There are more than 50 specialisms within healthcare science, grouped into four divisions: Clinical Bioinformatics, Life Sciences, Physical Sciences and Clinical Engineering, and Physiological Sciences. The healthcare scientist career and training model provides a framework for HCS from Band 2 (healthcare science assistant) through to consultant clinical scientist. Healthcare scientists may be eligible for entrance to a voluntary register such as those administered by the Academy for Healthcare Science (AHCS) or the Registration Council for Clinical Physiologists (RCCP) or may be eligible for statutory registration with the Health and Care Professions Council (HCPC) as either a clinical scientist or a biomedical scientist – these are protected titles for those members of the workforce who meet and maintain the appropriate standards.

Clinical scientists attain statutory registration with the HCPC in two ways: either by successfully completing the Scientist Training Programme (STP) – an integrated full-time MSc managed by the National School of Healthcare Science (NSHCS) – or by applying for equivalence to the STP via the AHCS. Biomedical scientists or clinical scientists generally continue their training in the workplace with a range of further professional and training qualifications, and may apply to the Higher Specialist Training Programme, a five-year bespoke programme that leads to eligibility to become a consultant clinical scientist.

Other roles

Medical support workers

Medical support workers are non-registered practitioners (support workers) who are trained in clinical skills, who have some underpinning knowledge to take on tasks from junior doctors such as venepuncture, cannulation, arterial blood gas sampling, blood cultures etc., depending on local agreement and training.

Surgical first assistant

The surgical first assistant is the role undertaken by the registered practitioner who provides continuous, competent and dedicated surgical assistance to the operating surgeon throughout the surgery (with a specific skill set). Surgical first assistants practise as part of the surgical team, under the direct supervision of the operating surgeon (The Perioperative Care Collaborative, 2018)¹¹.

Clinical nurse specialist

A wide variety of specialist nursing roles can be found within healthcare, and these roles and the level of practice at which they function can vary. The roles include specialist knowledge within an area of expertise, integral to the safety and quality of care provided. Clinical nurse specialists (CNS) provide advice and support to patients and their carers, and are acknowledged as vital members of the teams they support.

¹¹ The Perioperative Care Collaborative Surgical First Assistant (SFA) Position Statement, 2018 <https://www.afpp.org.uk/careers/Standards-Guidance>

Role suggestions across the patient pathway within the acute setting

Role	Level of practice above baseline	AED	Radiology requesting	Pre-scribing	Pre-op	SAU/ MAU/ Theatre / Ward	Operating Theatre	Ward	OPD
Medical support workers-MSW		X				X		X	
Clinical Nurse Specialist-CNS	Varies across all	X		X	X	X		X	X
Surgical First Assistant-SFA							X		
Surgical Care Practitioner-SCP	Varies across all				X	X	X	X	X
Physician Assistant	Novice & enhanced	X				X	X*	X	X
Advanced Clinical Practitioner-ACP	Advanced	X	X	X	X	X	X*	X	X
Health Scientists**	Advanced Consultant								
Consultant Practitioner	Consultant	X	X	X	X	X	X*	X	X

Table D: Role suggestions across the patient pathway within the acute setting

There may be some deviation to the above suggestions.

The CNS, ACP and consultant level roles will fluctuate depending upon the individual's job role. Not all roles will be pertinent to all pathways; it will fluctuate depending on departmental gaps, skill sets required and service need.

Some roles can be developed.

There are some limitations of roles.

*Can assist in theatre with additional training in line with professional guideline

**Due to the wide range of bio-scientist roles, depending on the speciality it is too challenging to comment on their role across the patient pathway in broad terms.

SACP Curriculum (credential)

The SACP credential¹² was developed and published by HEE in 2020. The document was developed in response to the Improving Surgical Training (IST) pilot led at that time by RCS England. As part of this work, it became clear that, to achieve the outcome of the IST, an increase in the EST was required – in particular practitioners who could support the junior doctor surgical rota. It was noted that the practitioner would therefore be required to manage the surgical in-patient independently, including medical issues as well as surgical. At that time the RCS England had developed a curriculum for surgical care practitioners, however the requirements were more focused upon the technical side of practice, though it is acknowledged that there was an element of ward and outpatient capability as well.

A small working group including SCPs, ACP, educators, surgeons and the Association of Perioperative Practice (APP) started developing this work. Initially two members of the Association of Advanced Practice Educators (AAPE) commenced writing and ensuring alignment with the HEE advanced level practice requirements. Learning from prior documents, including Royal College of Emergency Medicine (RCEM), was noted and their support invaluable in navigating around potential pitfalls.

Governance of this work included representation from:

- Royal College of Surgeons England and Edinburgh
- Lay member
- ASiT
- Centre for Advancing Practice
- College of Operating Department Practitioners (ODP)
- JCST chair
- Faculty of perioperative care
- NHS Employers
- Physiotherapy
- HEE AHP lead
- RCEM ACP / Consultant practitioner
- Surgeon

The development of the curriculum provided a clear standard against which a practitioner could be assessed – something that has been absent in many ACP roles until 2015 when RCEM published the first ACP curriculum linked with the Royal College. At that time, HEE had not published the definition of ACP and there was no framework, hence the surgical ACP document being quite different and able to be aligned with HEE work and the level of practice clearly identified.

ACP can be funded as an apprenticeship through use of the apprenticeship levy (as can enhanced level practice). This facilitates organisations being able to fund training. However, academic ACP programs are generic in nature and require substantial workplace engagement to ensure the clinical component is included and the trainee SACP fit for role.

¹² Surgical Advanced Clinical Practitioner (SACP) Curriculum and Assessment Framework, HEE, 2020 <https://advanced-practice.hee.nhs.uk/surgical-advanced-practitioner-curriculum-and-assessment-framework/>



Existing models

The surgical ACP (SACP) role has been developed in some sites. Published evidence from the University Hospital of Derby and Burton (UHDB) describes their development of this model in 2018¹³. At this site there was an understanding that there was no requirement for increased numbers of surgical care practitioners, but rather a need for increased numbers of EST to support the in-patient in all surgical areas. The existing SCP curriculum (RCS England, 2014)¹⁴ was not at a level or breadth to enable the trust and surgical consultants to feel confident that the “SCP” could work on a surgical rota independently. The trust had an established ACP service in a number of other areas, including ED acute medicine, medicine, elderly care, cancer and paediatrics, and drew upon learning from these areas to use within surgery and trauma and orthopaedics.

The ACP in surgery in UHDB was supported through a robust training program to develop into an independent practitioner confident enough to support the surgical rota across the in-patient setting. It was not designed to have a primary role in theatre but to facilitate surgical trainees to access theatre.

The training program is overseen by strong leadership linked to national developments, local academic programs to ensure appropriate learning, and coordination of appropriate supervision using a clear curriculum to guide outcomes.

The training program requires flexibility to enable learning opportunities and includes rotation through multiple specialties, including some time in ED and medicine. Simulation sessions take place to ensure confidence.

The rotas were designed to allow two SACP to work together initially, recognising that confidence was an issue and peer support was essential. Consultant engagement was key to the development of these roles.

¹³ The Bulletin of the Royal College of Surgeons of England 2019 101:1, 32-33, Davis-Marín Ashley, Celebrating the surgical care team <https://doi.org/10.1308/rcs-bull.2019.32>

¹⁴ The Curriculum Framework for the Surgical Care Practitioner, The Royal College of Surgeons of England, 2014 <https://accreditation.rcseng.ac.uk/pdf/SCP%20Curriculum%20Framework%202014.pdf>

Retention

The ACP workforce in UHDB is now well established with a focus on retention. Methods to support retention include:

- Allocation of a named supervisor to each trainee
- A clear vision of the role and expectations
- A focus on recruiting new trainee SACPs
- The use of “stay interviews”
- Ensuring clear leadership to drive the program
- Facilitating flexibility
- Ensuring non-clinical time in job plans for professional development

Despite all efforts there has been some attrition. This is monitored and reflected upon to adapt the above strategies.

Challenges

Challenges to the concept of EST exist at the individual level, trust level and national level. Challenges for the individual EST member are outlined above and include developing professional confidence, opportunities for further professional development within trusts, and issues around retention of individuals.

At national level there are many developments, with input from bodies including the Royal Colleges and HEE. At present there is no regulation of advanced practice titles and there is wide variation in the understanding of these roles and surrounding governance. The SCP role is clearly recognised by the Surgical Royal Colleges (SRC) with a clear curriculum (currently being revised). Three higher educational institutes (HEIs) in England provide a master's level program in Surgical Care Practice, though it is not accredited as an ACP program or an apprenticeship and as such the levy cannot be utilised to aid funding training.

HEE is progressing advanced level practice and developing a directory of advanced and consultant level practice. Practitioners may evidence this level of practice through review of a portfolio of evidence and gain accreditation. The SCP program does not currently have this accreditation and as such may cause confusion. If the SCP is able to demonstrate the requirements of the HEE Surgical ACP credential, they could however be placed on the directory.

The developments in surgery in terms of the EST are welcomed but there remains a need for dialogue and unity in the bodies engaged in these endeavours. The SRCs and HEE need to continue to work closely to develop a clear career path for all practitioners in the surgical environment.

SAS doctors and their role in the extended surgical team

SAS doctors include specialty doctors, staff grades, associate specialists, specialists, and a number of other career grades. There are around 11,000 SAS doctors working in England. It is important to differentiate between SAS doctors and locally employed doctors, who have differing levels of competence, experience and career aspirations. SAS doctors, together with this wider group of locally employed doctors, represent around one fifth of the total medical workforce. SAS doctors are the most diverse branch of the senior medical workforce, with 69 per cent from a black, Asian or minority ethnic (BAME) background and a large proportion having trained overseas.

The introduction of the concept of SAS grade started early in the history of NHS. Sir Robert Platt supported the introduction of an intermediate grade called medical assistant in order to address issues around stagnation of doctors at registrar grade due to the bottleneck effect at senior registrar and consultant level. The proposed grade was formally introduced in 1964 and received a mixed response.

In 1981, the Department of Health and Social Security renamed this group as associate specialists, perhaps recognising the seniority and skills. To address issues around service delivery and training opportunities, a new intermediate service grade was introduced in the late 1980s called the staff grade. Both staff grade and associate specialist were the predominant SAS grades in the 1990s and early 2000s. Unfortunately, these doctors who were mostly from overseas had very limited developmental opportunities, leading to low morale and job satisfaction. This was evident from the various surveys conducted during this period. In order to destigmatise the grade and offer opportunities for professional development, a new SAS contract was introduced in 2008. While this resulted in better developmental opportunities and the introduction of better pay scales, the associate specialist grade was closed for new entrants in 2009. The title 'specialty doctor' was introduced instead of staff grade, for those who transferred or were appointed to the 2008 contract.



The SAS Charter was introduced in 2014¹⁵, written by Academy of Medical Royal Colleges, NHS Employers, British Medical Association and Health Education England. The charter highlighted what an SAS doctor should expect from their employer and vice versa. Since then much has been written. In 2018 NHSI and HEE published a document entitled Maximising the Potential: essential measures to support SAS doctors¹⁶, which highlights 11 shared commitments to be delivered in partnership with AoMRC, NHSI, NHS Employers and BMA. The idea is to support SAS doctors in their professional development and promote it as a positive career choice.

The closure of the associate specialist grade in 2009 resulted in specialty doctors reaching a ceiling earlier on in their career. It was recognised that those specialty doctors who were working at a senior and autonomous level had nowhere to go. The appetite for getting specialist registration and a consultant post through CESR was limited due to variety of reasons. As a result, there was an increasing demand to reopen the associate specialist grade, and it was believed that this would improve developmental opportunities for SAS doctors and would also help in improving patient care and meeting the ever-increasing demands on the NHS. Secretary of State for Health and Social Security in 2018¹⁷ made an agreement in principle with BMA to reopen the senior SAS grade as part of SAS contract reform. The new senior SAS grade called specialist, has been introduced from April 2021 as part of SAS contract reform, which involves revised terms and conditions for specialty doctors.

SAS doctors provide specialist clinical services, and at the time of first appointment the most common title is speciality doctor. They have a minimum of four years' full-time postgraduate training (or equivalent) and often possess MRCS or equivalent. These doctors form a wide and varied group of staff, often performing highly specialised roles, sometimes with a narrower remit than consultants. They form an important component of the extended surgical team. They often contribute to the on-call rota at registrar level (ST3 and above equivalent) and as a result help in reducing the frequency of on-calls for everyone on the rota (trainees, locally employed doctors and non-medical practitioners). This helps in addressing issues around balancing service and training need. SAS doctors are generally experienced and instrumental in providing informal training in different ward-based, clinic and theatre settings, benefitting all grades of doctors, students and non-medical practitioners. They are often asked by the trainees to do workplace-based assessments (WPBA) and give feedback. SAS doctors are a great support system for all rotating members of the team; they provide continuity and institutional memory, and bring about stability in the team, which eventually contributes to good patient care. There is scope to formalise the role of SAS doctors and other permanent members of the EST, via an induction process, to support the rotating members of the team.

¹⁵ A charter for staff and associate specialist and specialty doctors, 2014 <https://www.bma.org.uk/media/1057/bma-sas-charter-for-england-dec-2014.pdf>

¹⁶ Maximising the Potential: essential measures to support SAS doctors, 2018 https://www.hee.nhs.uk/sites/default/files/documents/SAS_Report_Web.pdf

¹⁷ <https://www.bma.org.uk/pay-and-contracts/contracts/junior-doctor-contract/junior-doctor-contract-negotiations>

It is important to acknowledge that SAS doctors or any other member of the extended surgical team need to be valued for the skills that they bring to improve patient care, and they should not be used to simply fill the shoes of trainees for service delivery. It is important to understand that there are overlapping needs for professional development among different members of the EST, which could lead to occasional conflict, and therefore an emotionally intelligent leadership is needed to create that environment of mutual respect and positivity.

Senior specialty doctors, associate specialists and specialists are playing an ever-growing role in the education and training of all other staff in the EST. Royal College of Surgeons of England and Foundation Schools recognise SAS Doctors as clinical and educational supervisors. The number of SAS doctors in these roles is limited and the opportunities are variable, but the importance of nurturing SAS doctors as educators has been recognised by all stakeholders, including Health Education England; there are finite numbers of trainers and therefore utilising SAS doctors as trainers and educators is beneficial for everyone.

The new People Plan 20/21¹⁸ highlights the importance of diverse, inclusive and compassionate medical leadership. SAS doctors are encouraged to develop their management and leadership skills. An increasing number of medical leadership positions are now open to SAS doctors and, as a result of this evolving cultural change, more SAS doctors are being appointed to leadership positions such as clinical directors, appraisers, associate medical directors and medical directors. These opportunities are not yet fully embedded in the culture of the NHS; however, with an increasing number of leadership development opportunities provided by Health Education England through the SAS development fund, we envisage a growing number of SAS leaders in the NHS.

A large number of senior SAS doctors work autonomously within the EST, and these numbers are likely to increase with the introduction of the senior 'specialist' SAS grade. These doctors will generally have a broader role in the running of the team along with education and training of the other members of the EST.

In conclusion, SAS doctors are an important part of the EST; they deliver high-quality patient care and have an ever-increasing role as educators and trainers for medical and non-medical practitioners in the EST.

¹⁸ WE ARE THE NHS: People Plan 2020/2021 – action for us all, NHS, July 2020 <https://www.england.nhs.uk/wp-content/uploads/2020/07/We-Are-The-NHS-Action-For-All-Of-Us-FINAL-March-21.pdf>

Economic evaluation of the pilot: “the value proposition”

The Value Proposition

On behalf of HEE and during January – March 2021, Economics by Design Ltd developed a value proposition and evaluation approach for the EST pilots.

The value proposition is summarised as follows:

- **Context:** The traditional workforce model of surgical care is coming under pressure as a result of intense and sustained pressure on the surgical workforce, exacerbated by the Covid-19 pandemic.
- **Challenge:** Increasingly NHS employers are having to recruit temporary staff, international training fellows, and locums (“usual practice”) to protect training and development time for surgical trainees, and to deliver and protect safe staffing levels.
- **Solution:** The Extended Surgical Team (EST) provides an alternative multi-disciplinary and multi-professional solution supporting the entire surgical pathway. The 2018 Future of Surgery, Royal College of Surgeons predicts that “The multi-disciplinary and multi-professional surgical care team will become increasingly important in developing and delivering care of the highest quality. They will be able to provide more aspects of care and may take over some areas of surgical care currently delivered by surgeons”¹⁹.
- **Value:** Compared to usual practice, the EST is expected to generate value:
 - For the health and care system, by providing: a cost-effective alternative to “usual practice” staffing models, improved system efficiency and improved workforce longevity and productivity
 - For surgeons in training, enabling more time to focus on activities which promote training and learning
 - For EST advanced care practitioners (ACPs), providing opportunities for clinical career progression and skills enhancement.

The EST is expected to support the delivery of services which are at least as safe and effective as the traditional workforce model, and have the potential to reduce clinical risks compared with “usual practice”.

A value proposition is only a promise of value. Evidence is needed to support quantification or estimates of value.

As a starting point for considering the evidence needed to demonstrate value, the team developed a logic model. This is summarised in Figure A.

¹⁹ Future of Surgery, Royal College of Surgeons of England, 2018, p12 <https://futureofsurgery.rcseng.ac.uk/report/Future%20of%20Surgery%20Report.pdf>

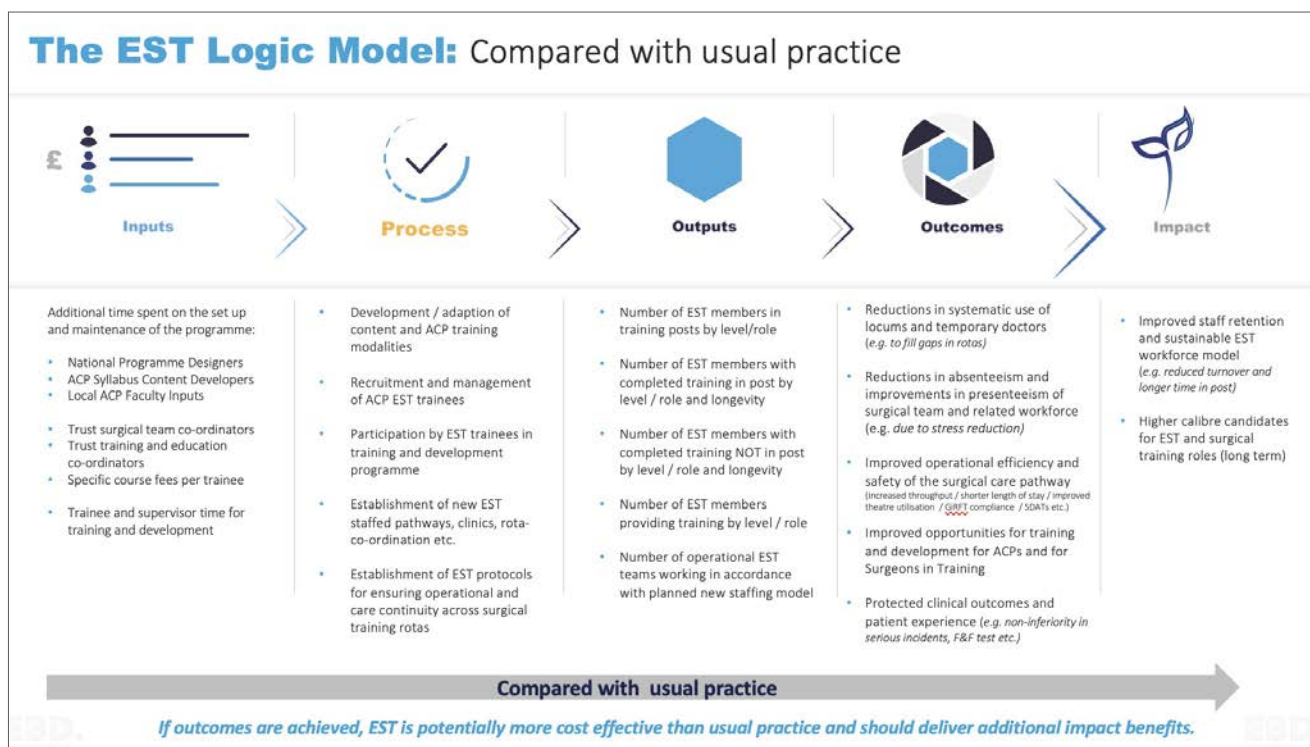


Figure A: The EST Logic Model

This logic model provides a framework for considering issues relating to process, impact and economic value and for generating the evaluation questions which might need to be considered.

Whilst pilots are being planned and implemented evaluation evidence is necessarily “ex-ante” and can only be based on reasonable forecasts informed expert assumptions, data and modelling. It is only once pilots have become operational “business as usual” that an “ex-post” evaluation can be undertaken to assess the achieved impact and associated value. In view of the lead time for the training to support new roles, Economics By Design recommended that, at this stage, an assessment of potential (“ex-ante”) value would be appropriate. However, pilots should be encouraged to collect data which would support retrospective measurement of achieved value in future years.

The EST ROI Tool

To help Pilots to measure potential value of the EST, HEE commissioned Economics By Design and the Health Economics Consulting Team at the University of East Anglia to develop an EST Return on Investment Tool.

The EST ROI Tool includes user defined baseline, transitional and future estimates of the surgical team structure, combined with estimates of salaries and on-costs, to estimate the costs of the EST operating model. Additional costs associated with course fees, supervision time, and other investments can also be defined by the user. Potential efficiency benefits can be identified by the user and include, for example, reductions in admissions (and associated bed days), reduced use of locums, and reductions in patient review time. These are valued in monetary terms using national average unit costs sourced from the PSSRU Unit Cost of Health and Social Care 2020²⁰, NICE and Department of Health. The user can replace these unit costs with local data if needed / preferred.

The EST ROI Tool uses these data to provide estimates of the change in costs and efficiency benefits over a ten-year period. The tool allows the user to discount the values to their present day equivalent in line with H.M. Treasury Green Book guidance²¹. The ratio of the net investment costs to the net efficiency savings provides the return-on-investment estimate or cost:benefit ratio.

Two case studies were selected for economic analysis using the tool:

- Manchester University NHS Foundation Trust – Wythenshawe Hospital
- Countess Of Chester Hospital.

For the two case studies, data provided by the pilot sites were used to estimate the changes to the team costs and the associated efficiency savings and to generate monetised estimates of return on investment. The pilots also provided information of the benefits that were not assigned monetary values which enabled a more holistic assessment of the value of the EST to the sites. The estimates of potential economic value for these two case studies are provided in the Case Studies section ([page 52](#)) of this report.

The EST ROI Tool has been developed so that it can also be used by other NHS Trusts seeking to make a local business case for investment in EST training and development. The Tool and associated user guidance can be found [here](#).

²⁰ Curtis, L. & Burns, A. (2020) Unit Costs of Health and Social Care 2020, Personal Social Services Research Unit, University of Kent, Canterbury. <https://kar.kent.ac.uk/84818/>

²¹ <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>

Introducing the pilot sites



Health Education England

The Extended Surgical Team: Wythenshawe Hospital



1 Catchment population: **450,000**



Beds: **792**



2 In 24 hours in the Surgical Assessment Unit: **22** Patients seen
7 Patients admitted
15 Patients managed ambulatory



3 Core surgical trainees work a **1 in 12 full shift**

4 The extended surgical team consists of:

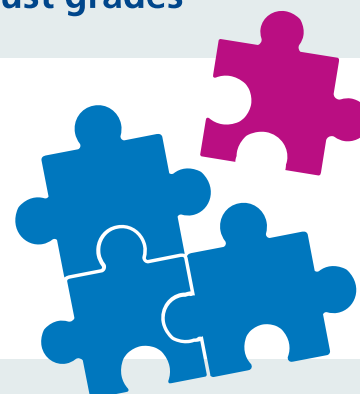


5 ACPs
2 Physician associates
2 StR level trust grades
3 CST level trust grades

5 Novel services include:

ACP run **Surgical Ambulatory Care Unit**

PA run **independent clinic**





Health Education England

The Extended Surgical Team: University Hospitals Birmingham



1 Catchment population: **1,030,000**



Beds: **2,700**



2

5 hospitals: Queen Elizabeth Hospital, Heartlands Hospital, Solihull Hospital, Good Hope Hospital



The EST works across 2 of the sites - Solihull and Heartlands



3

In 24 hours in the Surgical Assessment Unit:

31 Patients seen

17 Patients admitted

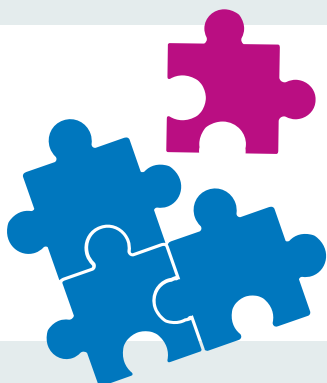
14 Patients managed ambulatory

4

The extended surgical team consists of:

5 EST lead/clinical Educator ACPs

9 Physician associates



5

Services include:

ACPs based in **Emergency General Surgery at Heartlands Hospital**

PAs provide **1 in 9 green surgical site (Solihull)** cover and **surgical admissions** cover, and are predominantly speciality based at Heartlands



Health Education England

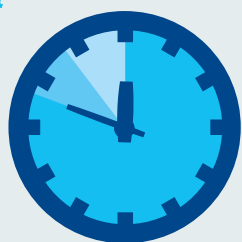
The Extended Surgical Team: The Countess of Chester Hospital



1 Catchment population: **496,000**



Beds: **410**



2 Each day in the Surgical Assessment Unit:

- 11** New emergency general surgical referrals seen
 - 61%** SAU referrals managed on an ambulatory basis
 - 11** Patients seen in review clinic
- Unwell patients from ED go straight to ward

3 Core surgical trainees work a **1 in 8 full shift**



4 Surgical registrars work a **1 in 9 full shift**

5 The extended surgical team consists of:

- 3** ANPs
- 2** Physician associates
- 2** Trainee ACPs



6 Novel services include:

7 day a week **Same Day Emergency Centre** staffed by ACPs and ACPs supporting the surgical on call rota



Health Education England

The Extended Surgical Team: Barking, Havering and Redbridge University Hospitals



1 Catchment population: **850,000**



Beds: **900**



2 In 24 hours
in the Surgical
Assessment Unit: **60** Patients seen
25 Patients admitted
15 Patients managed
ambulatory



3 Core surgical trainees
work a **1 in 9 full shift**

4 The extended
surgical team
consists of:

9 ANPs	2 Trainee ANPs
19 FY1s	12 CST level trust grades
6 CSTs	19 Surgical registrars
4 Doctors Assistants	



5 Novel services include:
ACP run elective inpatient wards,
post-op **wound clinic**,
ACP **independent endoscopy** lists,
7 day a week **'hot clinic'**





Health Education England

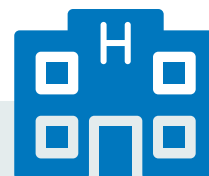
The Extended Surgical Team: Leeds Teaching Hospitals



1 Catchment population: **780,000**



Beds: **2,500**



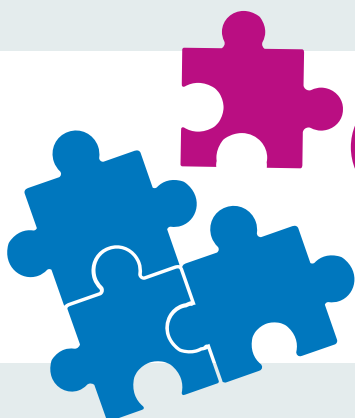
2 7 hospitals:

Leeds General Infirmary, St. James' University Hospital, Seacroft Hospital, Wharfedale Hospital, Chapel Allerton Hospital, Leeds Children's Hospital, Leeds Dental Institute



3 Daily EGS unit patient numbers: **20** Ambulatory Surgical Centre
60 Surgical Assessment Unit
75% GP admission managed on ambulatory pathway

4 The extended surgical team consists of: **4** ACPs
3 Trust grades
6.5 EGS consultants



5 Services include:
ACPs led **LA abscess pathway, virtual ward and follow up**
EGS training week including SIM sessions and SHO level theatre lists



Health Education England

The Extended Surgical Team: Hull University Teaching Hospitals



1

Tertiary services
catchment population

1.25 million



2

2 tertiary service
surgical departments:

Plastic Surgery

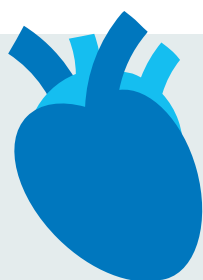
Cardiothoracic Surgery



3

1,052

Average monthly new
referrals to the plastic
surgery department



4

In 2020 we
performed:

750 Cardiac surgeries

750 Thoracic surgeries

150 Cardiothoracic
trauma surgeries



5

The cardiothoracic extended surgical
team consists of:

2 Qualified ACPs

4 Trainee ACPs

5 Surgical Care Practitioners

The plastics extended surgical team
consists of: **2** Surgical Care Practitioners





Health Education England

The Extended Surgical Team: Ipswich Hospital



1 Catchment population: **390,000**

2 **500**

Average weekly new referrals to the orthopaedic surgery department



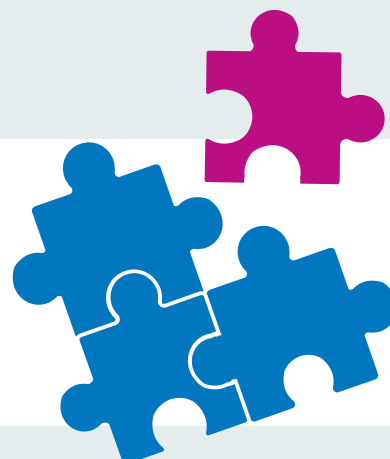
3 **15** Admissions per day
475 Hip fracture admissions annually



4 The extended surgical team consists of:
4 ANPs



5 Services include:
ANPs led **rota co-ordination** and **facilitating teaching** access for GP and FY trainees





Health Education England

The Extended Surgical Team: Royal Bolton Hospital



1 Catchment population: **288,000**

2 In 24 hours in the Surgical Assessment Unit:

63% of patients are ambulated, avoiding admission



3 Core surgical trainees work a **1 in 12 full shift**

4 Surgical registrars work a **1 in 12 full shift**

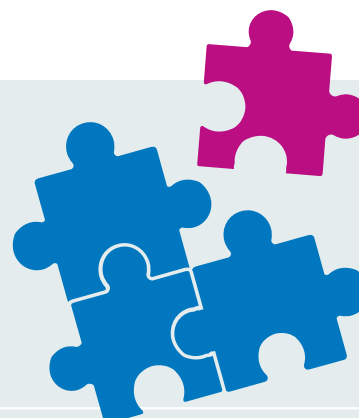


5 The extended surgical team consists of:

4 ANPs

6 Novel services include:

7 day a week **Same Day Assessment Unit** and **SARC** supported by ANPs



Methods

Once the eight pilot sites were recruited, a virtual EST community was created. This involved regular online Microsoft Teams meetings to update the sites on the progress of the pilot and allow for sharing of challenges and good practice. Regular email communications took place in the form of bulletins (appendix 5). All sites had access to the MERP email address for any queries throughout the duration of the pilot. Queries were directed to the most appropriate member of the project team and responses given usually within 48 hours.

The virtual community provided support and sharing of ideas, to improve and develop the EST and surgical services. This aligns with a larger national ACP leads network where ACP leaders responsible for embedding ACP into their organisations can network. This also provides useful links to HEE national and regional team members and vice versa.

In addition to these meetings, a series of educational webinars was held. The six webinars were scheduled as evening sessions and all members of the EST community were invited. In order to promote the concept of cross-role learning, the teams were encouraged to invite anyone from their site. Topics were clinical and professional (table E list of webinar titles, and speakers in appendix 2). Clinical topics were mapped to the SACP curriculum²² and learning resources uploaded to the NHS Learning Hub for learners to review before and after the session. All webinars were uploaded to the Learning Hub after the event. Each webinar was presented jointly by an experienced clinician and an experienced EST member. There was the facility for interaction from delegates. Feedback was collected after every webinar via a QR code on-screen or an emailed link.

Confidential pastoral support was offered to sites in the form of online “coffee shops” facilitated by the EST members of the project team, as a safe space to allow EST members from the sites to discuss challenges and solutions.

Site visits were planned but did not take place during the pilot due to COVID restrictions.

Active collection of data from all sites was continuous throughout the pilot. Data collection included patient reported outcome measures using a standard proforma (appendix 3), outlines of novel service improvement projects facilitated by the EST, colleague feedback from all members of the team in the sites, and clinical audits.

A series of online structured interviews took place with team members from the sites, plus a health economist was commissioned as per [page 26](#).

Recruitment to posts within trusts as a direct result of the additional funding was in line with NHS equality, diversity and inclusion principles within job advertisements.

²² Surgical Advanced Practitioner (SACP) Curriculum and Assessment Framework, HEE <https://advanced-practice.hee.nhs.uk/surgical-advanced-practitioner-curriculum-and-assessment-framework/>

Results

Educational webinars

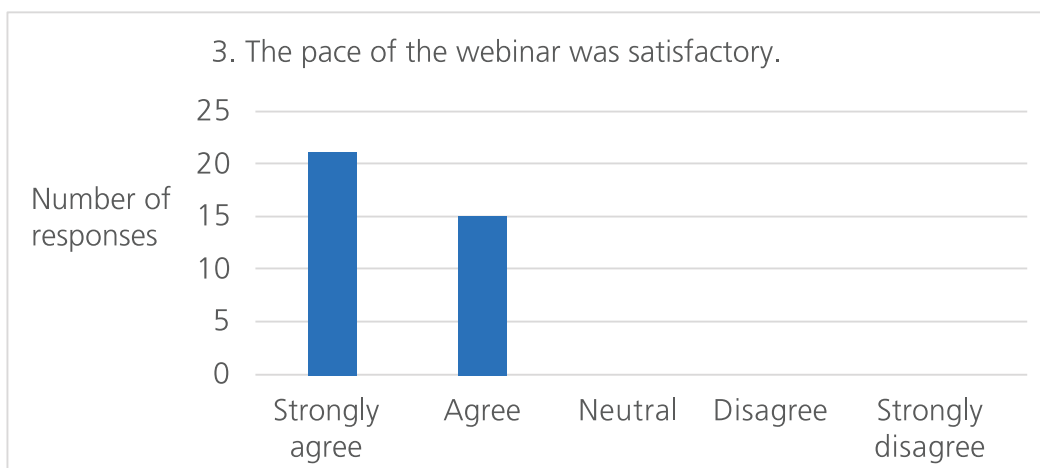
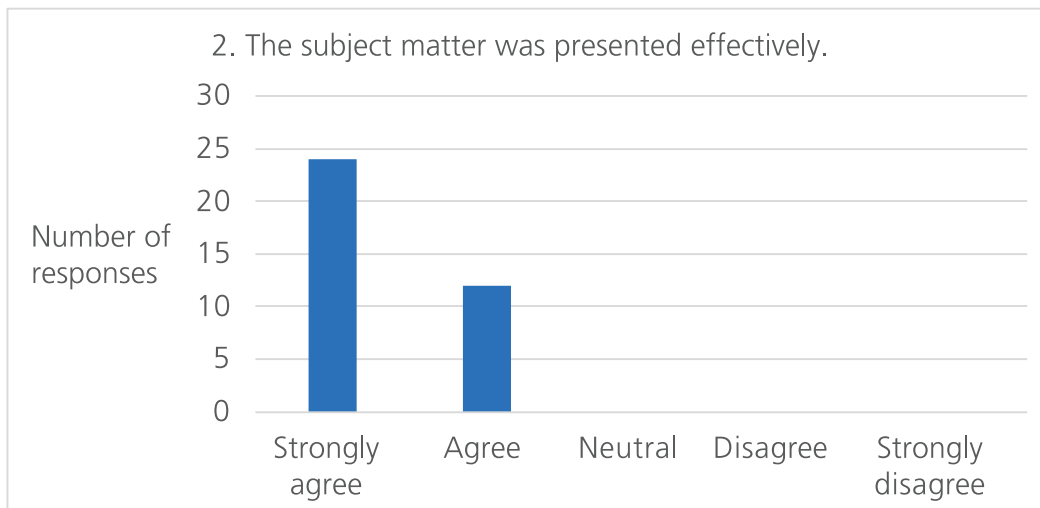
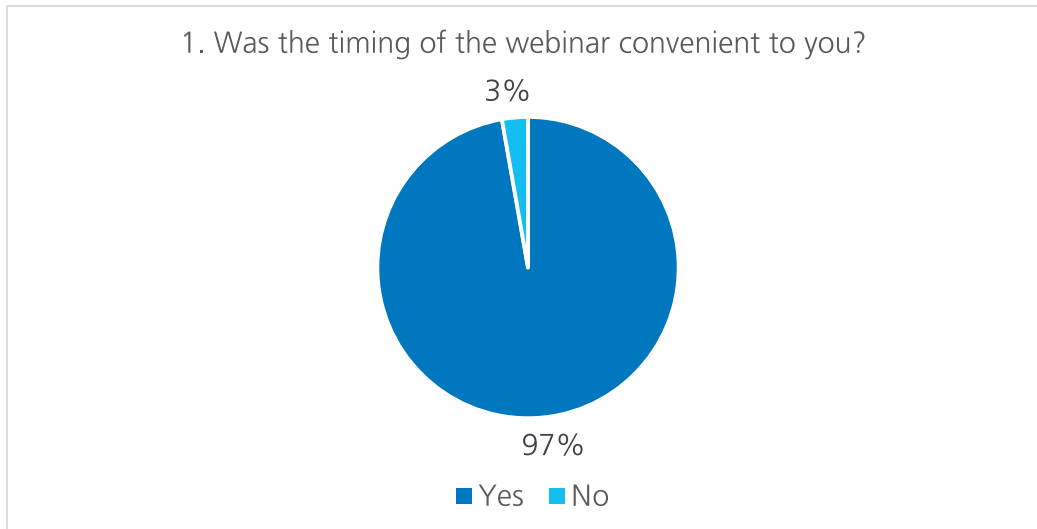
A series of monthly educational webinars was arranged for all ESTs in the pilot sites and core/IST trainees during May to October 2021. These sessions were facilitated by professionals appropriate to each topic, for example surgeons and ACP leads. The sessions were held using Microsoft Teams and were recorded so that they could be accessed after the event. All related resources were uploaded to the NHS Learning Hub with the prefix 'HEEST' so that the modules could be easily sourced.

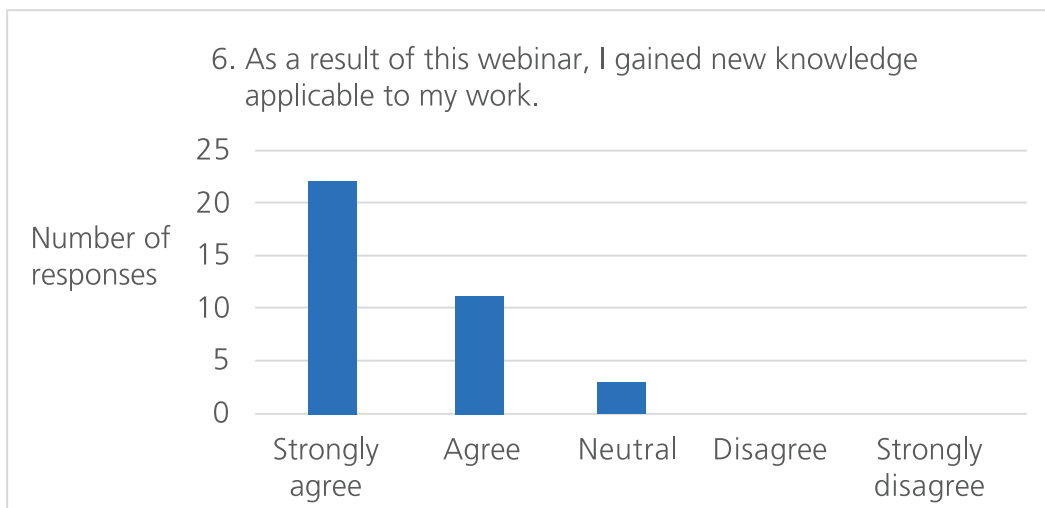
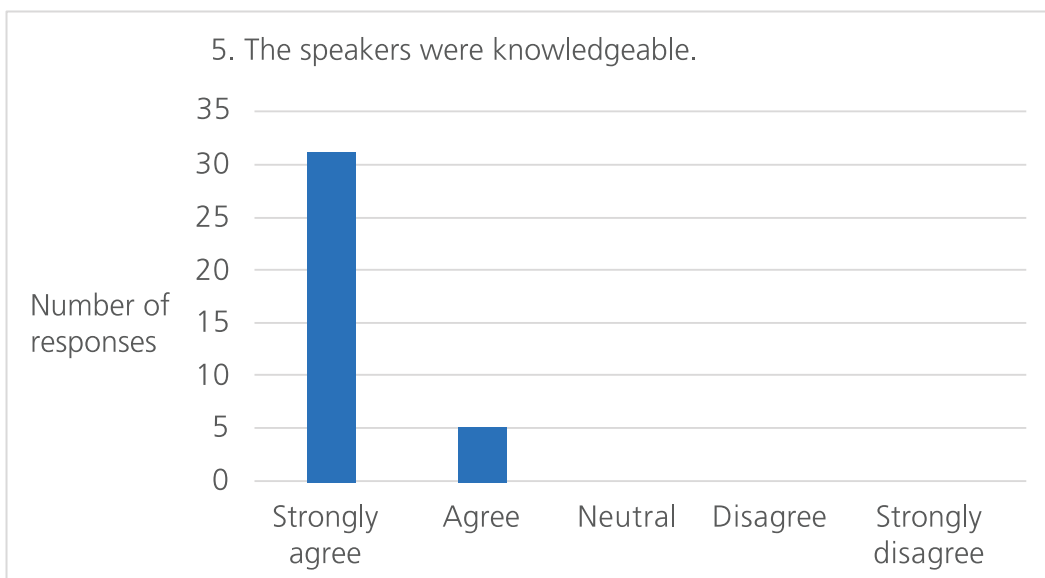
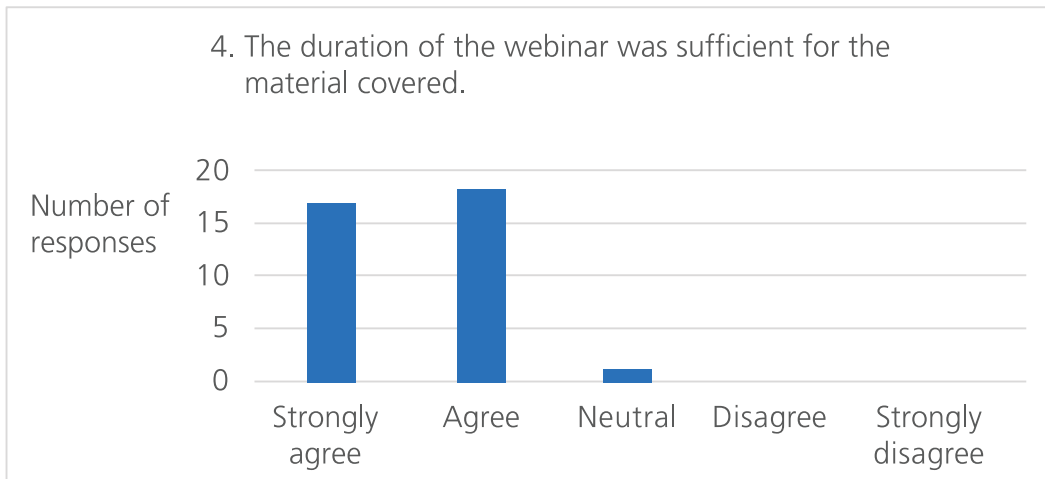
Date	Topic	Number of attendees (including speakers)
Thursday 13th May	Session 1: The ward round	29
Thursday 17th June	Session 2: Clinical reasoning	25
Thursday 15th July	Session 3: Consent & legal issues in surgery	25
Thursday 12th August	Session 4: Assessment of the abdomen	19
Thursday 16th September	Session 5: Deteriorating patients	23
Thursday 14th October	Session 6: Conflict within teams / conflict Resolution	22

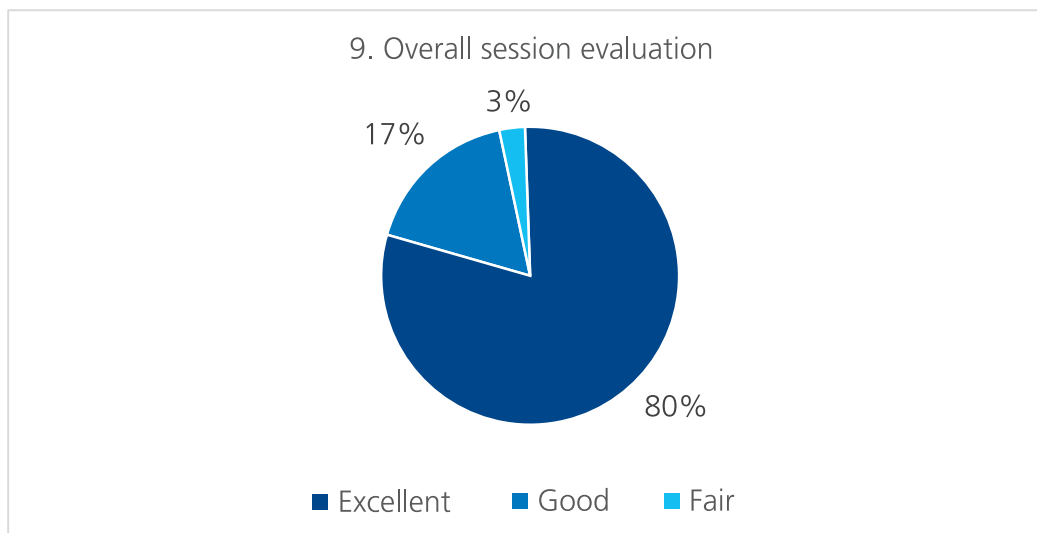
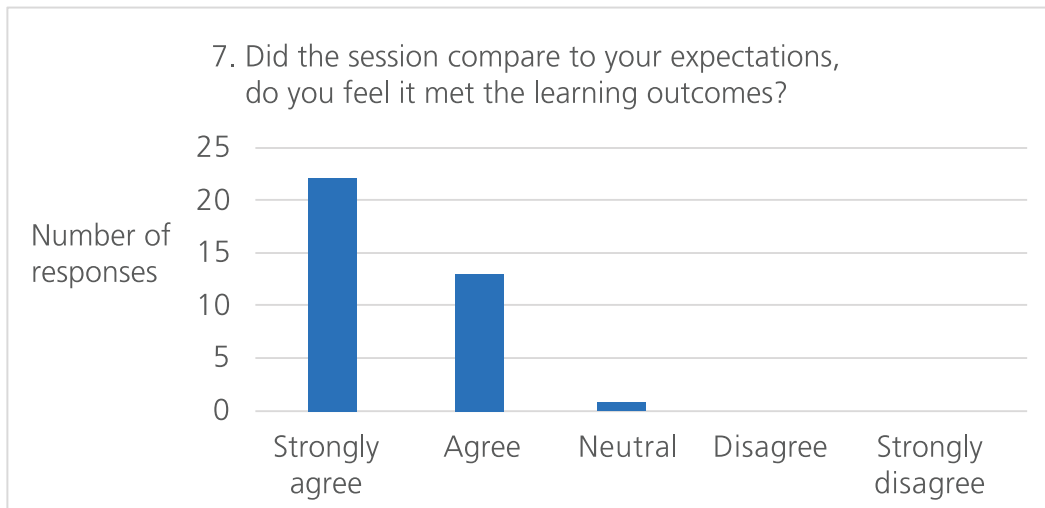
Table E: Schedule of educational webinars and numbers attended.

Following each educational webinar, a participant survey was launched. The findings have been positive. The results below are the responses across the webinar series and the key findings were:

- A total of 36 participants completed the survey across the six sessions;
- 67% strongly agreed, and 33% agreed, that the subject matter was presented effectively;
- 58% strongly agreed, and 42% agreed, that the pace of the webinar was satisfactory;
- 50% agreed that the duration of the webinar was sufficient for the material covered;
- 86% strongly agreed that the speakers were knowledgeable;
- 61% strongly agreed, and 31% agreed, that they gained new knowledge applicable to their work;
- 61% strongly agreed, and 36% agreed, that the session compared to their expectations and met the learning outcomes;
- 80% described the overall session evaluation as excellent;
- Across all six questions where the options were strongly agree, agree, neutral, disagree and strongly disagree, there were no responses disagreeing or strongly disagreeing;
- One of the aspects attendees found most useful was the interactive nature of the sessions.







The virtual “coffee shops” planned at the outset of the pilot were advertised in the bulletins and at the network meetings. They were to be facilitated by the EST members of the project team and badged as a confidential safe space for EST members in the pilot sites to discuss challenges they had faced and reflect on any difficulties. They were scheduled for monthly evening sessions on Microsoft Teams. There was very little take-up of this facility. Two individual conversations took place and helpful advice was exchanged. However, for the majority of sites and team members there was no take-up of this facility. This might mean that there was adequate peer support and opportunity for reflection in the individual trusts. It might also reflect the difficulty in attending an out-of-hours session in addition to the educational webinars. It is possible that the educational content was deemed to be of more value by the participants.

As part of the EST pilot, sites were encouraged to utilise the newly published HEE Surgical ACP curriculum²³ that was endorsed by the Surgical Royal Colleges. The pilot sites therefore provided an ideal opportunity to gather real-time feedback from EST trainee ACPs. Common themes included:

- Mostly positive and welcomed having a document to work towards,
- A bit overwhelming initially and a need to restructure as not found to be logical,
- Review of core and include a separate general surgery module,
- Review of the specialty modules and revise as felt some were too basic,
- Review the opportunity to introduce a career stretch as part of the specialty syllabus,
- Anxiety that MCR not suitable and challenging for specialty units where the practitioner may not work with many other team members.

As a result, the document will be reviewed and a small working group will look to revise and improve.

Pilot sites

The EST has been demonstrated as working particularly well in the setting of an acute surgical admission unit and a number of service improvement projects have been possible in this setting. Sites were encouraged to collect patient-reported outcome measures and colleague feedback from the teams.

Countess of Chester NHS Trust – Countess of Chester Hospital

In Chester the EST is being developed primarily to support the emergency general surgery service but also to support elective care where required. It is hoped that there will be many benefits including streamlining the emergency service to the benefit of patients and the service, and to allow surgical trainees, predominantly at core trainee level, to have increased access to supervised learning and operating theatre opportunities. The EST to support the emergency general surgery service currently consists of three advanced nurse practitioners (training to become ACPs), two trainee ACPs and two physician associates (PAs). The aim is that the ACPs will see and assess referrals to the planned SDEC (Same Day Emergency Centre) and will be supported by senior clinicians. Longer-term plans include an ACP slot on the core trainee on call rota to reduce frequency of on-calls and free up time for daytime elective activity. The PAs already support the general surgical team, including on ward rounds, seeing acutely unwell patients and referrals, performing clinical tasks such as cannulation, seeing patients in clinic, and assisting in the operating theatre.



Nicola Eardley
(Pilot Site Lead) Consultant
General and Colorectal
Surgeon, Countess of
Chester NHS Trust



Sunanda Roy Mahapatra,
RCS Tutor, Countess of
Chester NHS Trust

²³ Surgical Advanced Clinical Practitioner (SACP) Curriculum and Assessment Framework, HEE, 2020
<https://advanced-practice.hee.nhs.uk/surgical-advanced-practitioner-curriculum-and-assessment-framework/>

Manchester University NHS Foundation Trust – Wythenshawe Hospital

In Wythenshawe Hospital, the EST is formed by the five ACPs working in the Surgical Ambulatory Care Unit, our two physician's associates and our trust grade doctors (two at middle grade and three at CST level). The SACRU unit is run by the ACPs who see patients referred directly from primary care, the emergency department, and planned ward reviews, which enables early discharge from the surgical wards. The unit is open six days a week, 8am to 8pm Monday to Friday and 8am to 6pm on Saturday. The EST provides initial assessment, investigation and diagnosis for these patients and enables the on-call CST to be supported throughout the day in their management of the surgical take.



Sarah Duff
(Pilot Site Lead) Consultant General and Colorectal Surgeon, Manchester University NHS Foundation Trust

Bolton NHS Foundation Trust – Royal Bolton Hospital

In Bolton, the EST pilot sits within general surgery. There are two parts to it: one focusing on advance nurse practitioner (ANP) role expansion in the acute care service and another expanding the role of colorectal specialist nurses. There are seven people directly involved in the pilot roles, four ANPs working in the acute care service and three specialist nurses within the colorectal surgery service. The ANPs see and assess all patients referred to our ambulatory care service by GPs or ED. The pilot has worked to develop independent discharges by them, provide an in-reach service into ED to reduce time to first assessment, and training in minor procedures such as abscess drainage. The ultimate aim is to have an ANP workforce appropriately skilled and fully integrated with the CT training grade to reduce work intensity, enhance workforce resilience and support training. The colorectal nurses work to support cancer patients treated by the colorectal team and the pilot is progressing expansion of this role into nurse led colorectal cancer follow up. This will free up slots in consultant clinics that can then be used to help manage the demand from rising numbers of new patient referrals.



James Pollard
(Pilot Site Lead) Consultant Colorectal & General Surgeon, Bolton NHS Foundation Trust

Hull University Teaching Hospitals NHS Trust

In Hull, the EST is part of the cardiothoracic unit. There are 11 members in total: five surgical care practitioners who work predominantly in cardiac and thoracic theatres and six advanced clinical practitioners (two qualified and four trainees). The SCs cover every cardiac and thoracic list, performing endoscopic vein harvesting, assisting robotic thoracic surgery, surgical first assisting and a PICC line service for cardiothoracic patients. The ACPs work on the tier one rota covering day shifts Monday to Sunday. Their clinical tasks include the pre-operative clinical assessment and examination of patients, assessment and treatment of the acutely unwell patient, performing ward rounds and preparing patients for discharge. They prescribe medications and treatments and they provide teaching and support to the junior medical staff and nursing staff within the department.



Extended Surgical Team,
Hull University Teaching
Hospitals NHS Trust

University Hospitals of Birmingham – Heartlands/Good Hope/Solihull/Queen Elizabeth Hospital

The extended surgical team at University Hospitals Birmingham work at the Heartlands and Solihull Hospital sites. A team totalling 20 members is being developed to work across the surgical specialties. Our PAs rotate through the specialties of colorectal, upper GI, vascular surgery, urology and ENT, so that they are familiar with the breadth of practice and they are working alongside the foundation specialty workforce. Following this, they then undertake longer placements in a specific specialty providing consistency in clinical knowledge, skill and patient management.



Mark Gannon
(Pilot Site Lead) Vascular
Surgeon, University
Hospitals Birmingham

The ACP group works predominantly in the acute service in the SAU and ambulatory assessment clinics, working alongside the core trainees. The group spends 80 per cent of its time invested in providing cover on the wards and the acute service throughout the week and at weekends, and 20 per cent working to develop personal and clinical skills in the specialties. Our pilot initiative is centred on making the best of this sizable workforce, optimising the roles they can play in the teams and creating sustainable roles. A clinical lead and educator has been appointed to develop pathways for training, assessment and development of the workforce, including multi-professional training and course development, simulation, non-technical skills and curriculum development by working with the UHB education departments and the HEE West Midlands School of Surgery.

Leeds Teaching Hospitals NHS Trust – St James’s University Hospital

Leeds Teaching Hospitals has over the last year invested in an ambitious new Emergency General Surgery Unit with the recruitment of eight new surgical consultants. The team were excited to utilise the EST model and pilot to help staff this unit and, as such, the junior team is built around this structure. We have employed four full-time advanced care practitioners and four emergency surgery junior clinical fellows who support the team’s activities. The team members interact within the unit’s broad activities and allow each other to pursue individual interests. The junior clinical fellows have protected ‘SHO’ training lists, timetabled simulation sessions and a day’s CPD activity to pursue research, teaching or leadership opportunities. Similarly, the ACPs support acute ward rounds, have developed independent ambulatory clinic roles, and lead on our local anaesthetic abscess pathway. They are also given CPD time to utilise for QI, leadership and training opportunities. It is anticipated that in time the ACP team will continue to develop our virtual ward and monitoring pathway and lead on a new ED surgical patient triage system.

Modelled on the original IST structure, the unit also hosts trainee SHOs for an ‘EGS week’. The week involves consultant-supervised training lists, consultant-supervised clinics, simulation and teaching opportunities. The week is written into an 18-week matched on-call cycle (consultant, SpR x 2, SHO x 2, FY1 x 2, EGS ACP), which allows an on-call modern medical firm to run. This has very much been made possible by using the EST model.

East Suffolk and North Essex NHS Foundation Trust – Ipswich Hospital

Ipswich Hospital T&O department now has four ANPs who work in harmony with the 12 FY1 FY2 junior doctors on the ward, twilight and on-call rotas. This provides continuity of care, cover for teaching sessions, and a base of solidity at the four-month changeovers. Their presence means the rota is full most of the time, and the juniors have a tier with ongoing experience and the consultants’ familiar faces at all times.



Adam Peckham-Cooper
(Pilot Site Lead) Consultant
Emergency General
Surgeon, Leeds Teaching
Hospitals NHS Trust



Tim Brammar
(Pilot Site Lead), Consultant
T&O Surgeon, East Suffolk
and North Essex NHS
Foundation Trust

Barking, Havering and Redbridge University Hospitals NHS Trust – King George Hospital & Queen’s Hospital

The extended surgical team is a core and integral part of a busy general surgical department at Barking, Havering and Redbridge University Hospitals (Queen’s and King George Hospitals). We are proud to have 11 advanced nurse practitioners, including two trainees within a team of 20 foundation doctors, six CSTs, four doctors’ assistants and 19 registrars covering a wide range of surgical disciplines from colorectal and UGI surgery to vascular, urology, neurosurgery and orthopaedic elective patients. Our ANPs have the unique opportunity to develop cross-specialty experience and skills, managing ward patients and have facilitated the creation of a ‘green’ surgical elective hub for all specialties. They perform daily ward rounds with senior support, assess and treat unwell patients and prescribe medications, prepare discharges and teach and support the junior medical and nursing staff. Current working pattern is between 8am and 8pm, Monday to Sunday. We have seen improvements in continuity of patient care, interdisciplinary working with ward nursing staff, efficient discharges, excellent documentation, and fewer paperwork errors since their introduction. The CSTs have also benefitted from reduced workload, allowing greater theatre access and the best logbook numbers in our deanery. It is with pleasure that we say our EST is here to stay!



Mr Richard Boulton
(Pilot Site Lead), Consultant
Colorectal Surgeon,
Barking, Havering and
Redbridge University
Hospitals

Network meetings

A total of four pilot site network meetings were held during 2021. The meetings were chaired by Paul Sadler, Postgraduate Dean Wessex and SRO for the pilot. The meetings engendered a sense of a virtual community, and pilot sites provided updates at each meeting including reporting on the barriers, solutions, and opportunities to implementation. The meetings also provided an opportunity to disseminate information on the educational webinars, feedback on the development of the highlight reports, and receive presentations relevant to the pilot.

	Number of attendees from pilot sites	Total number of attendees	Themes
March 2021	11	19	Introduction to the project
May 2021	10	16	Barriers to implementation
July 2021	7	12	Highlighting good practice
October 2021	8	15	The Role of the SAS doctor in the EST

Table F: Attendee numbers and themes from pilot site network meetings during 2021.

Structured interviews

Interviews with core trainees, consultants, specialty doctors and the EST members took place over Microsoft Teams, using a structured interview proforma (appendix 4).

Feedback from surgical trainees was overwhelmingly positive. It was acknowledged that this might change over time when both professional groups might compete for the same development opportunities.

“There is enough space in the sky for all the birds to fly.” – Core trainee quote.

“I will certainly have EST members in my team when I am a consultant.” – Core trainee quote.

Feedback from SAS and locally employed doctors was positive. They felt that each team member was supportive of each other’s training needs and those not in a formal training post were not treated any differently in their department. One of the locally employed doctors felt that having admin or secretarial members within the clinical team would further enhance the good experience within the EST, as admin staff can support clinical team in various ways by taking care of non-clinical jobs.

Feedback from non-surgical trainee EST members was similar to that of the surgical trainees and also overwhelmingly positive. Ultimately, they felt the EST was far better for patients and their journey, and that the morale of the team had improved. This was also reflected by another interviewee who stated:

“The EST is the most positive aspect of my role.” The common challenge reported was that the EST was so successful that services had expanded quicker than the EST workforce, and one EST member said they were therefore “a victim of their own success”, but despite this challenge another reported that there was “better teamworking, better environment and better flow”.



Economic Evaluation Case Studies

Two case studies were selected for economic analysis using the EST ROI tool:

- Manchester University NHS Foundation Trust – Wythenshawe Hospital
- Countess Of Chester Hospital.

The results are provided below, including a more detailed description of the context and design of the pilot and the experience to date.

Manchester University NHS Foundation Trust – Wythenshawe Hospital

Emergency Surgery in Manchester

Manchester University NHS Foundation Trust (MFT) is a large acute trust with over 20,000 staff providing a wide range of local general acute services for the residents of Manchester and Trafford, as well as specialist regional services for the North-West of England and national services. The Trust provides services from nine hospitals located over six sites plus services at North Manchester General Hospital through a Management Agreement.



Extended Surgical Team, Manchester University NHS Foundation Trust – Wythenshawe Hospital

Wythenshawe Hospital is part of MFT. It is a major acute teaching hospital, providing general acute hospital services for the South Manchester population, and specialist services including cardiology and cardiothoracic surgery, heart and lung transplantation, respiratory conditions, burns and plastics, cancer and breast care services for the North-West of England. It is a host for undergraduate teaching, post-graduate training and is a centre for research and development.

The General Surgery Department at Wythenshawe was an early adopter of the Extended Surgical Team (EST). Launched in 2016, by January 2020, the EST at Wythenshawe included 2 Physician Associates (PA), 3.8 Advanced Practitioners (ACPs), 1 permanent Senior Clinical Fellow (ST8 level) and 4 more junior Clinical Fellows (1 at ST6 level, 3 at CST level).

The use of the EST, and in particular the Advanced Practitioner role, enabled the General Surgery Department in Wythenshawe Hospital to develop a Surgical Ambulatory Care Receiving Unit (SACRU) which has now operational for 5 years. SACRU was established to streamline surgical admissions, reduce unnecessary surgical inpatient admissions, manage appropriate patients on an ambulatory basis, diagnose and treat patients on a same day basis and to enhance patient experience and outcomes. It receives referrals from the emergency department as well as GP direct referrals.

The EST operates across the wards and the SACRU. The PAs work on the wards and co-ordinate rostering and lead on the departmental teaching programme. The ACPs are integral members of the SACRU. SACRU is consultant-led with a Surgical Consultant in attendance each morning between 8.30-12.30 and the on-call consultant overseeing the afternoon session. SACRU has had the benefit of allowing the on-call Core Surgical Trainees to be able to base themselves in a single physical location, and work with the multi-professional team on the unit in a supportive environment which is largely away from the Emergency Department. The EST workforce supports the rotating CST doctors and enables their training and learning opportunities.

Opportunities for Improvement

The Wythenshawe EST Pilot was an expansion of an existing EST model supporting the General Surgery Department and which incorporated a Surgical Ambulatory Care Receiving Unit (SACRU).

The Department was keen to build on the success and experience of the SACRU, and to expand the size and scope of the EST to:

- Support workforce development
 - Increase the level and quality of protected training opportunities for CST doctors
 - Increase the training and supervision capacity of senior staff in the EST to enable them to become educators and role models and further break down professional barriers
 - Develop new skills for EST members to enable them to take on new clinical responsibilities where appropriate
 - Improve the workforce value of the EST in terms of improved staff satisfaction and wellbeing and clinical career progression.
- Support service improvement. The unit operated 8-5pm for five days a week with dedicated slots available for ultrasound and same day CT accessibility. The ambition was to extend SACRU opening hours to increase referrals, especially during busy periods of early weekday evenings and to extend coverage of SACRU to seven days per week. This would improve the value delivered by the SACRU in terms of:
 - streamlining surgical admissions
 - reduce unnecessary surgical inpatient admissions
 - manage appropriate patients on an ambulatory basis
 - diagnose and treat patients on a same day basis
 - enhance patient experience and outcomes.

The EST Pilot

The Pilot was focused on expanding the EST capacity, skills and roles to enable additional support to CST doctors to improve and expand their training experience, to improve the value of the EST team, and to enhance the value being provided by the SACRU for both patients and the Trust. The EST and Wythenshawe sought seed funding from the HEE Pilot Programme to expand and enhance the team. Specifically, funding was sought to:

- Expand the ACP team from 4 to 6 through:
 - The substantive appointment of an ACP working at Band 8a
 - Enrolling a new member of staff, currently working at Band 7, to a recognised ACP MSc Course with a view to taking on a Band 8a role once training is complete. The trainee would be based in the SACRU, released for training days, and supported in the clinical setting via daily supervision from the senior ACPs and a named Consultant Supervisor. The funding request included an allowance for clinical supervision time.
- Invest in a new emergency coordinator nurse (Band 6)

Investing in specific training courses including:

- Train the trainer
- Surgical supervision of the ACP trainee over 2 years.
- CCriSP
- Prescribing Modules for the Pas (subject to GMC approval).

Overall, therefore, the pilot was expected to:

- increase support to doctors in training (released time for training) – primary purpose,
- reduce breaches within the emergency department in relation to general surgery or urology,
- reduce admissions for general surgery,
- reduce waiting times and length of time for assessment, and
- improve patient satisfaction.

Economic Evaluation: Expected Value

The EST Pilot at Wythenshawe had two main aims:

1. To enhance and improve the skills and capacity of the EST team and to improve support to CST doctors and their experience of training.
2. To increase the value generated by the SACRU unit through extended hours and working days.

The Economic Evaluation has explored the relative value of the EST Pilot as originally planned, compared to continuing with the pre-pilot 2020 staffing model (the “business as usual” scenario).

A summary of the economic analysis is shown in Table G. The wider benefits include the support to doctors and their experience of training (Aim 1 above). The net investment cost of the EST over the 10 year period is around £118,800 per annum. This is the additional salaries and on-costs of new team members and includes the training and supervision costs. The potential efficiency savings from the new team is estimated at around £842,000 per annum. This is based on a Trust analysis of additional admissions which would be avoided by extending working hours during the weekday evenings, and opening at weekends (Aim 2 above).

Taken together, the model shows an expected gross return on investment over 10 years of 7.09. In other words, for every £1 invested in the expanded EST a value of £7.09 is generated. Indeed, the analysis shows a positive return on investment even after the first year of implementation. The investment is expected to provide a positive return from Year 2.

SACRU Efficiency Benefits	10 year	Average per annum
Net Present Value of EST Investment	£984,117.42	£98,411.74
Net Present Value of Efficiency Improvement	£1,188,033.69	£118,803.37
Gross Return on Investment 10 years from efficiency savings	7.09	7.09
Payback Year	Year 2	
EST Wider benefits not measured in monetary terms	Increased support to doctors in training (released time for training) Reduction in breaches within the emergency department in relation to general surgery or urology Reductions in waiting times and length of time for assessment Improved patient satisfaction.	

Table G: Summary of EST Pilot Return on Investment over 10 years: Manchester

Advance Practice Training Period for Trainee	2 years
Training Time Per Annum for Trainee	0.4 FTE
ACP course fee (funded by HEE)	£8,000 (over 2 years)
Admissions Avoided Expressed as Bed Days – based on analysis of potential admissions averted undertaken by the Pilot site.	2083
Unit cost per bed day sourced from PSSRU Unit Costs of Health and Social Care 2020 ²⁴	£586 per bed day
Phasing of efficiency savings	25% year 1 50% year 2 75% year 3 100% year 4-10
Staffing costs	NHS pay bands plus on-costs (on-costs based on PSSRU 2020 estimates)
Training costs as provided by the Pilot	£11,192
Clinical supervision of trainee per trainee	£10,000 (over 2 years)

Table H: Key Assumptions for Economic Evaluation

Sensitivity analysis has been undertaken and is summarised in Table I. This shows that expected reductions in admissions would have to be as little as 15% of their expected value for the investment to effectively “break even” over 10 years.

²⁴ <https://www.pssru.ac.uk/project-pages/unit-costs/unit-costs-2020/>

Assumption	Sensitivity Test	Revised ROI
Training Time Per Annum for Trainee (associated impact on service delivery)	Increase from 0.4 to 1 FTE per annum (no service delivery capacity from the trainee) with a reduced efficiency impact by 30% during training period	6.87
Supervision Costs	£20000 (doubled)	7.03
Unit cost per bed day	50% of PSSRU value	3.54
Bed days saved	15% of expected value	1.06

Table I: Sensitivity Analysis

Experience to Date

Implementation of the Pilot has been impacted by COVID-19 and the build-up of latent demand during lockdown. Some of the expected investment has yet to materialize and some of the original recruitment and training plans have moved on. For example, the nurse co-ordinator role at Band 6 was not implemented, the co-ordination was taken on by the ACPs. Also, the physical location has moved following COVID-19 related re-organisation; this has impacted on the operating model of SACRU. However, SACRU hours have been extended into 8pm in the evenings during weekdays and the unit is now operating on a Saturday.

This has enabled the equivalent of an additional 20 hours of protected consultant 1:1 supported CST training time, benefiting 7 trainees. Feedback from trainees has been very positive.

Survey data also suggests very high levels of patient satisfaction with SACRU services both in terms of waiting times and the service experience generally.

The Trust is currently looking for additional ACP workforce to support a business case for Sunday opening.

Economic Evaluation: Achieved Value

It is too early to measure the economic value of the ultimate achievements of the Pilot compared with what might have otherwise happened. Moreover, it will not be possible to attribute observed changes in admissions or waiting times to the EST expansion given other contemporaneous confounding factors. Any retrospective evaluation would need to rely on a mixed methods approach if any conclusions are to be drawn regarding the scale of value achieved.

Countess Of Chester Hospital

Emergency Surgery in Chester

The Countess of Chester NHS Foundation Trust is an acute trust with nearly 4,000 staff providing acute emergency and elective services, primary care direct access services and obstetric services. It serves the population of Chester and surrounding rural areas, Ellesmere Port and Neston and the Deeside area of Flintshire. The Trust also provides services to residents in North Wales. The Trust provides the majority of services from the Countess of Chester Hospital, a 410 bed single site general hospital, with 48 bedded intermediate care service at Ellesmere Port Hospital.

Currently, the urgent surgical referrals to the Trust are mainly managed through the Surgical Admissions Unit (SAU). This is supported by a team of junior doctors and Advanced Nurse Practitioners (ANPs) under consultant supervision. Prior to the EST pilot, the service operated between 8am and 8pm on weekdays but the plan is to extend to weekends.

Opportunities for Improvement

The Trust is in the process of developing a £15m same day emergency care unit (SDEC) which will transform its emergency services. This will be supported by medical staff, and an Extended Surgical Team which will build on the current model operating in SAU.

In this context, the Extended Surgical Team is expected to:

- Support workforce development
 - Reduce the frequency of on-call rotas from 1:9 to 1:12²⁵
 - Improve the availability and utilization of training opportunities both for trainees and supervisors
 - Reduce workforce pressure in A&E
 - Enhance and expand the opportunities for multi-disciplinary training for team and from the perspective of those providing the training
 - Increase the clinical career progression of Advanced Practitioners through enhanced scope of practice, their role as educators, and their management and leadership roles
 - Improve workforce resilience across training rotations.
- Support service improvement. The move to the SDEC is expected to:
 - Reduce waiting times to first assessment
 - Support early investigation, diagnosis and initiation of treatment
 - Reduce hospital admissions
 - Improve continuity of care for patients particularly during hand-over periods
 - Improve patient satisfaction
 - Improve the staff to patient ratio and support for surgeons.

²⁵ The aspiration is now to move from 1:9 to 1:11.

The EST Pilot

The Pilot complemented the planned development of SDEC. Specifically, funding was sought to:

- Expand and upskill the EST team from 5 to 8 through:
 - Support 3 band 7 ANPs to complete their ACP qualifications and move to Advance Practitioner Band 8a roles
 - Enable 2 Band 5 nurses to participate in ACP Masters Course at the University of Chester and develop as Advance Practitioner Band 8A roles
 - Hire 2 additional Band 5 nurses to support the team.

The Pilot also has plans to develop a Band 7 Physicians Associate to ACP Band 8a, subject to decisions regarding GMC regulation of the profession and in particular their ability to prescribe. This has been excluded from the economic evaluation.

The EST team will support the SAU under consultant supervision until the SDEC unit is built and commissioned following which all urgent referrals to hospital that do not need to attend A&E will be managed on SDEC. The current expected completion date is the end of the calendar year 2022. The surgical referrals will be dealt with a surgical SDEC team of which the advanced practitioners will be an integral part. With the EST in place, patients will be seen in the first instance by the ANP/ACP who will take history, examine, arrange initial investigation, initiate initial management and discuss with the consultant surgeon or senior trainee/SASG and complete all documentation.

The ACPs are expected to ultimately take up two or even three slots on the junior surgical on-call rota providing care on the wards. This will reduce pressure on doctors in training. Trainees will be freed up to spend more time in the emergency theatre and more time for education rather than just service delivery. The trainees will get to spend time with the patients with greatest medical need.

Overall, therefore, the outcomes the pilot was expected to achieve were to:

- Reduce admissions for minor surgical problems
- Improve Patient satisfaction
- Reduce time needed for patient review
- Increase the number of training sessions per trainee per week
- Reduction in exception reports (for late working/missed teaching) from FY1s due to increased availability of support
- Increase time spent by surgical trainees in theatre
- Improve trainee support as measured against GMC training report and the Deanery departmental report
- Improve performance reported through the safety culture survey
- Reduce staff sickness and turnover
- Reductions in the use of locum staff to support the emergency rota.

Economic Evaluation: Expected Value

The Economic Evaluation has explored the relative value of the EST Pilot as originally planned, compared to continuing with the pre-pilot 2020 staffing model (the “business as usual” scenario). A summary of the economic analysis is shown in Table J.

The net investment cost of the EST over the 10 year period is around £97,000 per annum. This is the additional salaries and on-costs of new team members and includes the training and supervision costs. The potential efficiency savings from the new team is estimated at around £608,000 per annum. This is based on modest assumptions about the potential efficiencies to be achieved from reducing the unit cost of patient review time, reducing admissions to hospital, and reducing reliance on locums (due to improved management of the emergency rota and a reduction in staff absences).

Based on these efficiency assumptions the model shows an expected gross return on investment over 10 years of 6.28. In other words, for every £1 invested in the expanded EST a value of £6.28 is generated over a 10 year period. A positive return on investment is expected to be achieved as early as year 2.

The Table also shows the expected wider benefits from improvements which are difficult to measure and/or value. These include improved patient satisfaction, improved trainee support and time for training, and improved safety culture.

EST Efficiency Benefits	10 year	Average per annum
Net Present Value of EST Investment	£968,883.14	£96,888.31
Net Present Value of Efficiency Improvement	£6,086,023.69	£608,602.36
Gross Return on Investment	6.28	6.28
Payback Year	Year 2	
EST Wider benefits not measured in monetary terms	<ul style="list-style-type: none"> – Improve Patient satisfaction – Increase the number of training sessions per trainee per week – Increase in time spent by surgical trainees in theatre – Reduction in exception reports (for late working/ missed teaching) from FY1s due to increased availability of support – Improve trainee support as measured against GMC training report and the Deanery departmental report – Improve performance reported through the safety culture survey – Improved staff wellbeing – Improved e-discharge completion rates 	

Table J: Summary of EST Pilot Return on Investment over 10 years: Manchester

The analysis was undertaken using the HEE EST ROI Tool. The analysis was undertaken in line with H.M. Treasury Green Book Guidelines²⁶. Efficiency savings were assumed from:

- Admissions avoidance for minor surgical interventions
- Reductions in unit costs for patient review time
- Savings of 1 FTE locum staff from on-call rota cover etc.

Table K provides a summary of key assumptions used for the modelling.

²⁶ <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>

Advance Practice Training Period for Trainee on Masters Programme	2.5-3 years
Training Time Per Annum for Masters Trainee	Year 1 = 100%, Year 2 = 50%, Year 3= 20%
ACP course fee (funded by HEE)	£12,000 (per trainee over 3 years) adjusted pro-rata for those already part qualified
Admissions Avoided Expressed as Bed Days – based on analysis of potential admissions averted in Manchester adjusted for workload	1208
Unit cost per bed day sourced from PSSRU Unit Costs of Health and Social Care 2020 ²⁷	£586 per bed day
Locum costs based on PSSRU average Registrar costs including on-costs plus 20% locum fee. One locum saved.	£70,300.80 per annum per locum
Patient review time (hours)	Total patients average of new patients 11 per day, 7 days per week 2 hours each, and review patients 11 per day, 7 days per week, 30 minutes each.
Unit cost per patient review	£91.1 per hour discounted by 10% to reflect changes in professional mix of review staff
Phasing of efficiency savings	0% year 1 50% year 2 50% year 3 100% year 4-10
Staffing costs	NHS pay bands plus on-costs (on-costs based on PSSRU 2020 estimates)
Clinical supervision	£15,000 (per year for 3 years to cover all trainees)

Table K: Key Assumptions for Economic Evaluation

Sensitivity analysis has been undertaken and is summarised in Table L. This shows that expected efficiency savings would have to be reduced by 84% for the investment to effectively “break even”.

²⁷ <https://www.pssru.ac.uk/project-pages/unit-costs/unit-costs-2020/>

Assumption	Sensitivity Test	Revised ROI
Training Time Per Annum for Trainee (associated impact on service delivery)	No service delivery capacity from the trainee with a reduced efficiency impact by 30% during training period	6.02
Supervision Costs	Doubled	6.02
Unit cost per bed day	50% of PSSRU value	3.93
Locum value	50% of PSSRU value	6.05
Patient review time unit cost	50% of PSSRU value	5.72
Break even efficiency	16% of expected values	1.01

Table L: Sensitivity Analysis

Experience to Date

Implementation of the Pilot has been impacted by COVID-19 as has the potential impact of the new operating model of the isolation restrictions. There have been some delays in recruitment and some of the plans have moved on. For example, the plan to develop one ACP to a Band 8b leadership role has not materialised. At the time of writing, the ACPs have taken up one slot on the junior surgical on-call rota providing care on the wards.

Economic Evaluation: Achieved Value

It is too early to measure the economic value of the ultimate achievements of the Pilot compared with what might have otherwise happened. Moreover, it will not be possible to attribute observed changes in efficiency to the EST expansion given other contemporaneous confounding factors. Any retrospective evaluation would need to rely on a mixed methods approach if any conclusions are to be drawn regarding the scale of value achieved.

The BEST Delphi – The Association of Surgeons in Training (ASiT)

To complement the EST pilot, The ASiT has collaborated with representatives from all members of the EST to identify potential barriers and solutions to its implementation. In October 2020, ASiT hosted Phase 1 of a modified Delphi Consensus: a roundtable discussion on the EST at the RCS England Future of Surgery event (n=50). Leaders from the key groups within the EST were invited to form the BEST Steering Group. A thematic analysis was undertaken using the recordings from the session, which highlighted the following key themes: (A) scope of EST and qualifying the need, (B) coordination of the EST, (C) the individual EST member, (D) early EST concerns, (E) measuring success.

These themes were taken forward into Phase 2 of the Delphi: a facilitated discussion session at the 2021 ASiT Conference, which included five single-discipline groups and five mixed-discipline groups (n=54). A qualitative analysis was performed on anonymised transcripts to inform the Phase 3 consensus survey distributed nationally between 19th September and 10th October 2021.

Preliminary Phase 3 analysis:

There were 141 unique complete responses to the Phase 3 survey. Analysis of the demographic data demonstrated a four-nation response, with representation from all the major EST groups (consultant surgeons [n=13], SAS doctors [n=18], physician associates [n=6], specialist practitioners (ANPs, ACPs, SCPs) [n=37], foundation doctors [n=8], and surgical trainees [n=59]).

47 statements were analysed for consensus. The responses to each statement were collated and analysed as a full cohort. 'Quoracy' for meaningful interpretation was set at 75% of all respondents feeling able to either agree or disagree with a statement [Q value]. Percentage agreement $[(\text{Agree}/(\text{Agree} + \text{Disagree})) \times 100]$ was calculated for all statements, with strength of consensus judged on the following scale: (A) majority, no consensus (50-59.9%), (B) weak consensus (60-69.9%), (C) moderate consensus (70-79.9%), (D) strong consensus (80-89.9%), (E) very strong consensus (90-99.9%), (F) unanimous (100%). Five statements reached 'very strong consensus' (see Table 1), with a further seven achieving 'strong consensus'. Eight statements achieved moderate consensus, with nine reaching weak consensus. 18 statements did not achieve consensus, with seven scoring <30% agreement.

Statement	Q	% Agreement
The existence of my role improves patient care	97.9%	99.3%
Career progression is important for me in my role	98.6%	96.4%
Department workforce planning is easier with permanent EST members who do not rotate.	89.4%	95.2%
Permanent EST members understand local processes better than rotating members.	92.2%	93.8%
EST role nomenclature should be standardised	86.5%	91.8%

Table M: Statements reaching 'very strong consensus'

Statement	Q value	% Agreement
I would apply for a permanent EST role where the role is purely service delivery, without training or development.	85.0%	4.2%
My induction process helped me understand the different roles within the extended surgical team.	92.9%	22.3%
Recruitment to roles without career progression within the EST is sustainable.	80.9%	23.7%
The current workforce allows for adequate staffing in my department to maintain staff wellbeing.	98.6%	29.5%
There is established role equivalence across different members of the EST.	76.4%	39.3%

Table N: Statements with the lowest consensus

Next Steps:

Phase 4 subgroup consensus analysis is underway to investigate differences in perceptions between the different groups within the EST. This may shed light on areas that did not reach consensus, and we hope it will provide recommendations to overcome barriers between individual groups of EST members. We look forward to sharing the results in due course.

Contribution to The Extended Surgical Team Pilot Report from the BEST Working Group on behalf of The Association of Surgeons in Training

Conclusion and recommendations

This pilot has demonstrated that the extended surgical team works in practice. A surgical team consisting of medical and non-medical members can provide a safe level of patient care, acceptable to colleagues in the NHS and to patients. Such teams allow for flexibility in delivery of patient care. Given the predicted demands in both the elective and emergency settings post-pandemic, this novel team structure will be key to the recovery of the NHS. The health economic analysis has demonstrated that this benefit is financially affordable and there is return on the investment in some of the trusts within the pilot.

The extended surgical team can facilitate service improvements, especially in an acute surgery setting. Results of this pilot are available to trusts and the health economic analysis is provided for trusts to translate the effects to their own settings.

Future work

HEE has confirmed funding for a second year of this project as an extension of funding to the existing sites. This will enable the EST members in the network to proceed towards full qualification and allow embedding of the concept in the trusts.

Plans for this second year include the establishment of a formal ACP online education programme using network members. We plan to continue to map the topics to the SACP curriculum learning objectives, as feedback from these sessions in the first year has been positive.

We plan to recruit a patient member to the project team. PROMs from the sites suggest that patients have found the EST experience acceptable, and we feel formal patient representative involvement will benefit the project.

Extending the funding within the network sites will allow EST to be recruited to other surgical specialities within a trust. Plans are also in place to try and extend five-day services to seven-day services and assess the impact in a workplace already familiar with the EST concept.

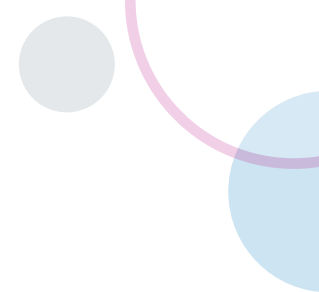
A virtual event is planned in February 2022 to publicise the results of the year-one pilot and launch the business case tool so that unfunded trusts might be able to replicate this good practice. An equality impact assessment will also be undertaken.

Appendices

Appendix 1 – Glossary of abbreviations and initialisations

AA	Anaesthetic associates
AAPE	Association of Advanced Practice Educators
ACCPs	Advanced critical care practitioners
ACPs	Advanced clinical practitioners
AED	Adult Emergency Department
AfPP	Association of Perioperative Practice
AHCS	Academy for Healthcare Science
AHP	Allied Health Professions
ANP	Advanced nurse practitioner/s
AoMRC	Academy of Medical Royal Colleges
ARCP	Annual Review of Competence Progression
ASiT	Association of Surgeons in Training
BAME	Black, Asian or minority ethnic
BEST	Barriers to The Implementation of the Extended Surgical Team
BMA	British Medical Association
BOTA	British Orthopaedic Trainees' Association
CESR	Certificate of Eligibility for Specialist Registration
CNS	Clinical nurse specialist
CoPSS	Confederation of Postgraduate Schools of Surgery
CPD	Continuing professional development
CT	Core trainee
CT2	Core trainee year 2
CST	Core surgical training
CSTs	Core surgical trainees
CT level	Core trainee level
DME	Director of medical education
ED	Emergency department
EGS	Emergency general surgery
ENT	Ear, nose and throat surgery
EST	Extended surgical team
FTE	Full time equivalent
FY	Foundation year
FY1	Foundation year 1 doctor
FY2	Foundation year 2 doctor
GI	Gastrointestinal
GP	General practice
HCPC	Health and Care Professions Council
HCS	Healthcare science assistant
HEE	Health Education England
HEEST	Health Education England Extended Surgical Team
HEIs	Higher educational institutes
HR	Human resources

IST	Improving Surgical Training
JCST	Joint Committee on Surgical Training
LA	Local anaesthetic
MAU	Medical Assessment Unit
MCR	Multi-consultant report
MERP	Medical Education Reform Programme
MFT	Manchester University NHS Foundation Trust
MRCs	Membership of the Royal College of Surgeons
MSc	Master's
MSW	Medical support worker
NHS	National Health Service
NHSI	NHS Improvement
NSHCS	National School of Healthcare Science
OOP	Out of programme
ODP	Operating department practitioners
OPD	Outpatient department
PA	Physician associate
PAs	Physician associates
PGD	Postgraduate diploma
PICC line	Peripherally inserted central catheter
PROMs	Patient reported outcome measures
PSA Voluntary Register	Professional Standards Authority
PSSRU	Personal Social Services Research Unit
QI	Quality improvement
QR code	Quick response code
RCEM	Royal College of Emergency Medicine
RCCP	Registration Council for Clinical Physiologists
RCP	The Royal College of Physicians
RCS England	The Royal College of Surgeons of England
ROI	Return on investment
SACP	Surgical advanced clinical practitioner
SACPs	Surgical advanced clinical practitioners
SACRU	Surgical Acute Care Receiving Unit
SARC	Surgical Acute Referral Clinic
SAS	Staff grade, associate specialist and specialty doctors
SAU	Surgical Admissions Unit
SCP	Surgical care practitioner
SDEC	Same Day Emergency Centre
SFA	Surgical first assistant
SHO	Senior house officer
SIM	Simulation
SpR	Specialist registrar
SRC	Surgical Royal Colleges
SRO	Senior responsible officer
STP	Scientist Training Programme
StR	Specialty registrar



ST3	Specialty trainee year 3
TPD	Training programme director
T&O	Trauma and orthopaedic surgery
UHB	University Hospitals Birmingham
UHDB	University Hospital of Derby and Burton
WPBA	Workplace-based assessments

Appendix 2 – Acknowledgements

EST Project Team

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Kate Atkinson, Health Education England

Sara Dalby, Liverpool University Hospitals NHS Foundation Trust and Health Education England

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In partnership with

The Association of Surgeons in Training (ASiT)

The Confederation of Postgraduate Schools of Surgery (CoPSS)

The Joint Committee on Surgical Training (JCST)

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Ms. Sara Dalby - Lead Surgical Care Practitioner

Ms. Vinita Shekar - OMFS Speciality Doctor & Co-chair SAS Forum, RCSEng

Ms. Karen Jarvis - Lead Advanced Practitioner

Mr. Adam Peckham-Cooper - Consultant Emergency General Surgeon

Ms. Rehma Sayed - Lead Physician Associate

Mr. Joshua Burke - General Surgery Registrar & ASiT Immediate Past President

Pilot sites

Barking, Havering and Redbridge University Hospitals NHS Trust – King George Hospital & Queen's Hospital

Bolton NHS Foundation Trust – Royal Bolton Hospital

Countess of Chester NHS Trust – Countess of Chester Hospital

East Suffolk and North Essex NHS Foundation Trust – Ipswich Hospital

Hull University Teaching Hospitals NHS Trust

Leeds Teaching Hospitals NHS Trust – St James's University Hospital

Manchester University NHS Foundation Trust – Wythenshawe Hospital

University Hospitals of Birmingham – Heartlands/Good Hope/Solihull/Queen Elizabeth Hospital

Educational webinar speakers

Simon Baker, University Hospitals of Derby and Burton NHS Foundation Trust
Catherine Brocklehurst, University Hospitals of Derby and Burton NHS Foundation Trust
Uchihara Bumagat, University Hospitals Coventry and Warwickshire NHS Trust
Dr Nicola Cooper, University Hospitals of Derby and Burton NHS Foundation Trust
Nicola Evans, Browne Jacobson
Jane Hendricks, Colchester Hospital University NHS Foundation Trust
Jonathan Lund, University Hospitals of Derby and Burton NHS Foundation Trust
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Vicky Redfern, University Hospitals of Derby and Burton NHS Foundation Trust
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William Speake, University Hospitals of Derby and Burton NHS Foundation Trust
Lucy Tuckwood, University Hospitals of Derby and Burton NHS Foundation Trust
Damian Whitlam, Browne Jacobson
Jessica Wickins, University Hospitals Birmingham NHS Foundation Trust

Annex of documents

Documents referred to during the pilot. Please note the documents listed below are separate to the references contained within the report.

Title	Author	Date it was produced (if known)	Link to the document (if published)
Anaesthesia Practitioner Curriculum Framework	Organisation Department of Health	January 2008	Link here
Physician Assistant Managed Voluntary Register. Competence and Curriculum Framework for the Physician Assistant		2012	Link here
Workplace Supervision for Advanced Clinical Practice: An integrated multi-professional approach for practitioner development	Organisation Health Education England The Centre for Advancing Practice		Link here
Developing professional identity in multi-professional teams	Organisation Academy of Medical Royal Colleges	May 2020	Link here
Multi-professional team-working The experience and lessons from COVID-19	Organisation Academy of Medical Royal Colleges	October 2021	Link here
The Bulletin of the Royal College of Surgeons of England 2021 103:S1, 032-035 The Health Education England extended surgical team pilot project	Organisation The Royal College of Surgeons of England Author GM Tierney, Head of School of Surgery, East Midlands, HEE	September 2021	Link here

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