March 2022

Improving Surgical Training

Pilot training programme – independent evaluation

Final evaluation report

SQW

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Summary

Introduction

1. **Improving Surgical Training** (IST) is a pilot initiative designed to take forward the recommendations of a **Royal College of Surgeons** report, to support better training for surgeons. IST is based on a set of principles underpinning good training practices that have the support of all key stakeholders. It is a **multi-partner** project with implementation (in different ways) in England, Wales and Scotland; the Scottish experience is subject to different evaluation arrangements.

2. In England and Wales IST trainees commenced training in **2018** in general surgery; in **2019** the cohort in England included some vascular and urology trainee surgeons, with trauma and orthopaedics joining in **2020**. For the 2020 intake, sites working towards IST compliance hosted 92 IST trainees plus 28 core uncoupled IST posts.

The evaluation

3. **Health Education England (HEE) commissioned an independent evaluation of the IST pilots** across England in February 2019. SQW conducted this evaluation using evidence from document reviews, observations, surveys of trainees and trainers, case studies, and interviews with samples of IST trainees, core surgical trainees, trainers and stakeholders. Secondary data drawn anonymously from Annual Review of Competence Progression (ARCP) outcomes, the General Medical Council (GMC) annual trainee survey, preferencing data, work-based assessments and e-logbook data have been used.

4. The **structural challenges** facing any surgical training improvements are considerable, not least as responsibility for training is delegated across a very diffuse workforce. Trainees in general surgery and other IST specialties have been amongst the group most dissatisfied with their training in successive GMC surveys. These challenges have been **exacerbated by the effects of the Covid-19 pandemic**.

5. In conducting the evaluation, fundamental challenges have emerged. In England, the **IST pilot was designed more as a development programme than a pilot** experiment. Consequently, sites were offering IST posts that were not yet compliant with all the principles of IST. Other differences from a pilot programme emerged, associated with communication of IST goals and expectation management, resourcing for IST sites, stakeholder agreement and awareness, and the design of a compromise gateway for run through posts to ST3. Creating unequivocal evaluative assessments is therefore problematic. Nevertheless, the pilot has generated several lessons and examples of good practice that are transferrable between nations, sites and teams.

6. There was evidence from portfolio data regarding work-based assessments which indicated that **IST trainees, as a cohort, achieved higher standards than non-IST peers**. Similarly, logbook data demonstrated that across a selection of procedures, IST trainees progressed to a Performed procedure faster than their peers, and did more of them. The extent to which these were attributable to the quality of training available at a site, the supervisory experience, or the motivation and attitude of the candidate (and whether or not any of the above was affected by IST) is not possible to ascertain however. With regards to progression measured by all outcome categories recorded in the ARCP, IST trainees had similar rates of progression compared with their non-IST peers.

Transferrable learning

7. IST sites are generally those **with a reputation for good training, and typically attract motivated candidates**, committed trainers and offer a high-quality experience. Sites with less good training (IST or not) were not offered additional support to improve or sanctions when problems remained. This has the potential to create a two-tier system of training, with better performing sites having the advantage of attracting committed trainers and high calibre trainees.

8. Where IST sites implemented improvements, they benefitted both IST *and* their non-IST peers. The evidence indicates that IST therefore motivated practical improvements to rotas, supervision and placement design, but was predominantly in those sites committed to quality training.

9. **Simulation** was a requirement of IST but, unlike in Scotland, there was often a lack of investment in this area. Consequently, there were few significant changes evident arising from IST regarding simulation.

10. **Extended surgical teams** (ESTs) were part of many IST placements, although there remains debate regarding their costs versus utility, specifically for training improvements. Buy in to the EST model remains variable and can pose a barrier to its introduction. The ongoing HEE EST pilot is expected to provide insights regarding this, to be reported separately.

11. **Run through** was initially a core component of IST until uncoupled posts were introduced alongside in 2020. The rationale for run through was to provide stability for surgical teams, enhanced relationships, focussed training and more rapid progression, and it has proved popular with some trainees. The desire to include a gateway review point for run through postholders has proved problematic however. Some stakeholders also note that run through introduces rigidities into the system which reduces flexibility of workforce planning.

12. **Data availability** has been compromised by a lack of data sharing agreements between key partners. Data is also not routinely reported by equality, diversity and inclusion (EDI) characteristics.

Recommendations

13. The following recommendations are informed by study findings and conclusions, and are grouped into key themes.

Recommendations for governance and management

Recommendation 1. Maintain the Improving Surgical Care Assurance Board to continually improve surgical training, and involve employers in dialogue.

ISCAB should be sustained with membership to reflect key stakeholder groups. Members of the Board should discuss with employers improvements to surgical training as part of an ongoing professional development dialogue. Training to meet the needs of the current and future workforce must be at the heart of service provision and resourcing discussions.

Recommendation 2. Implement a communication strategy to maintain and build on IST progress.

Stakeholders broadly agreed that the early stages of the IST pilot involved planned communications and information. However, not all staff within surgical units were fully aware of what IST meant or involved. Any future developments to improve surgical training should embed a communications strategy to reach all those directly and indirectly affected. Introducing IST Champions (or similar) may help with disseminating messages at different levels across the workforce.

Recommendation 3. The evidence indicated that run through posts should only be offered where clear criteria are met:

- A proven and urgent need for this specialty (and end grade) in the workforce
- A personalised training programme (conforming with the curriculum and aligned with the context) is devised to accelerate trainee development.

Recommendations regarding the use and capture of evidence and data

Recommendation 4. The development of (and learning capture from) EST should continue.

Focus on consistency of job role descriptors, to ensure that postholder contributions as both service providers and learning facilitators are recognised. There is also a need to ensure that consultants appreciate the training and job roles of EST members, so that their contribution to service delivery and training can be maximised. Resourcing for ESTs should consider not just the costs of employing the posts, but also the time required to effectively develop postholders. Sharing learning emerging from the current EST pilot will likely prove key to this.

Recommendation 5. Monitoring trainee progress by EDI characteristic should routinely be reported.

This is to ensure that any issues pertaining to inequalities of experience or outcome are identified so that positive action can be taken.

Recommendation 6. Design future pilots to generate evidence of effects.

Pilot interventions for workforce development should be designed with discrete and clearly articulated objectives, to enable assessment of their effects.

Recommendation 7. Agree data sharing protocols based on informed consent to facilitate evaluation.

GDPR necessitates informed consent for personal data to be shared. In future similar programmes where evaluation is anticipated, we recommend building requests for trainees to consent to evaluation research into existing recruitment or induction processes. Evidence of informed consent should be maintained and refreshed periodically.

Recommendations for resource allocation

Recommendation 8. 'Good' training sites should be allocated training roles

Sites that meet training quality criteria and consistently achieve good progression or examination results should be offered the number and type of specialty training places that they can accommodate. Sharing learning and good practice to inform practice in other settings is also recommended.

Recommendation 9. Poor training sites should be offered support to improve, with mechanisms in place for training posts to be removed

Sites that do not meet training quality criteria, and/or have consistently poor feedback from trainees, should be offered support and guidance to improve. If improvements are not forthcoming, we recommend training roles be withdrawn.

Recommendations for trainer/supervisor support

Recommendation 10. Different modes of trainer training should be offered

A blended offer of digital and face to face training to align with participant preferences and availability should be offered by either regional or national teams. We recommend considering whether to mandate aspects of trainer training, to support the adoption of key principles or ways of working.

Recommendation 11. Trainers should receive training CPD for PA allocation

Trainers should understand current curriculum requirements including use of the portfolio. CPD can include peer support and reflection, providing opportunities for trainers to share practical tips as well as space for reflection.

Recommendation 12. PA allocation should be linked to number of trainees

Trusts need to resource training in ways that are transparent and equitable. We recommend guidance regarding PA time be provided linked to trainee numbers, with feedback to explore the extent to which trainers can use allocated time.

Recommendations for delivery of training improvements

Recommendation 13. Training programmes should have one year placements with careful management of rotations

Placements of at least one year enable trainees to build relationships with supervisors, understand systems and manage their competence development.

Recommendation 14. Rotas should balance training time with service delivery

Service delivery should be recognised as an important element of learning in its own right, but it needs to be effectively managed to ensure space is reserved for on and off-site training, supervision, use of simulation resources and scheduled time in theatre. Local solutions for a 1 in 10 rota or the 60% training time equivalent need to be devised.

Recommendation 15. Continue to ensure that learning agreements are formulated early in a trainee's appointment

Learning agreements provide a useful way to record mutually agreed expectations from the outset. Emphasising the importance and benefits of these may prove useful in encouraging consistent development of agreements.

Recommendation 16. Trainers should proactively create training opportunities where gaps emerge in logbooks or curriculum requirements

In many cases trainees managed this process themselves by requesting theatre time, but this has not always been possible. We recommend emphasising the key role trainers can (and should) play in this going forward.

Recommendation 17. Trainees should have access to simulation facilities - and trainers should require that they are accessed

Simulation should be seen as an integral and essential part of the trainee experience. This requires effort to change the culture regarding simulation, as well as practical steps to enable access to high quality simulation resources.

1. Introduction

The Improving Surgical Training pilot

1.5 In 2018, Improving Surgical Training (IST) was introduced as a new competence-based, run through surgical training pilot programme. The pilot commenced in general core surgery, and has since been expanded into vascular, urology and trauma and orthopaedics (T&O) specialties. The IST pilot trialled improvements in the quality of training, sought a better balance between service delivery and training for trainees, and was designed to enhance professionalisation of the role of surgical trainers. It also sought to develop team members from other professional backgrounds to work alongside surgical trainees to improve patient care.

1.6 IST was a joint initiative between Health Education England (HEE) and the Royal College of Surgeons of England (RCS). A Project Board (which later evolved into the Improving Surgical Care Assurance Board, ISCAB) oversaw the pilot and included representatives from the Joint Committee on Surgical Training (JCST), Specialty Advisory Committee representatives (SAC), Association of Surgeons in Training (ASiT), British Orthopaedic Trainees' Association (BOTA), and the Confederation of Postgraduate Schools of Surgery (CoPSS).

Rationale and drivers for the IST pilot

1.7 The pilot was designed to implement many of the changes recommended in the 2015 Improving Surgical Training[1] report, following the earlier Shape of Training Review[2]. The rationale for change was based in three key factors:

- The first was a desire to improve the training experiences of surgeons in training, who consistently report lower levels of satisfaction with their training compared with those in other key specialties. The General Medical Council's (GMC's) annual trainee survey reported that surgical trainees at core surgical training levels were the least satisfied with their training of all the medical specialties[3].
- Second was the changing needs of the service, to accommodate the demands of a growing and ageing population.
- Third was the broader context of workforce development, to ensure the NHS has sufficient people with the skills needed to provide excellent patient care.

[1] Royal College of Surgeons (2015) Improving Surgical Training: Proposal for a pilot surgical training programme www.rcseng.ac.uk/-/media/files/rcs/careers-in-surgery/improving_surgical_training_text.pdf

[2] Greenaway, D. (2013) The Shape of Training: Securing the future of excellent patient care Final report of the independent review www.gmc-uk.org/-/media/documents/shape-of-training-final-report_pdf-53977887.pdf

[3] https://www.gmc-uk.org/about/what-we-do-and-why/data-and-research/national-training-surveys-reports

1.8 The 2015 IST report presented evidence-based arguments that surgical training would be improved by addressing issues regarding the balance of time trainees spend in training compared with service delivery, enhancing the role of trainers and building multi-professional surgical teams.

1.9 The GMC was a key stakeholder involved in the design and development of IST. The GMC's Promoting Excellence: Standards for Medical Education and Training sets out the 10 standards and five themes underpinning medical education and training[4]. Patient safety is at the core of the standards, which also emphasise the importance of organisational culture in supporting learning:

"The learner's ability to develop the appropriate professional values, knowledge, skills and behaviours is influenced by the learning environment and culture in which they are educated and trained."

GMC Promoting Excellence: Standards for Medical Education and Training (p5).

1.10 The five themes set out by the GMC for training and education standards clearly underpin the IST design, and relate to the learning environment and culture; educational governance and leadership; supporting learners; supporting educators; and developing and implementing curricula and assessments. This is relevant and important when considering IST; it is not just the practical steps taken that affect a trainee's progress and experience, but also the culture of the learning environment in which they are trained.

1.11 In 2020 HEE issued its People Plan 'We Are the NHS – Action for All of Us'[5]. This set out the ambition and plans for workforce development over the coming 18 months and builds on the Interim People Plan previously in place, to reflect on Covid-19 related developments and implications. The document sets out plans for workforce transformation across the NHS, to 'focus on a culture of inclusion and belonging, as well as action to grow our workforce, train our people, and work together differently to deliver patient care' (p5). It emphasises the need to work differently, within and across teams, with other parts of the NHS and deploying different technologies in order to deliver care that meets patient needs. This aligns with the emphasis on EST and the Modern Firm inherent in IST.

1.12 The People Plan also outlines the importance of 'looking after our people' and supporting wellbeing, which again align with IST's focus on improving the quality of the training experience and improving satisfaction rates.

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[4] GMC Promoting Excellence: Standards for Medical Education and Training, available here: https://www.gmc-uk.org/-/media/documents/promoting-excellence-standards-for-medical-education-and-training-0715_pdf-61939165.pdf

[5] HEE People Plan: We Are the NHS – action for all of us, available here: https://www.england.nhs.uk/wp-content/uploads/2020/07/We_Are_The_NHS_Action_For_All_Of_Us_FINAL_24_08_20.pdf

IST pilot design and delivery

1.13 IST was piloted in England and Wales alongside a concurrent national rollout pilot in Scotland. The first intake of IST trainees commenced training in 2018 in general surgery; in 2019 the cohort in England was expanded to include vascular and urology trainee surgeons, with trauma and orthopaedics (T&O) joining in 2020. The pilot ran alongside the business as usual (BAU) training model in England and Wales. Applying for (and running) IST training posts was optional for Trusts, and trainees could choose between IST and non-IST training posts for core surgical training levels 1 and 2. Throughout this report we refer to core surgical trainees (CST) as a group that comprise both IST (who have chosen their specialty, study ST1 and ST2 and might be on a run through or an un-coupled route) and core trainees (CT1 and CT2).

1.14 The pilot's management, administration, trainer training and evaluation were funded for its first two years. There were no additional implementation resources made available to Trusts or training providers within the IST pilot in England.

1.15 The principles of IST focussed on increasing the amount and quality of training undertaken. The **key principles** were[6]:

- Maximising training during daylight hours, with rotas including 60% training activity
- Developing a non-medical workforce to deliver aspects of care to facilitate junior surgeons' access to all available training opportunities
- Mandatory trainer training, aiming to professionalise training with job planning to ensure weekly meetings with their trainees (one hour per week per trainee)
- Minimum 12-month training periods with a single Trust
- Simulation embedded and enhanced within the surgical curricula and available for all trainees, with particular emphasis on simulation at induction to each phase of training.

Posts and participating sites

1.16 The number of IST posts increased as the pilot developed. In England there were 23 posts available to commence in 2018, rising to 111 in 2020. As more Trusts and sites joined the pilot the number of posts expanded. In 2018 there were 23 posts across 14 sites for general surgery; in 2019 there were 29 general surgery posts, 10 urology and 7 vascular posts across 25 sites.

1.17 For the 2020 intake the process of inclusion was altered to enable sites working towards IST compliance to propose IST posts. This led to a further increase of posts; the 2020 cohort comprises of 92 IST specialty trainees, including general surgical trainees, urology trainees and vascular trainees, in addition to T&O

[6] Royal College of Surgeons (2020) Improving Surgical Training Prospectus

posts. In addition, there are 28 core uncoupled IST posts, based in sites that are signed up to be IST compliant.

1.18 In Wales the figure remained relatively stable during the pilot period, with 8, 9, then 11 IST posts available. IST posts in Wales were concentrated in three hospital sites.

1.19 The numbers of IST posts by region, year and specialty are shown in Table 1-1, below.

Table 0-1: Number of pilot posts by region, year and specialty, 2018-2020

	2018	2019	2020	Core	General	T&O	Urology	Vascular
East Midlands	3	3	6		2	2		2
East of England	4	14	14		8		3	3
Kent, Surrey and Sussex	2	2	2		2			
London	5	7	27	10	8	2	4	3
North East			27	16	6	3	1	1
North West	4	8	10		4	4	2	
South West	1	2	3	2	1			
Thames Valley			2		1		1	
Wessex		1	1		1			
West Midlands			10		6	2	1	1

	2018	2019	2020	Core	General	T&O	Urology	Vascular
Yorkshire and the Humber	4	9	9		5		3	1
England (total)	**23**	**46**	**111**	**28**	**44**	**13**	**15**	**11**
Wales	**8**	**9**	**11**		**11**			

Source: RCS https://www.rcseng.ac.uk/careers-in-surgery/trainees/ist/pilot-sites/

1.20 Participating sites were those that volunteered their involvement. It is likely that the sites that participated (in the first two years at least) were more committed to training improvements as, a) they would have had the capacity and enthusiasm to complete the application process, and b) they were committing to deliver IST without additional resource, perhaps indicating that they had the fewest changes to make.

1.21 In April 2019, HEE announced an intention that all general surgical training posts would be IST compliant (without necessarily being run through) by 2022. HEE also created an additional strand of activity to support the development and lessons learned from Extended Surgical Teams (EST), launched in 2020. At this point the Programme Board was reconfigured to create the Improving Surgical Care Assurance Board.

Run through

1.22 IST posts were introduced (initially) as **run through posts** only. These give trainees stability in their training pathway up until their Certificate of Completion of Training. The pilot design was based on the following:

- It was not intended that all general surgery training posts would become run through; not all trainees leaving Foundation Stage training know what their preferred career trajectory will be
- A 'gateway' would be introduced at the end of the second year or Specialty Training (ST2) as a formal check on progress. The Annual Review of Competence Progression (ARCP) process was not considered sufficiently rigorous, so it was proposed that national selection be used as the gateway mechanism. Progression through to ST3 would be on the basis of achieving a minimum 'benchmarked' standard.

1.23 The design and implementation of the benchmark was controversial, as it seemed to compromise the integrity of a run through contract. A compromise was developed with the agreement of RCS, HEE and GMC in early 2020. This was

however never implemented, as national selection was cancelled for all trainees due to the pressures on the healthcare system arising from the Covid-19 pandemic.

About the evaluation

1.24 An independent evaluation of the IST pilot was commissioned by HEE in February 2019. SQW was commissioned through competitive tendering to undertake the evaluation, running through until December 2021. The evaluation brief described four different categories of investigation:

- Trainee satisfaction and the wider perception of IST, from IST and CT trainees, trainers, the EST, and employers
- Supervisory encounter (evaluation of the supervisory encounter and support for trainees within pilot and non-pilot sites)
- Impact of the EST and the Modern Firm (including consultants, doctors in training and SAS doctors, as well as other non-medical practitioners)
- IST pilot trainees' progression compared with training trajectory and peers.

1.25 The evaluation was commissioned to capture learning and outcome evidence from the pilots in England and Wales, and to provide comparison and reflection where relevant with insights emerging from the Scotland IST pilot and associated evaluation. The evaluation has run alongside the implementation of the IST pilot, and generated three key outputs; a scoping report (September 2019), an interim report (December 2020) and this final evaluation report (December 2021).

About this report

1.26 This evaluation report is structured to provide consideration of each of the core areas of investigation in turn drawing on relevant data.

- Chapter 2 provides further detail regarding the evaluation methods applied and the strengths and drawbacks of the data and methods used
- Chapter 3 focusses on trainee satisfaction
- Chapter 4 assesses what learning has been generated regarding the supervisory encounter
- Chapter 5 summarises the experiences associated with Extended Surgical Teams.

1.27 The report then goes on to provide an evaluative assessment of the impact of IST:

- Chapter 6 presents evidence regarding trainee achievement and progression
- Chapter 7 then presents a set of conclusions and recommendations.

Acknowledgements

1.28 We would like to acknowledge the time and insights provided by the many people who have contributed to the evaluation research and provided insights, introductions to key people and access to relevant data. We know that the NHS workforce (including surgical teams) is routinely busy, and the effects of the Covid-19 pandemic have created significant additional stresses. Without stakeholder inputs the evaluation would not be possible, and we are grateful for people's time and commitment to the study.

1.30 In particular we would like to thank:

- Trainees, trainers, Heads of School and Training Programme Directors for speaking to us, sharing their experiences and allowing us to observe and introduce the evaluation at regional teaching days, Foundation Stage year 2 (FS2) and IST trainees for completing trainee surveys, and trainers for completing the trainer survey
- The programme and data teams at HEE, JCST and RCS for reviewing our emergent work, hosting us at bootcamps, introducing us to key stakeholders, providing data, disseminating materials on our behalf, and advising us of new developments on an ongoing basis
- Members of the Project and Assurance Boards for insights during interview, distribution of evaluation requests, and critical review of our reports and presentations.

2. Evaluation methods

Evaluation design

2.1 The evaluation process was conducted in three interlocking phases:

- A **scoping phase,** to define the scale of the pilot, understand stakeholder expectations and requirements of the evaluation, scope existing secondary data and probe the likely accessibility of primary data. The scoping phase culminated in a report setting out a comprehensive evaluation plan in September 2019.
- **Fieldwork phases** have combined primary and secondary data collection exercises. Reports of emerging findings have been presented to the Boards at key interim points throughout the study.
- **Reporting phases** included a formal interim report to the Assurance Board in December 2020 and this final report, prepared in autumn-winter 2021-22.

2.2 The **evaluation design** was based on a number of key principles:

- Adherence to principles of **data protection** to assure confidentiality and anonymity for research participants. This included anonymisation of datasets provided by stakeholders to SQW, and primary data collection measures including anonymised notes being held in restricted access folders in the SQW server, and redacted sections of quotes in verbal reports and presentations to the Board.
- Use of secondary data or other data sources to **prevent duplication** and maximise the utility of existing data sources. This included access to portfolio and logbook data following the appropriate data protocols, including agreement from the Data Analysis, Audit & Research Group (DAARG).
- Focus on the research questions agreed at inception and elaborated through a **logic model** approach to articulate expected effects and intervening variables.
- **Adaptability** to changing circumstances which arose after changes to the design of the pilot, the effects of the Covid-19 pandemic and the introduction of the workstream on the Extended Surgical Team.
- **Transparency** throughout, with regular meetings with the client, monthly written progress reports, inputs to Board meetings and a 'no-surprises' approach to reporting.

The IST logic model

2.3 During the scoping phase of the evaluation, a logic model was developed to describe the IST pilot and the factors expected to shape its development. This

has been modified for the final report with additional references to the Covid-19 pandemic and different specialities (Figure 2-1).

2.4 Key policy documents listed in the logic model provide the rationale for the intervention (Modernising Medical Careers and the RCS Improving Surgical Training Proposal). These inform the pilot activity, which is described in terms of scale of participation and satisfaction with training experiences and outcomes. Outcomes from the pilot should be observed in terms of more satisfied trainers and trainees, and better outcomes at ARCP or in terms of progression.

2.5 The logic model articulates external or intervening variables that might affect the extent to which expectations are met, such as changes to policy, resource levels and stakeholder buy-in. It also makes explicit key assumptions including adherence to the IST principles and continuation of 'business as usual' without the pilot intervention.

Data collection

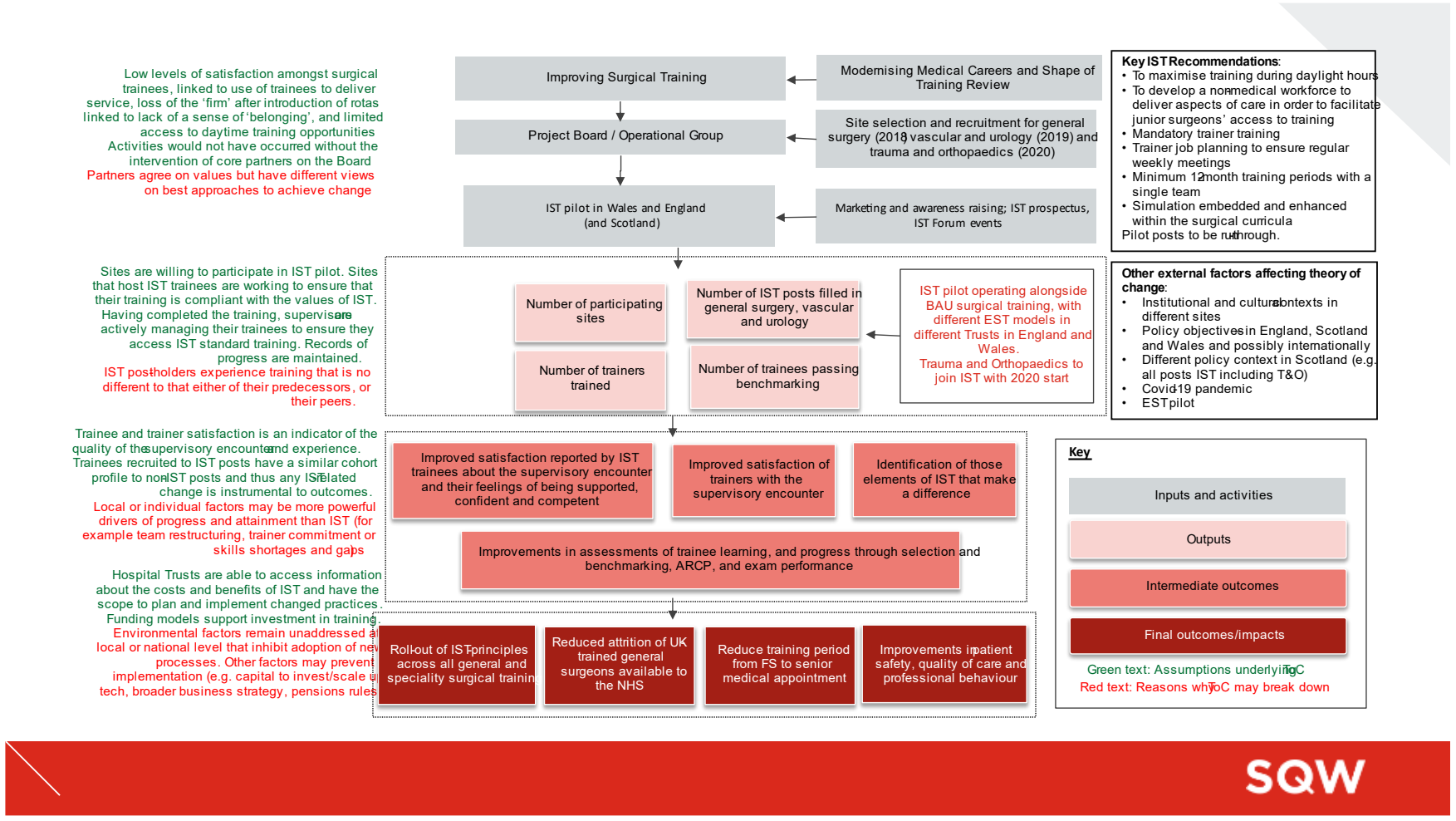
2.6 The evaluation is based on a range of primary and secondary data. **Primary data** comprised survey data, webinar observation and qualitative interviews.

- **Online surveys** were designed and administered:
  - The RCS data from surveys of IST trainees were used initially; after March 2020 SQW assumed responsibility for the survey design and delivery, with two waves of IST trainees' survey were undertaken by SQW (summer 2020 and spring 2021)
  - Two surveys of FS2 trainees and a survey of IST and non-IST core surgical trainers were also conducted.
- **Telephone and Microsoft Teams consultations** were held with:
  - 42 IST trainees (14 of whom were interviewed twice)
  - 22 Core Trainees on participating specialty training pathways (4 of whom were interviewed twice)
  - 30 trainers (including clinical and educational supervisors), training programme directors and surgical tutors at sites with and without IST trainees.
- **Observations** of trainer bootcamps in London and Edinburgh (in 2019), two regional teaching days in Manchester and Bristol (in November 2019), and of a webinar (September 2020) with IST trainees, trainers and stakeholders.
- **Telephone and Microsoft Teams consultations** were held with key stakeholders including members of the Board and others with technical and operational perspectives. In several cases key individuals were asked to contribute at multiple points in the process.

- **Organisational case studies**, to provide a broader perspective of surgical training at IST sites, including perspectives on CST provision (including IST and non-IST provision) through consultation with senior members of Trust staff alongside IST and core trainees, supervisors/trainers and ESTs.
- **Interviews with managers and evaluators of IST in Scotland and Wales** to provide comparator perspectives.

2.7 **Secondary data** used to provide contextual insights and inform the findings of the evaluation include applicant preferencing data (from HEE), Intercollegiate Surgical Curriculum Programme (ISCP) data relating to work-based assessments (from JCST), logbook data (from JCST and the logbook team), ARCP outcomes (from HEE's Business Intelligence Team), the GMC survey of medical trainees, and National Education and Training Survey (NETS) outcomes and HEE's Trainee Information System.

Figure 2-1: Improving Surgical Training Logic Model



Source: SQW. First draft created 2019, reviewed and updated 2021.

2.8 Table 2-1 summarises the data collection processes used to inform the evaluation.

Table 2-1: Primary data collection processes used to inform evaluation findings

Data	Timing	Scale	Purpose
Two online, self-completion surveys of IST trainees	• 3 July to 8 Sept 2020 • 6 May to 22 June 2021	• 2020 survey: 32 responses • 2021 survey: 68 responses (including two partials)	To explore trainees' experiences, progression, and reflections (including enablers and barriers)
Two online, self-completion surveys of Foundation Year 2 trainees	• 12 October to 23 November 2019 • 7 May to 31May 2021	• 2020 survey: 70 responses • 2021 survey: 217 responses (including 33 partials)	To explore how the IST pilot is affecting FS2 trainees, both positively and negatively, and whether they would be keen to undertake an IST post in the future.
Online, self-completion survey with IST trainers	13 November 2020 to 26 January 2021	21 responses (including 3 partials)	To understand their experiences of IST training, the support they give to trainees and the support they get to undertake training, and their views on progression and differences between IST and CT trainees

Data	Timing	Scale	Purpose
Interviews with IST trainees	October 2019 to September 2021	42 interviews (14 of whom were interviewed twice)	To explore trainees' motivations, experiences, progression, planned next steps, enablers, challenges and barriers
Observation/attendance at IST trainee bootcamps, teaching days and an IST webinar with IST trainees, trainers and stakeholders	June 2019 to September 2020	• 2 bootcamps attended • 2 teaching days attended • 1 webinar observed	To observe part of the IST training programme to aid understanding of some of the activities involved
Interviews with CT trainees on participating specialty training pathways	October 2019 to September 2021	22 interviews (4 of whom were interviewed twice)	To understand their training experiences, satisfaction and progression, to determine differences between CT and IST trainees
Interviews with trainers (including clinical and educational supervisors) training programme directors and surgical tutors at sites with and without IST trainees	October 2019 to September 2021	30 interviews	To understand their experiences of IST training, the support they give to trainees and the support they get to undertake training, and their views on progression and differences between IST and CT trainees

Data	Timing	Scale	Purpose
Interviews with key stakeholders (including members of the Board)	November 2020 to July 2021	18 interviews (5 of whom were interviewed twice)	To explore strategic reflections on the pilot, focusing on leadership and governance, communication and messaging, implementation, progress, achievements and outcomes, and key emerging learning
Organisational case studies	January 2020 to August 2021	4 case studies	To provide a broader perspective of surgical training at IST sites
Interviews with managers and evaluators of IST in Scotland and Wales	August 2019 to August 2021	2 interviews with IST evaluators in Scotland 4 interviews with IST evaluation managers in Wales	To provide comparator perspectives

Source: SQW

Data gaps and key considerations

2.1 Whilst every effort has been made to ensure sufficient evidence has been collected for a rigorous and objective assessment of the IST pilots, there were some issues that have limited the extent of evidence collected and how it can be analysed and interpreted.

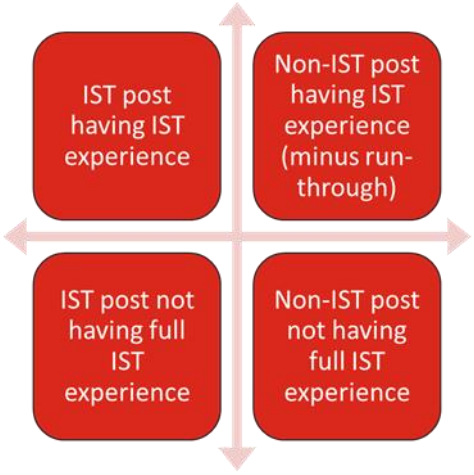
Fidelity to the model

2.2 Participating sites were selected on the basis that they would be implementing the principles of IST for trainees who were appointed to IST posts. However, operationally this proved challenging, and it became clear that few sites have fully implemented IST principles as originally intended, although many have made adjustments to their training provision (see Box 1).

2.3 The challenge of IST compliance was compounded by the planned change in the pilot design announced in 2019 to align all posts to the IST model. The delivery model was adapted during the course of the pilot to encourage more sites to bring IST-compliant training posts forward but without the requirement for run through. This led to an expansion of the pilot with both run through and uncoupled posts.

2.4 Trainees could have a range of different experiences (Figure 2-2) that might in turn reflect their outcomes.

Figure 2-2: Alternative IST experiences



Source: SQW

2.5 From an evaluation perspective this meant that there was no prospect of providing aggregated analysis of an IST pilot *per se* compared with the BAU alternative, because each IST site, and even individual trainees, were experiencing the pilot in uniquely different ways.

2.6 We did however find that sites hosting IST posts did not make training more difficult for CT trainees in those settings, and in some cases this appears to have

led to positive changes being introduced to affect the whole core surgical training cohort.

2.7 It is important to note that IST has been as much a developmental process as a new training model, and therefore the evaluation evidence relates to trends and processes as much as comparative outcomes for trainees with IST posts compared with their peers.

Box 1 - Trainer survey: changes made in IST sites

The survey of trainers (2021) revealed that most reported changes to the training context, including the assurance of a 12-month training period on one site for trainees within a single team (15/21 respondents). Almost half reported changes to rota design to ensure trainees got 60% training time (10/21 respondents).

For most (11/19 respondents), changes to training practices applied both to IST and CT trainees, whereas for 5 respondents changes applied only to IST trainees.

Source: SQW survey of trainers 2021

Data access

2.8 The evaluation brief (September 2018) stated that relevant secondary data would be made available to the evaluators,[7] including examination outcome data, national selection scores and logbook data. This secondary data access did not occur as originally anticipated. A data request submitted by SQW to JCST in June 2019 was ratified by the Data Analysis, Audit & Research Group in September 2019, to establish the principle of data sharing.

2.9 However, trainees were never asked to consent to sharing contact details or progress data as part of an evaluation when they took up their IST posts. Neither JCST nor SQW could access their names or GMC numbers without their explicit consent subsequently being captured. A high-level data sharing agreement (to go beyond IST) was being negotiated by HEE with JCST throughout the IST evaluation period but without resolution. Consequently, communication with IST postholders and access to secondary data have not been as envisaged and have been constrained throughout the evaluation period.

[7] The evaluation specification detailed that: '*HEE and the RCS will collect metrics and survey data to assess the impact of the IST pilot, as part of the organisations' existing and routine monitoring. On this basis, the successful bidder will not be required to collect the [data], but will be required to carry out statistical analysis of the data in liaison with the Project Board'.*

2.10 Thanks to efforts by JCST and the logbook team, the evaluation was able to access logbook data during autumn 2021.

Lack of specialty specific insights

2.11 To ensure confidentiality for evaluation participants, the evaluation has not presented findings by specialty, region or setting. Insights at this level were not available, sample sizes were too small for meaningful comparison to be drawn, or individuals risked becoming identifiable.

2.12 This does however limit the granularity of insights captured and explored, particularly regarding any differential application and/or effects of IST in different specialties.

Self-selecting sample

2.13 The evaluation team **secured fewer interviews** with trainers and trainees than originally anticipated, despite repeated recruitment attempts and flexible approaches; a mixed methods approach has been adopted to triangulate qualitative insights with quantitative and secondary data, but this remains worth noting. It is not possible to say how representative interviewee experiences may be.

2.14 The **self-selection of participants** in the evaluation also risks insights not being fully representative of experiences of the pilot more generally. For example, there is an inherent risk in any self-selecting sample that those with the most positive or negative experiences are the most willing to participate.

Covid-19

2.15 The Covid-19 pandemic has affected the training experience of all trainees and trainers since March 2020. The effects of pressure on resources, cancellation of many routine surgeries and movement of others to private hospitals, staff redeployments and stress have all affected surgical training.

2.16 Even if it were possible (given the problem of fidelity outlined above) to discern robust effects of IST on training satisfaction and outcomes, these would likely be moderated to a large extent by Covid-19. This is reflected in ARCP data and the additional categories added, recognising both the effect of the pandemic on training and competence acquisition as well as on readiness to progress (see Annex D). It is likely that disruption to service in some regions with the cancellation of services during the second wave (autumn-winter 2020) will have further exacerbated this issue and potentially created regional variation.

2.17 In addition, Covid-19 has had an impact on data collection to inform the evaluation. A decision was taken in agreement with the Chair of the ISCAB to pause all evaluation activity between 23 March and 12 June 2020, during which time no primary data collection was completed. This is the period in which case

study fieldwork visits were planned, alongside other evaluation fieldwork and data collection activities.

2.18 Once evaluation activities re-commenced in June 2020, all fieldwork was undertaken using telephone or Microsoft Teams. Fieldwork again paused in early 2021 for a period of several weeks due to pressures on the NHS.

2.19 The lack of physical access to sites does compromise the richness of data informing case studies, and constrained our ability to undertake ongoing observations and recruitment via teaching days and bootcamps.

3. IST trainee satisfaction

Introduction

3.1 The IST report (2015)[8] stated that surgical trainees had consistently been the least satisfied trainees in the NHS, lagging behind other specialties. In addition, it was reported that the most dissatisfied trainees were the most junior (foundation and core). Therefore, the report suggested that the key issues lay within the early years of surgical training, for a range of potential reasons including a poor balance between service provision and training, shift working, limited opportunities for training, national selection, limited supervision and the loss of the surgical team.

3.2 This section seeks to understand training satisfaction and wider perceptions of the IST pilot. It sets out evaluation evidence which explores levels of IST trainee satisfaction with their training experience, and considers the key factors which affected their satisfaction. It reflects on the differences and similarities between IST training and CT training. The section also outlines trainers' perceptions of the pilot, and explores external factors which were reported to have affected the training experience.

3.3 This section is based on interviews with CST trainees, trainers and stakeholders, as well as two surveys with IST trainees. Interviews were undertaken between October 2019 and September 2021. The surveys were undertaken in July-September 2020 and May-June 2021. GMC survey data was also used.

Trainee satisfaction

3.1 SQW analysed GMC data by sites that had IST posts compared with those with no IST posts for England, Wales and Scotland. Trainees at IST sites reported similar levels of satisfaction (and dissatisfaction) with their training as elsewhere. There was one difference which was that **trainees at sites signed up to IST rated their feedback more highly than those at sites with no IST posts**[9]. This may indicate the presence of a culture where training and professional development is valued and promoted, but this difference was not repeated across other feedback relevant to the learning experience.

[8] Royal College of Surgeons (2015) Improving Surgical Training: Proposal for a pilot surgical training programme www.rcseng.ac.uk/-/media/files/rcs/careers-in-surgery/improving_surgical_training_text.pdf

[9] GMC (2019) National Training Survey of Doctors in Training www.gmc-uk.org/about/what-we-do-and-why/data-and-research/national-training-surveys-reports

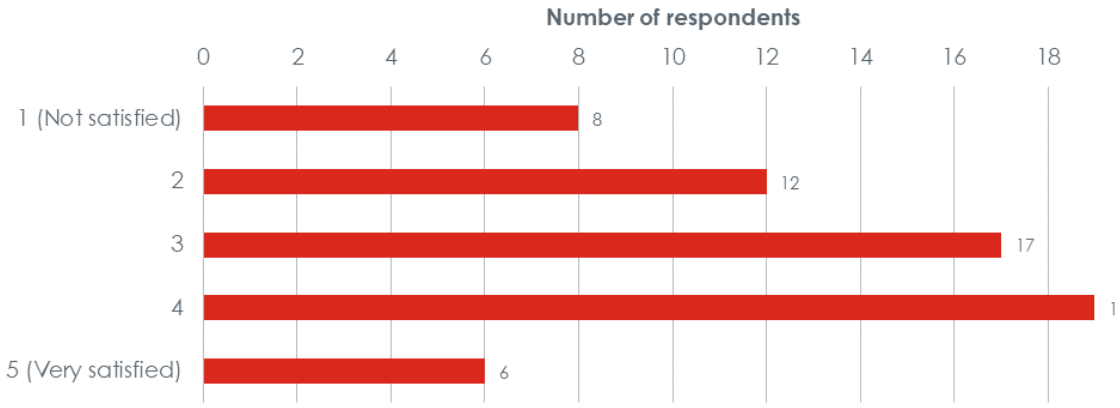
Table 3-1: GMC average survey results for IST sites and non-IST sites (excluding Scotland) 2019-20

	Sites with IST (n=47)	Sites with no IST(n=98)
Clinical Supervision	88.7	89
Clinical Supervision out of hours	86.9	84.5
Educational Supervision	83.6	84.2
Curriculum Coverage	75.1	75
Adequate Experience	74.4	73.1
Induction	70.8	73.2
Teamwork	70.4	70.2
Feedback	70.1	59.5
Educational Governance	69.4	70.8
Reporting systems	68.3	65.5
Supportive environment	67.3	70
Handover	62.7	61.7
Study Leave	59.6	63.1
Regional Teaching	57.2	57.9
Rota Design	57.1	55.7
Local Teaching	56	58.1
Work Load	40.9	45.2
Overall Satisfaction	**74.9**	**75.2**

Source: SQW analysis of GMC data

3.2 Levels of satisfaction with the IST pilot are also mixed. Overall, **more respondents to the 2021 IST trainee survey were satisfied with their training than those who were unsatisfied**, with around one in ten IST trainees respondents reporting very high levels of satisfaction. Nevertheless, **approximately one third of respondents to the survey reported being dissatisfied.**

Figure 3-1: Satisfaction with training post on a scale of 1 (not satisfied) to five (very satisfied) (n=62)



Source: SQW analysis of the IST Trainee Survey 2021
Note: N=62 as five respondents did not provide a response to this question and one partial did not reach this question.

3.3 IST trainees interviewed and surveyed commented on the factors which have affected satisfaction with their training experience. The **frequency and quality of engagement with educational and clinical supervisors** had a substantial impact on IST trainee satisfaction (which is explored further in Chapter 4). However, there were a range of other factors which also affected trainee satisfaction. Perhaps unsurprisingly, satisfaction with the pilot was **dependent on whether key elements of the training had met trainee expectations**, which were largely based on what was "promised" within the IST prospectus and at information days.

Exposure to training opportunities

3.4 A key factor affecting IST trainee satisfaction was the **level of exposure to training opportunities.** One of the fundamental principles of IST is the implementation of rotas with 60% of elective daytime training time. However, over half of respondents to the 2021 IST survey (45 of 68) reported that they had not received the expected elective daytime training time.

3.5 Generally, IST interviewees who were receiving 60% of elective daytime training stated that they were enjoying their experience and were able to develop their skills. Some highlighted that they were seen as supernumerary at their site, and therefore they were able to get more elective daytime exposure given the flexibility of their rota. Others said that they were given protected lists or less on-call duties as an IST trainee, which in turn provided opportunities to attend theatre frequently. Some stated that their site had amended their rotas to ensure that IST trainees were receiving 60% elective daytime training time, whereas others noted that at their site the rotas were already IST compliant.

3.6 Some trainees had experienced an IST 'block', or a set period of time where they were only required to undertake elective daytime training. Overall, this block was well-received by those who experienced it, although some did note that this meant they were less satisfied with their other blocks.

3.7 In contrast, many of those reporting not receiving 60% elective daytime training were less satisfied with their experience; some were concerned they would not be able to develop the skills required. While some survey respondents and interviewees acknowledged that Covid-19 had affected their ability to access opportunities, others said that their rotas were not IST compliant prior to the pandemic, as a result of rota gaps which they were required to cover, on-call duties or a lack of trainer interest/capacity. This left IST trainees disappointed with their overall training experience.

"60% of time is supposed to be allocated for electives. But up to the beginning of April, I only spent [less than 30%] of my time in elective training." IST trainee.

3.8 However, some IST trainees who were not receiving 60% elective daytime training still said that they were satisfied overall with their experience. Trainees noted that they felt this goal was "unrealistic" given their understanding of staffing pressures and rota challenges, and therefore in many cases they had not expected it to begin with. One trainee explained that they felt it was **an "aspirational" target**, rather than something that they would experience in practice. Some **trainees who reported overall satisfaction without 60% elective training highlighted other aspects of training provision they valued**, including flexibility in choosing what theatres to attend based the skills they needed to develop.

3.9 It is important to note that having **access to adequate service provision opportunities** was important to some trainees. Some noted that they had not had any exposure to ward level service provision or on-call opportunities, which left them unsatisfied.

3.10 Several trainees also commented on the lack of exposure to formal teaching, although others did note that their teaching had been excellent. Some who had not had formal teaching opportunities said that they had taken it on themselves to

organise their own training, whilst noting that as trainees there were limits as to what they could do.

3.11 However, **although the lack of formal teaching caused dissatisfaction for some IST trainees, CT trainees appeared to be more concerned about the lack of exposure to formal teaching**, given the potential impact on their ability demonstrate the skills and competencies required for benchmarking.

Twelve-month placements

3.12 Overall, **IST trainees were satisfied with the length of placements offered**. IST trainees appreciated having 12-month placements, as these **provided sufficient time to develop relationships** with their trainers and wider surgical teams. It was reported that this enabled trainees to develop their skills more effectively, as they were given more responsibilities once trainers were confident in their abilities. In addition, longer placements enabled trainees to get involved in projects supported by their trainers, as they had adequate time to do so. It was noted that shorter placements, particularly 3–4-month placements, are perceived to restrict the opportunities available to trainees, as they are not able to establish relationships and gain trainer confidence as effectively.

"The best thing is having a year placement rather than 6 months, because it takes a long time to feel like part of the team and be accepted as part of the team, for example by nurses, theatre staff. You generally start to feel like you are fitting in at around 5 months. And being there for a year, you are more a member of the team. It gives more opportunities for training." IST trainee.

3.13 However, **some IST trainees reported that they were required to rotate every six or four months**, which meant they were not able to benefit from the continuity generally associated with IST placements.

3.14 While IST trainees were broadly satisfied with the 12-month placements**, some CT trainees reported satisfaction with the variety that comes with shorter placements**, meaning they were able to experience a wider range of specialties and develop a wide range of skills. This suggests that having a range of training post types may be beneficial in meeting varying trainee needs, particularly for those who do not yet know which area they want to specialise in.

Run through and benchmarking

3.15 One element of the IST pilot that has been delivered largely as expected is the run through element. When asked about motivations to apply for an IST post, the majority of trainees stated that **run through was a key draw**, welcoming the greater job security and geographical security offered, which some credited with supporting them both professionally and personally.

3.16 A key benefit reported of being a run through trainee is **greater perceived levels of trainer engagement or interest in IST trainees' development**. IST trainees

reflected that trainers were more willing to 'invest' time and effort in their development because they were likely to be staying in the same location and/or specialty. This positively affected IST trainee levels of satisfaction.

"They consider me a trainee who is very junior but is committed to the training. Their attitude to me is different… They treat you as a future colleague, this means they are keen to show and explain [more to me]. I feel more a part of the team." IST trainee.

3.17 A key aspect of run through is a guaranteed training number on demonstration of all required competencies and a successful ARCP outcome, and therefore IST trainees **do not need to prepare for interview** for progression to ST3. IST trainees felt that this enabled them to concentrate on developing their skills and "learning how to operate", enhancing their training experience. One trainee highlighted they were able to take extra shifts instead of preparing for interview.

3.18 However, some trainees did express dissatisfaction with the **lack of clarity regarding benchmarking**. IST trainees were unsure whether taking part in benchmarking could result in them losing their places (or not), causing an undue layer of stress for those who had not expected to be benchmarked, and therefore had not been preparing for exams or interviews (and were consequently concerned they would be disadvantaged). This highlights the importance of clear, consistent and timely communications regarding expectations of trainees and training programme features.

Induction and learning agreements

3.19 As part of the training programme, it is expected that IST trainees will complete induction sessions to aid navigation through the programme, as well as connecting with their peers through dedicated local educational induction programmes ('boot-camps'). However, evaluation evidence suggests that this experience is not universal amongst trainees. Overall, **48 (of 68) respondents to the IST trainee 2021 survey stated that had neither attended a boot-camp nor a dedicated induction session**. Some interviewees reflected this, with one IST trainee stating that it would have been helpful to have an induction at the beginning of their training, suggesting that the trainee did not realise this was an expected element of their post.

3.20 Positively, **almost all (64) IST survey respondents stated that they had a learning agreement** (including goal-setting) in place with their Assigned Educational Supervisor (AES), while only three did not. This is similar proportionally to the 2020 survey data, in which 30 of the 32 respondents reported having a learning agreement in place.

Level of support

3.21 Many trainees who had a satisfactory experience highlighted the **support they received from others in their team or department**, in addition to their

Educational and Clinical Supervisors. Some trainees reported that having supportive consultants and registrars in their department enabled them to feel more confident and comfortable in taking on more challenging tasks, and they in turn became increasingly competent as they were given more opportunities to develop their skills.

3.22 However, others felt that they were not well supported by those they worked with. Some felt this was an issue at their site, but some said the problem was **a lack of awareness from those outside of the IST Educational and Clinical Supervisor roles as to what IST actually was**, and therefore they were not getting the IST experience as expected. One IST trainee said they weren't sure if they themselves were an IST trainee because there was such a lack of awareness of the pilot. In contrast, one IST trainee said that the lack of understanding of IST resulted in expectations of what they were able to do being set too high. They noted that once those expectations were not met, they were seen as "falling behind" when this was not the case.

Box 2: Case study example of personalised support

Trainees were clearly satisfied with their training experience at site x. IST trainees reported that one of the key benefits of their post was working within a consistent team. They reported that staying longer with the same team enabled them to build up relationships with their trainers. One IST trainee stated that they noticed they were getting more experience in theatre compared with their CT counterparts, as trainers in the team knew their individual strengths and weaknesses and were able to give them the opportunities they needed.

IST trainees also highlighted the benefits of having a consistent educational supervisor across two years. This enabled strong relationships to be built with supervisors who knew both their technical strengths and limitations, but also their attitude and confidence and were able to support their training accordingly. One trainee stated that their educational supervisor contacted the consultants at their second-year site to 'give them a heads up' and ensure that the consultants were aware of what gaps the trainee needed to fill, so that the trainee could begin addressing those gaps straight away.

IST trainees did state that there were limited options for them to undertake simulation training on site. They noted they did have access to simulation training at regional teaching days, but other opportunities were sparse. However, trainees reported that because they had a lot of access to theatre to develop their skills, they did not feel overly disadvantaged.

Source: Case study interviews

Private hospital experience

3.23 Some trainees commented on their experience of working in private hospitals. The majority of trainees did not have the opportunity to work in a private hospital, with just one quarter (17 of 68) of respondents to the 2021 IST survey stating that they had done so. Those that did were asked to detail what training they undertook in a private hospital, with the most frequently cited example being the opportunity to gain access to elective lists, while others included access to training lists and opportunities to assist in procedures. Most indicated that these opportunities had **positively affected their training experience,** for reasons including good quality teaching, opportunities to expand on their experience, and providing an insight into a different setting.

Comparison to BAU core surgical training

3.24 Most IST trainees felt that **their day-to-day training experience was no different from the training experience of CTs, and the majority of CT trainees agreed** with this.

3.25 Some IST trainees felt that this was a good thing, welcoming the perceived lack of tension as a result of any preferential treatment for IST trainees compared to their CT peers. Others however felt that they were not getting the experience they were promised.

3.26 There were some notable variations in IST and CT opportunities reported by some trainees. These included increased frequency of meetings with their Educational Supervisor (although some noted that the frequency was no different to CTs in their site) and run through training leading to trainers being more willing to 'invest' in them. Longer placements also enabled trainees to build rapport with the wider team.

3.27 A minority of CTs reported differences in training experience. It was reported that IST trainees were able to build better relationships with trainers in their specialties, which was reported to lead to more opportunities to attend theatre, noting that trainers were more willing to commit time to training an IST trainee. Furthermore, because CT trainees were benchmarked, some noted that they had fewer opportunities to focus on their clinical skills when compared with ISTs. **CTs also worried about progressing to ST3, given the reduction in available training posts as a result of IST**. One CT trainee stated that IST trainees were able to access simulators more often, which they felt 'bitter' about.

3.28 **A small proportion of IST and CT interviewees also highlighted that the implementation of IST at their site had resulted in positive benefits for CTs**, for example leading to more operating lists being available for both IST and CT trainees. However, one CT stated they were less satisfied with their experience as a result of IST, reporting that the IST compliant rota reduced their exposure to emergency surgical procedures, which they needed to access to fulfil curriculum requirements.

Trainer perceptions of the pilot

3.29 Trainers' experiences and perceptions of the pilot broadly mirrored those of trainees. They broadly **felt that the principles of IST were strong and that the principles would improve surgical training if implemented correctly**. Positively, some trainers stated that IST had forced their site to consider whether it was implementing good training or not, and encouraged them to make changes to their training accordingly. This often meant that CTs also benefited from IST principles.

3.30 However, many expressed that **implementing IST principles was just not feasible at their hospital** as a result of key external factors, further explored below. As a result of challenges in implementation, trainers reported that largely there was **little difference between the experience of IST and CT trainees**. However, there were some key exceptions identified, with IST trainees having:

- More opportunities for exposure to different procedures, such as elective operations and theatre time
- More consistent training relationships through the 12-month placement, with this providing the opportunity to develop a much better working relationship and "further their skills as they're not starting from fresh with new consultants"
- Experience of a more structured training programme, for example through increased educational supervision meetings
- More support for competency-based assessment and progression, and a more structured and focused programme than that for CTs.

3.31 IST trainers commented that **IST trainees tend to be of high calibre and therefore comparatively easy to train**. They stated that their IST trainees tend to be strong trainees and seem to be particularly enthusiastic and motivated. This made it **difficult for some to understand whether trainees had made good progress as a result of changes made to improve IST compliance, or as a result of trainee ability**.

3.32 Some trainers voiced concern over the lack of benchmarking for trainees following ST2, as they found it an important tool for assessing development.

External factors

3.33 While some of the key principles of IST have affected the training experience, trainees, trainers and wider stakeholders commented on external factors that influenced trainee satisfaction.

3.34 Many trainees commented that **the rota within departments was a vital factor affecting satisfaction, but often this was out of the control of their Educational Supervisor.** Trainees who were in departments with a rota which was already IST compliant, or who were identified as supernumerary, reported greater levels of satisfaction, whereas trainees who did not have adequate training opportunities on their rota were unsatisfied with their training. This sometimes varied by department, as well as sites, with some trainees stating that they had a poor rota for their first placement, and a good (IST compliant) rota their second (or vice versa).

3.35 Trainers who were not able to provide an IST compliant rota voiced frustration at their lack of influence over this, noting that **more effective communication to their Trust about IST could enable more effective rota planning**, whilst also

acknowledging that staffing pressures affect the level of service provision cover required by IST trainees.

3.36 The **team structure** that trainees worked within also influenced their satisfaction levels. Working within **a surgical team generally improved trainees' experience.** Trainees commented on the benefits of working within a small, continuous team which included consultants and registrars, which they felt gave them more support and opportunities to develop their skills. Trainees also highlighted the benefits of working within an **extended surgical team, not least the fact that this freed up their time for training**. However, those who worked in **larger teams with limited continuity of trainer said that this affected their opportunities**, and therefore their overall satisfaction.

3.37 Many trainees said that **their training experience was mostly influenced by the department or hospital their training was based in**. Some trainees stated that the site already had a strong training culture and offered good training, and therefore, even if all IST principles were not met, they were highly satisfied with their experience. Some CTs also described their placement as IST compliant, even if IST was not offered at their site. Trainers and stakeholders agreed with this, noting that **sites with strong training cultures continued to offer good training**, whereas those who had historically delivered poor training continued to deliver poor training. It was recognised by many that more needs to be done to ensure sites delivering poor training do not host trainees, or are supported more intensively to improve.

"We always delivered good training and IST was opportunity to demonstrate that. IST trainees didn't get anything else." Trainer.

"My experience has been poor because of location and department specific problems. So while my feedback will be negative – I don't think that this is a reflection on IST." IST trainee.

3.38 It was also noted that the Educational and Clinical Supervisors affected training satisfaction. If trainees had supervision which was supportive and training-led, they had a better training experience. Where relationships were poor, or it was felt that trainers were not invested in training, trainees were generally less satisfied. However, it was noted that the **trainers involved in the IST pilot were often the best or those most interested in training**, and therefore IST trainees were more likely to have a satisfactory training relationship.

The impact of Covid-19 on trainee satisfaction

3.39 **Covid-19 has had a substantial impact on trainee experience**, and therefore, overall satisfaction. Overall, the majority of IST trainees responding to the 2021 survey reported that Covid-19 had affected their training experience (60 of 68).

3.40 For many trainees, **Covid-19 greatly reduced their ability to train**. Some were re-deployed to support Covid-19 pressures, and those who stayed in post had

reduced opportunities to train, as elective surgeries were cancelled. Some trainees stated that they still had opportunities to train in emergency theatre, however, others were not able to due to site specific restrictions (e.g. consultant only theatre as a result of PPE shortages). Furthermore, rota gaps increased due to isolations and illness, and therefore trainees were required to cover service provision.

3.41 CSTs reported that Covid-19 had wider effects on their training experience. This included additional **stress and burnout** as a result of Covid-19 pressures. In addition, some trainees commented that they were at times being asked to work outside of their levels of competence (and/or confidence) which also caused increased stress.

3.42 While Covid-19 management often contributed to feelings of dissatisfaction with their training experience, the changes introduced to deal with the pandemic were largely understood to be necessary. However, some trainees did note that **their training experience would have been poor even without Covid-19**; one IST trainee stated they felt their site was "hiding behind" the pandemic as an excuse for poor training, when in practice it was poor before. Some IST trainees had a more positive training experience during the pandemic. Some said their **supervisors were proactive in ensuring they had access to opportunities**, and some said that the fact that there was simulation available greatly supported them to keep developing their skills even though they weren't in theatre. **The movement of some training online** was welcomed as an innovative feature by those who were able to benefit from it.

3.43 IST trainees also mentioned wider (non-IST influenced) factors which affected their satisfaction, for example exposure to emergency theatre through the on-call rota, effective training in departments they were re-deployed to (e.g. Intensive Care Units) and the opportunity to access private hospitals.

Summary

3.44 Trainee satisfaction is an important metric reflecting both the rationale for the IST pilot and a measure of quality. Trainees reported mixed levels of satisfaction overall, with some extremely satisfied, others very dissatisfied. Across the IST cohort, more were satisfied than were dissatisfied.

3.45 Satisfaction was related to:

- The opportunities to train as opposed to delivering service. Trainees with 60% training time were more satisfied. It was noted however that service delivery was still valued in its own right and provided learning opportunities
- Placement and rotation duration: There were mixed views regarding the optimal length of rotations (4 to 6 months were typical), and length of placement

- Benchmarking: IST trainees were dissatisfied both with the notion of benchmarking and its communication
- Induction: IST trainees were not routinely inducted into their IST training post, but they were provided with a learning agreement early in their post
- Supervisor support: trainees reported a wide range of experience from supervisors (educational and clinical) from excellent to deficient
- Limited training opportunities in private hospitals as part of the Covid-19 response; those that were received were welcomed.

3.46 The structure of training programmes in sites varied little between IST and CT trainees, and it was thought that improvements introduced for IST also benefited CT trainees in those settings. That said, IST trainees typically said they saw more of their supervisor compared with CTs. The greatest difference was associated with run through and the lack of national selection, meaning IST trainees could focus on training and developing their competencies.

3.47 For many trainees, Covid-19 greatly reduced their ability to train and had other effects such as additional stress and burnout, but IST trainees were not differentially affected by this. The movement of some training online was welcomed as an innovative feature by those who were able to benefit from it, which perhaps indicates that hybrid delivery models may be welcomed going forwards.

3.48 It should be noted that the **service pressures of dealing with the ongoing backlog** of cancelled surgeries and high waiting lists was identified as a risk which might lead Trusts to **demanding speed of delivery over training time**. This would likely affect training outcomes as well as trainee experience going forwards, but will not be unique to IST trainees.

4. The supervisory encounter

Introduction

4.1 The evaluation was designed to secure feedback about the supervisory encounter and how the content and process of the encounter was influenced by contextual and individual factors. Enhanced supervision was one of fundamental improvements required for improved surgical training after the 'Shape of Training' review.

4.2 This section uses evidence from the IST trainee survey (2021 and 2020), interviews with IST and CT trainees and trainers, trainer bootcamp observations, and insights from an evaluation of IST in London. It explores what was expected of supervision within the IST pilot, how it was experienced in practice and the effect of the IST pilot on supervisory practice.

Training expectations in the IST pilot

4.3 While the IST pilot set out clear expectations in terms of rotas, time allocated to training and the use of simulation, it also focussed on the **quality of the trainer**. Several factors were identified in the RCS report[10] to characterise the features of good training that should be part of an IST pilot. These included ensuring that trainers were supported in **knowing *how* to teach as well as *what* to teach**, that the **spirit of the apprenticeship model** be adopted (meaning developing a longer term pastoral as well as educational relationship) through longer placements and more time in a single site, and regarding **training as a privilege and not a right** (with the concomitant expectation that some Trusts would not have trainees if they could not support effective training).

4.4 The IST prospectus outlined that trainers of pilot trainees must have protected supervision time for training in their job plan and a minimum average of one hour per trainee per week to provide feedback and reflection. Trainers were expected to support trainees in obtaining the appropriate opportunities within ward work, when treating outpatients and in the operating theatre, to gain the curriculum-defined skills for their stage of training. Trainers were expected to offer formative feedback to trainees and maintain their own professional development of training and teaching skills.

4.5 The evaluation evidence suggests that several factors affected the context within which training took place:

- Educational supervisors may not always be on the same rotas or placements as their trainees, resulting in **logistical challenges to meeting regularly**

[10] Royal College of Surgeons (2015) Improving Surgical Training: Proposal for a pilot surgical training programme www.rcseng.ac.uk/-/media/files/rcs/careers-in-surgery/improving_surgical_training_text.pdf

- The **disruption to surgery lists, redeployment and changes to national selection and examinations** that followed the Covid-19 outbreak affected the supervision encounter
- Some IST posts were split between two sites with a year in each. In some of these cases supervision relationships were also split, meaning IST postholders had a different supervisor in each site.

4.6 The concept of the 'Modern Firm' is that there is a team around the trainee to support and nurture progress. In practice few trainers talked about this either as a concept or using the term 'Modern Firm'. However, some trainees did talk about the benefits of a 12 month placement with consistent supervision, support from multiple colleagues, and a feeling of 'belonging', suggesting that the concept is a reality in some sites and for some trainees.

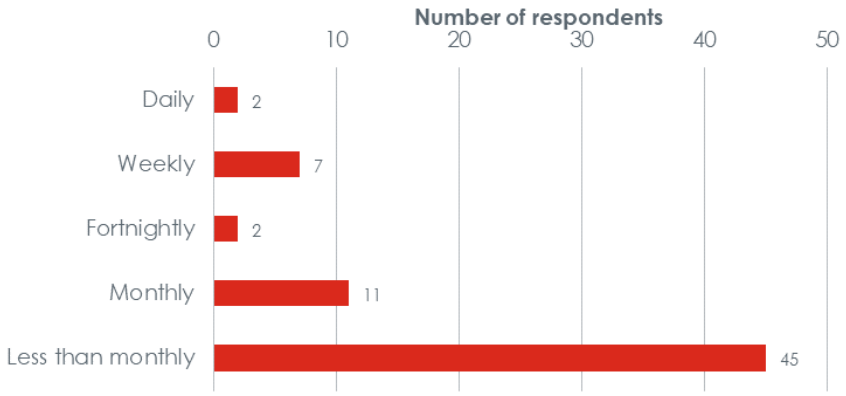
4.7 Given the reach and potential impact of these contextual factors on trainees, many trainers and trainees suggested that **local or individual factors were significant components shaping the experience of training**. Trainers talked about the self-sufficiency, ambition or focus of trainees as being key enablers for effective progress and relationships, while trainees talked about the helpfulness, pro-activity and availability of their supervisors (or otherwise).

What was the supervision experience for IST trainees?

4.8 The IST pilot outlined that the expected educational and clinical supervision should comprise at least an average of **one hour per trainee per week** to provide feedback, reflection and forward planning. However, only a small number of IST 2021 trainee survey respondents (7 of 67) reported weekly meetings with their AES, with the highest proportion indicating that their meetings took place 'less than monthly' (Figure 4-1). This finding was similar to that in 2020, in which only three (of 31) respondents had weekly meetings, with higher proportions having monthly (12 of 31) or less than monthly (13 of 31) contact.

4.9 It was reported by both trainers and trainees that difficulties with rotas, meetings, annual leave and training commitments meant that weekly meetings were not tenable, but several suggested that monthly meetings were possible and useful.

Figure 4-1: Frequency of IST trainee meetings with their AES (n=67)



Source: SQW analysis of the IST Trainee Survey 2021
Note: N=67 as one respondent provided no response to this question.

4.10 However, it is important to note that in interview, **trainees were often far less concerned about the frequency of meetings than their perceived value and the nature of their relationship with their supervisor.**

4.11 Many CTs expressed satisfaction with their supervisors for the time and commitment to their training they had experienced. Trainer support and commitment was seen by trainees to be evidenced by:

- The nature of informal learning opportunities in theatre as well as scheduled meetings

"I try at the end of every list to spend half an hour doing the CBDs and DOPS[11] there and then – for the feedback. That seems to work well." IST Trainer.

- Proactive creation of lists to create training opportunities where gaps were emerging
- Texting colleagues on training placements to let them know about the trainee and check up on their progress
- Trainees feeling that their progress was important to their supervisors and other surgical colleagues, because they knew they would likely be part of the team for several years.

"[My supervisor] is amazing with all trainees, but that isn't IST specific – he is an all-round good bloke to have as a trainer. I got lucky… he oversaw my progress" IST Trainee – 2nd interview.

4.12 Conversely there were reports from trainees about poor quality supervision, either that they had experienced themselves or that they had heard of from their peers.

[11] Case Based Discussion (CBD) Direct Observation of Procedural Skills (DOPS)

This was usually due to a **lack of contact (particularly in relation to IST expectations)**, **rather than inadequate supervision**.

"On IST we should be getting together every couple of weeks. I tried to make that happen, but I've given up. [One] can spend hours a week trying to chase people for relatively little return. I haven't had fantastic luck with that, but if I was prioritising, I would rather increase operating opportunities and simulation. That is where you get training value. But supervision hasn't quite been as described". IST Trainee

4.13 Some trainees also reported that their **AES was unwilling to meet regularly**, and therefore they were not able to comply with this requirement. One trainee stated that this was a reflection on the department, as other trainees at their site did get more regular meetings.

"My supervisor isn't one for the [weekly] meetings. [The supervisor] does it the same with me as with [their] other CSTs… we have 3-monthly meetings." IST Trainee.

4.14 However, **a few trainers reported that the responsibility for organising regular meetings lay with the trainee**. They felt their input as a trainer was meant to be a fairly minimal steer, with trainees being the ones responsible for pursuing and facilitating their training opportunities, in addition to seeking supervision and support when needed.

4.15 A total of 59 (of 68) IST 2021 survey respondents stated that they have had clinical supervision from appropriately experienced supervisors (whilst three respondents provided no response to this question). Respondents were asked to detail the staff grades providing their clinical supervision, which are typically senior and experienced colleagues including consultants and registrars (in training and non-training posts), SAS grades, associate specialists, senior trainees, senior clinical fellows and grades ranging from ST3 through to ST8.

4.16 Again, the experiences were not always positive from the trainee perspective as the following experience testifies:

"Clinical supervisors are not helpful– every idea of what to actually do was turned down, even things like attending MDTs. They are failing on clinical supervision. They are cancelling meetings repeatedly… They have had other trainees since then and they had a similar experience" IST Trainee.

4.17 Trainee testimony focussed on both the supervisory encounter with their AES, and their experiences of clinical supervision in theatre and on wards. In most cases trainees were happy with the educational supervision they received – even if it was not of the regularity prescribed by IST. Similarly, in most cases trainees

(IST and CT) were satisfied with most of the clinical supervision they received. However, there were instances reported where:

- The attitude of a senior consultant towards them or their grade created a brake on their progress. This was illustrated, for example, via trainee reports of a reluctance to have them in theatre, favouring training of more senior registrars, or not allowing them to perform parts of procedures that they needed for their learning.
- Trainees did not feel respected or valued by sufficient numbers in the surgery team to create a learning environment for progress, and in one case that led to trainee attrition.

4.18 The **paucity of monitoring data** was also mentioned by programme stakeholders. Whilst there is a general acknowledgement that trainees and trainers know which sites are 'good' for trainees, there is limited objective data that describes where training is moderately good or poor. The need to protect and safeguard trainees' identities when they offer feedback is a necessary safeguard but exacerbates the issue.

4.19 Such issues pre-date the IST pilot programme and reflect a culture that is difficult to challenge. **Whilst it is clear that IST did not create such problems, neither did it address them, and there appears to have been no penalty for sites reported to fall far below the IST principles to which they signed up**.

4.20 Some people mentioned that having **a national IST champion** was a good and effective way to both identify issues and provide support to address them. They also suggested that a national champion should be supported by a regionally based network to intensify the support available. A suggestion was for regional champions working across different sites and being connected as part of a regional network to share experiences and emerging good practice. The lack of implementation resources for support as well as delivery was acknowledged as a constraint, as were the effects of the Covid19 pandemic on surgical training teams.

Box 3: Supervision in London hospitals

In September 2020 Victoria Twigg, HEE Medical Education Fellow (Surgery) shared a report on the implementation of IST in five London hospital sites.

The findings suggested that IST had not been implemented in full in any of the sites, but that nevertheless there were important learning points arising, notably:

- Trainees in London valued the stability of a 12-month placement, and thought this was the optimal time period - with learning opportunities diminishing when two years were spent at the same site.
- The role of supervision was critical. Clinical supervision in theatre and on wards was highly valued.
- Clinical supervisors reported regular contact with their IST trainees, although contact with AESs was, on the whole, not in line with IST expectations.
- Most AESs reported having some time in their job plan for supervision, but often not enough. This was limited owing to clinical service demands.
- Trainees and trainers often didn't value prescribed weekly AES time, with time spent with high-quality clinical supervisors in a clinical capacity being preferred.

Source: Summary of Twigg, V. (2020) Evaluating the 'Improving Surgical Training' pilot in London

Effect of IST pilot on the supervisory encounter

4.21 The IST pilot was designed to directly affect the nature of the supervisory encounter in four key ways; trainer bootcamps, enhanced Programmed Activity (PA) allocation[12], stability of supervision, and an expectation of regular meetings.

Trainer bootcamps

4.22 During the first year of the IST pilot, a series of training days for trainers were held in England and Scotland to raise awareness of the purpose and objectives of IST, share effective practice and provide information about the use of the portfolio for effective record-keeping.

[12] A PA is four hours of work if done within the normal working week (Monday to Friday). A PA done outside this normal working week is three hours of work.

4.23 Those trainers who attended the IST trainer 'bootcamp' found the training useful. They stated that **the bootcamps '*drummed up enthusiasm*' amongst trainers regarding IST**, facilitating buy-in and engagement. One reflected that it had enabled them to consider how to effectively structure training, and how to appropriately involve the trainee in their own training.

"It is time out, you get to reflect. Some of the videos were helpful and the role play. Yes, [bootcamp] made me feel prepared." IST Trainer.

4.24 Attendance at these bootcamps was however voluntary and not all trainers from IST participating sites attended.

4.25 Some of the trainers interviewed said they did not fully understand the context or requirements of IST, and they had not been able to attend the bootcamp. Others noted a lack of communication about the IST pilot or any alternative to the bootcamp.

4.26 The trainer bootcamps were an effective way for those who could attend to raise awareness of the expectations of trainers and supervision aligned with the IST principles. However, more generally and among those who could not attend or who had ancillary roles, **understanding of IST seems to be either dependent on the site or Trust** (some trainers reported that they had internal inductions) or having an **enthusiastic colleague who championed the pilot**.

PA allocation

4.27 In our survey of trainers, over half of respondents (13 of 20) reported that they have 0.25 PA time allocated per trainee per week. Of the remainder, four respondents reported they have 0.5 PA time allocated per trainee per week and three have none.

4.28 Interviewed trainers frequently said that **this time was valued and appreciated**. They said that they spend this time on formal supervision, but that much more time is given to trainees as part of an informal process of checking in with them. They felt that this level of allocation was reasonable for each trainee, although one noted that their colleague AESs were given a different allocation, raising some concern about fairness and parity.

Supervisor stability

4.29 Where trainees were being trained at a single hospital site there was an opportunity for continuity of supervision from their educational supervisor. Where this was perceived to be a mutually respectful and focussed relationship it worked well for both trainee and trainer. Several commented that **when the supervisor and the trainee were working in the same specialty it was especially advantageous,** because there were additional opportunities to meet in theatre, and because their supervisor thoroughly understood their capabilities and areas for development.

4.30 It was also noted that where this relationship worked well, the AES got to know the individual better and was able to offer pastoral support as well as educational advice.

Box 4: Case study example of stable supervision

Interviewees at site x highlighted that the supervisory encounter was a key strength of their training experience. The approach taken was described as an 'apprenticeship' model, with close relationships between the trainer and trainee encouraged. IST trainees reported that having a consistent AES for two years enabled them to build up a close and strong relationship. One trainer stated that this approach was 'rewarding' as they were able to view trainee progress over that longer period.

IST trainees stated that they had plenty of contact time in theatre with their Educational and Clinical Supervisors, which improved their confidence and enabled them to build up their skills relatively quickly. It was also noted that the AES was approachable for informal catch ups or questions via text, which meant that IST trainees felt well supported.

While IST principles advocate for formal weekly meetings, interviewees stated that these were not needed. Weekly meetings were reported to be challenging to schedule if the supervisor or trainee was on call or on leave, and were felt to be a box-ticking exercise rather than a quality training opportunity. The IST trainees preferred to meet with their AES monthly (or less), and this was felt to be suitable for both parties.

Source: Case study interviews in a Trust

4.31 However, **where this relationship was not working well it proved problematic, and could not easily be changed**. A few IST trainees noted distinct differences in trainer style across different hospital sites or when comparing experiences with their peers, indicating inconsistency of approach – and in turn, variation in the training experience. Where IST trainees have not had the supervision support they wanted or expected, their response sometimes involved seeking to address the shortfall themselves through proactive engagement with other colleagues and finding their own training opportunities.

"In terms of IST, the supervisors need to be carefully selected. There is sometimes an apathetic attitude, they are not really bothered about you - so to make it work well you need keen, enthusiastic supervisors. I know someone who is [an IST trainee] at another place and his supervisor is really great - he has had loads of great exposure and clinical/research experience. I have had to find my

own windows of opportunity, which has been possible but more of a struggle." IST Trainee.

Summary

4.32 Educational supervision was identified as a key component of the IST model, to provide a stable relationship for the trainee and enable a regular and consistent focus on achieving training objectives.

4.33 In practice, both supervisors and trainees said they rarely achieved the one hour per week supervision outlined in the IST prospectus. However, this was not considered problematic where there was informal communication to check in on progress, supplemented with formal meetings when helpful.

4.34 Trainees (both IST and non-IST) recounted excellent experiences of both educational and clinical supervision from practitioners they respected and valued. Other trainees recounted an almost lack of educational supervision or poor communication with their supervisor. They also recounted experiences of clinical supervisors who failed to facilitate training.

4.35 The training that supervisors received through IST was valued. But it did not reach all IST supervisors and alternatives to the bootcamp were not available. IST training was then largely left to individuals to champion the pilot in their setting, or to the individual.

4.36 IST supervisors were mostly allocated either 0.25 or 0.5PA per trainee (although there were exceptions). This was said to be sufficient for formal elements of the process, with informal and ongoing elements accommodated within the job.

4.37 Both trainees and trainers in positive relationships appreciated the stability of the relationship and the scope for pastoral as well as educational support. This was due to the longer term and more 'invested' nature of run through (or longer placements) which contrasted to the short cycle of CT rotations.

5. Extended surgical team and the 'Modern Firm'

Introduction

5.1 The evaluation was designed to secure feedback about the extended surgical team (EST) and the Modern Firm. It follows the RCS 2016 report 'A Question of Balance – the Extended Surgical Team'. This recognised that to improve patient care and enhance the training experience of trainee surgeons, new models of care were required. It proposed new 'extended teams' that could include consultants, doctors in training and SAS doctors as well as other, non-medical practitioners.

5.2 The concept of the Modern Firm is to provide the continuity and supportive professional relationships associated with the "Old Firm" structure, within the modern context of highly skilled multi-professional teams. This means providing a pastoral working and training environment where trainees have the opportunity to learn from other professions within a multidisciplinary team and from inter-professional team working.

5.3 This section uses evidence from HEE's EST pilot (2020 – 2021), the trainer survey (2021), HEE's EST trainer survey, trainee and trainer interviews. It explores what was expected of the role of ESTs within the IST pilot, the role they played in practice, and how they have been implemented in different sites.

The role of extended surgical teams in IST

5.4 In their proposal for IST, the RCS envisaged two complementary measures to ensure that core surgical trainees had more time for training:

- The first of these was **rota management,** based on the conclusion that the extent to which high-quality daylight training occurs depends directly upon the number of staff in the rota. The more there are, the more time that the trainee can spend undertaking elective work during the daytime.
- The second and complementary way anticipated to enhance training time was to **expand the roles of non-medically qualified healthcare professionals in surgical teams**, with appropriate medical support to maintain quality, safety and efficiency. Advanced nurse practitioners (ANPs), physician associates (PAs) and/or other non-medically qualified healthcare professionals could provide an alternative resource to deliver aspects of the service component of trainees' work, and thus create opportunities for training. Teams with ANPs, PAs or other roles such as advanced clinical practitioners, surgical first assistants and surgical care practitioners were referred to as ESTs.

5.5 Participating IST sites were required to provide training opportunities for approximately 60% of the working week. **While ESTs were advocated as a way to achieve this, they were not a mandated criteria for pilot participation**[13].

5.6 In 2020 the Medical Education Reform Programme Strategic Oversight Group (MERPSOG) considered and approved a paper to fund and facilitate pilot sites to explore the development of the ESTs in new areas, to both improve workforce provision and help enable the IST initiative. At this point the Improving Surgical Care Assurance Board (ISCAB) was convened, to include core members of the IST Project Board alongside representatives of trainees, CoPSS and the EST pilot. The broader representation was designed to involve key stakeholders in decision-making and to re-emphasise the importance of improving surgical training within the context of developing the wider workforce and improving patient care. The Board has overseen the separate EST pilot whose findings will be reported separately.

Implementation of EST in different sites

5.7 The HEE EST survey (summer 2020) gives an indication of the types of roles which make up ESTs. Surgeons across 42 sites reported on the roles in their EST. Clinical Nurse Specialists and Surgical Care Practitioners were most commonly employed by sites (Table 5-1).

Table 5-1: Number of sites where EST staff are employed (n=42)

Role	Total sites
Clinical Nurse Specialist	35
Surgical Care Practitioner	33
Advanced Clinical Practitioner	31
Consultant Practitioner	31
Surgical First Assistant	30
Physician Associate	28
Medical Support Workers	22

Source: SQW analysis of HEE multi-professional surgical team survey

5.8 Although the respondents to HEE's survey all had an EST in place, 36 respondents reported barriers to implementing an EST. The **top barrier was**

[13] Royal College of Surgeons (2019) IST Prospectus 2020.

financial (19), with some experiencing managerial and institutional (6) barriers to implementation.

"Advanced Clinical Practitioners would be great to support the consultant workforce and allow more time for training and doing more surgical planning clinics etc. We have asked for posts to be advertised, but [it is] not a priority to managers as they see us as 'coping', so we are not on their radar." HEE EST survey respondent.

5.9 Many **struggled to overcome these barriers**. Some respondents reported creating business cases to make a financial case for employing ESTs, but others cited a lack of momentum (exacerbated by Covid-19) to generate business cases. One stated that this was because they had trained Advanced Clinical Practitioners who left the Trust once they had their qualification, and as a result they struggled to make a case for funding.

5.10 Some trainer interviewees also commented on the management challenges associated with employing an EST, with some reporting that they do not have ESTs in place as **management had expressed that 'surgery should be for surgeons'.**

5.11 Responses to SQW's trainer survey suggested that trainers are equivocal regarding the extent to which trainees benefit from being part of an EST. Of the 21 respondents, 15 reported that they work in an EST. These 15 were asked whether the existence of the EST affected the IST trainee experience. There was no consensus about whether EST provided more opportunities for surgical practice in theatre, more time in theatre in daylight hours, or training opportunities from a wider set of skilled practitioners. In fact, **most respondents said the EST made no difference to the trainee experience.**

Table 5-2: Effect of the Extended Surgical Team on IST trainees (n=15)

	Yes	No, it makes no difference	Not sure
More opportunities for surgical practice in theatre	6	7	2
Clinical training opportunities from a wider set of skilled practitioners	5	8	2
More time in theatre in daylight hours	6	9	0

Source: SQW analysis of the IST Trainer Survey 2021

5.12 Trainers from most of the IST settings we spoke with included some aspects of the EST in their workforce. In many cases this was said to be something that was in its infancy or under development. Non-medically qualified roles were developing in different ways across sites. Some included staff who work in theatre, but they were mostly described as a resource that could be used to help in clinic and on wards.

5.13 The introduction of such practitioners **required both financial support and the support of senior clinicians**, and it can be presumed that both factors will be shaping the form, scale and speed of implementation of EST in different sites.

"The Clinical Director does not believe they [non-medically qualified staff] should be in surgery" IST Trainer.

5.14 One trainer said that their site was trying to access funding to introduce posts for an EST, but they personally were yet to be convinced of the benefit, noting that both junior doctors and non-medical staff need supervision.

5.15 Even where ESTs were in place they were not necessarily structured in such a way to support the achievement of IST goals. For example, in one site nurse practitioners were used alongside junior doctors on wards. This was reported to generate several benefits, but freeing up rota time for trainees was not amongst them.

5.16 The introduction of EST posts has not always been straightforward, with difficulties reported regarding communication about their role and their capabilities in several cases.

5.17 EST members were however credited with providing a regular and relatively stable workforce on wards and, in some cases, in surgical teams. They have the opportunity to develop effective working relationships with nursing staff as well as consultants and trainees, and several respondents suggested that non-medically qualified practitioners were associated with:

- Freeing up time from 'mundane or menial' service provision tasks
- Providing a trainee with a colleague from whom they can learn aspects of patient care and teamwork, as well as technical skills
- Providing a trainee with a colleague with whom they can share their own knowledge and skill-set
- Trainees being able to focus on the tasks needed to develop their skills more quickly
- Surgical care practitioners can be a useful source of support for trainees in theatre, allowing the consultant to oversee a procedure alongside delivering other tasks.

"Surgical care practitioners do the cutting and sewing of basic procedures and then the trainee does the more complex skills." CST Trainer

"A fully trained Advanced Nurse Practitioner would be an asset, cascading their training the other trainees (e.g. how to carry out an endoscopy) which would save consultants from having to deliver this training." IST Trainer.

Box 5: Case study example of EST support

Case study site x utilised an extended surgical team to support training needs within their site. One of the key benefits of the EST was reported to be the development of a mutually supportive relationship between IST trainees and the EST. An IST trainee reported that they were able to learn a lot from the EST members, which was further facilitated by longer placements experienced as IST trainees, enabling relationships to be developed and sustained.

"It is quite satisfying working as part of an EST… [and] you do get quite a lot of exposure to the EST in this role" IST trainee

One trainer also noted that the use of Surgical Care Practitioners (SCPs) in theatre was beneficial for trainees, as SCPs could act as assistants, enabling the trainees to undertake operating procedures more independently.

Overall, while it was reported that the site had more work to do in terms of integrating the EST with training programmes, there were clear emerging benefits of the EST for IST trainees.

Source: Case study interviews

Summary

5.18 The challenge for quality improvements in training has been to find ways to create more time for trainees to train without jeopardising quality patient care. ESTs were considered to offer one way to resolve this, by expanding the number of people on a rota and introducing skilled professionals who could deliver tasks that otherwise would be done by trainees.

5.19 The IST pilot was expanded to include an exploration of the ways in which ESTs can both improve workforce provision and help enable the IST initiative. Insights from that project in terms of process learning and health economics are reported in parallel with this evaluation.

5.20 The role and purpose of ESTs in surgical care as well as surgical training is still a subject of debate. While trainers that participated in the evaluation thought EST

did have a beneficial effect, there were more (based on survey responses) that thought it had no effect on the training experience.

5.21 Qualitative insights suggested that ESTs could be designed to support trainees both by freeing up time and by sharing their skills and knowledge. For this to occur at least two fundamental conditions needed to be in place:

- Trusts and sites needed to commit to training and developing the non-medically qualified professional workforce
- Consultants and senior medical professionals needed to be made aware of what the EST roles were and how they could and should be used in surgical teams, and buy into the concept.

6. Trainee achievement and progression

Introduction

6.1 The evaluation was tasked with assessing any effect on competence arising from the IST pilot. This section considers the available evidence and the extent to which a comparison of attainment of those in IST posts with their peers in CT posts is possible and meaningful. It looks at the potential contribution of enhanced simulation to trainee outcomes. It then moves on to consider whether those in IST posts are typical of their cohort, whether they had preferential treatment in their site (compared with CT trainees), and the effects of the Covid-19 pandemic on outcomes. These factors are important when considering whether any reported effects are the result of IST or other intervening variables.

6.2 Evidence from logbooks, work-based assessments and ARCP outcomes is used to indicate achievement and progression, as well as trainees' own reflections on their progress.

6.1 It is important to keep in mind when reviewing the findings that the competence approach to training has been embedded in the latest revision of the core curriculum[14].

Expected outcomes from IST

6.2 The expectation of IST was that a cadre of more satisfied trainees and trainers, who have more time for training, enhanced supervision and the support of a multi-professional team around them, should achieve better training outcomes than otherwise experienced under CST. The expectation was that there would be a refined process of training that would be truly competence based, with run through models accompanied by robust assessment, an enhanced role for simulation for both technical and non-technical skills, and placements in FS2 aligned to those needed for a surgical career.

[14] From August 2021 surgical training will be outcome based, meaning that training will be complete once trainees have achieved the fundamental capabilities required of consultants. This requires authentic assessment which will be captured in the Multiple Consultant Report (MCR). Training will be truly capability based and, although there will be indicative times in which the great majority of trainees will be expected to complete training, trainees will be able to progress faster through training if they demonstrate the necessary capability. https://www.iscp.ac.uk/iscp/curriculum-2021/

Box 6: The workforce planning perspective

IST has been driven by a desire to see better training experiences among both trainees and trainers that generate improved patient outcomes and quality of service.

HEE maintain databases that track trainees' employment journeys. Their data shows the proportion of trainees that progress through CT1, CT2 and into specialty training over time. It confirms that the trainee journey can take more than the standard eight years to achieve a consultant role. For context, there is a high fill rate for all surgical vacancies (c.96%) meaning that the labour market is efficient at supplying appointable candidates for roles at any level.

This data shows that progression from CT1 to CT2 in core surgical training is reliable. Of those that started CT1 in 2018, 88% progressed to CT2 in 2019.

After CT2, 47% of the cohort of 2018 starters progressed with their training, whilst 21% became locally employed doctors and 22% left NHS employment. This compares with 79% progression for Obstetrics and Gynaecology trainees, where all posts are run through after CT2.

The destinations observed after CT2 are not however fixed. Trainees may choose to wait for a post in their preferred location, work abroad or take another form of career break. Consequently, three years after starting CT2 in 2017, 67% had progressed with their training, 11% were not employed by the NHS and 6% were working as locally employed doctors. Each year, not only can those successfully completing CT2 in that year apply for ST3 roles, but those who successfully completed CT2 in previous years but have not yet progressed to ST3 can also apply for ST3 posts. Progression is not always linear and within the shortest possible timescales.

A consistent trend is that a smaller proportion of females than males progress with training one year after CT2. It is observed that a higher proportion of females than males remain in CT2 or take parental leave.

In 2019, one year after starting ST8 general surgery, only 21% moved into consultant roles. The most frequent destinations were remaining in ST8 (31%), moving on to locally employed doctor roles (24%) or leaving NHS employment (19%). The latter category does not necessarily mean they leave medicine, and many such doctors may be working in the private sector or as locum consultants. This indicates there is no shortage in the pool of candidates to apply for substantive consultant roles.

Guaranteeing ST3 posts to those on run through training programmes limits post availability to other candidates and introduces rigidity into the labour market[15]. The current system creates pools of quality candidates and provides employers with flexibility to recruit to where skills are needed. Shorter training duration may however be beneficial for trainee satisfaction and for trainer efficiency (to provide trainees with a skillset more tightly focussed on their specialty).

Source: Health Education England analysis of Trainee Information System data, 2021

6.3 The IST prospectus clarified how these expectations were translated to the IST pilot. It states that the IST pilot would:

- Use workplace based formative assessment focused on the development of a competent surgeon with defined knowledge and clinical and technical skills
- Establish a learning environment that embeds simulation for both technical and non-technical skills
- Ensure that doctors at the end of training maintain or improve on current standards and meet current and future patient needs.

6.4 While the prospectus states that it is expected that trainees will take between six and eight years from start to certification, this would have been difficult to achieve in advance of the introduction of the new curriculum, as training placements have continued to use ARCP as a progression gateway.

Simulation

6.5 Evaluation evidence indicates that simulation was not experienced by all trainees in the way the pilot had intended. Overall, 16 (of 65) respondents to the 2021 IST survey reported having access to simulation for technical skills, with six having access to simulation for non-technical skills[16], consistent with the 2020 survey results.

6.6 It should be noted that trainee and trainer reporting of low levels of access to simulation might (at least in part) reflect their understanding of what simulation is. It was noted that most people recognise simulation as being access to laparoscopy kits or computer-aided simulation. But it was also noted that valuable learning comes from discussing a hypothetical scenario or case study. Respondents may not however recognise the latter as simulation.

[15] Stakeholders also reported unpublished evidence suggesting that run-through is associated with a deceleration of progression

[16] It should be noted that these results are not mutually exclusive; respondents could state they have/do not have access to both

"All the core trainees in my region – IST and non-IST - were given virtual reality training boxes to practice laparoscopic keyhole surgery at home, which was great to be honest. One of the consultants would organise fairly frequent sessions where you could log on with your box at home and he could see what you were doing/suturing and give you tips and things like that. [But there was] nothing else [for simulation] at the hospital." IST Trainee.

6.7 In some cases trainees said they were not aware that resources existed; for example, it was only in their second year of training that one trainee said they learned there was a skills lab on site.

6.8 Some trainers commented that simulation resources were not used by trainees as much as they should be due to a preference for theatre experience. Access to simulation was felt to be particularly important during the pandemic, when trainees had limited opportunities within theatre.

6.9 However, many trainees expressed disappointment at the lack of simulation opportunities. They said that this was one aspect of their training that had been emphasised at application, but their experience was below their expectations. It was noted that Covid-19 had affected opportunities for simulation training days, but some said that none had been planned anyway (to their knowledge). In many cases this would have been because simulation resources were not available[17].

6.10 It seems clear that many trainers and trainees see simulation as a less effective alternative to training in theatre, rather than a valuable learning tool in its own right. Similarly, there is no cultural expectation that competence in a simulated environment should precede the opportunity to practice in theatre.

An atypical cohort?

6.11 The extent to which any effects of IST can be observed in trainee outcomes is affected not only by the IST model and their experiences during training, but also their experiences and competencies prior to commencing IST training. Several stakeholders and trainers in interview suggested that because run through posts are attractive, **they will be secured by the 'brightest and best'**.

6.12 Indeed, **IST posts have been popular choices for trainees**, even in the early stages of the pilot. Analysis of 2018 preferencing data[18] showed that whilst IST posts accounted for 9% of opportunities in England and Wales, 24% of applicants selected an IST post within their top 5 choices, while 18% chose an IST opportunity as their top choice.

[17] Lamont, P. (undated) Simulation – a practical solution. Research showed differential access to simulation by Deanery and by specialty. 27% of trainees in Northern Ireland reported they had access compared with 65% in KSS. 41% of general surgery trainees said they had access compared with 58% vascular, and 53% urology trainees.
[18] Anonymised applicant preferencing data was provided to SQW by HEE in June 2019.

6.13 While applicants were attracted to the IST model, they are also attracted to posts due to their geography and the Trust, department and/or supervisor reputation for good training (see Box 7 for evidence from surveys of FS2 trainees relating to this). Preferencing data analysis shows that applicants (in the first round of IST) for IST posts were more likely to favour posts in London and the South East than in any other region, and they did not favour IST over CT posts (only 8% had all their top three choices as IST posts).

Box 7: Survey of Foundation Stage Year 2 surgical trainees

As part of the evaluation, an e-survey was designed and implemented to gain insights into how the IST pilot is affecting FS2 surgical trainees, and to understand their aspirations and motivations regarding future surgical training. The survey first ran in 2019, generating 70 usable responses. In 2021 it was repeated and generated 217 usable responses. The 2021 results showed that:

- Only 24 of the 217 respondents said they trained in a department where IST postholders also trained; 17 of these said they thought it made no difference to their training or they did not know whether it did
- 92% of respondents said they would consider applying for a surgical training post. Of these, 81% (152/192) said they would consider an IST post; 33 did not know
- Run through was the most appealing aspect of IST (appealing to 75% of respondents), followed by daytime training opportunities (51%) and protected supervisor time (46%)
- The most important factor shaping an application decision was post location (79/191, 41%). Other factors noted included those relating to the reputation of the department/supervisor and the Trust
- Covid-19 has affected the training experience of 88% of FS2s, due to redeployment, fewer cases seen in theatres, reduced teaching opportunities, and exam disruption.

6.14 Interviewed IST trainees said they were motivated to apply for their posts due to a range of factors, but they noted that the geographic stability offered by a run through post was particularly attractive to them.

"I liked the security of being in the region - the prospect of being and staying in one place. Also, with progression through to ST3, the guarantee was there. It is a small region. The commute is never more than 1 hour – so I can settle down and

think of buying a house. And I… had heard good things about training here from other people." IST Trainee.

6.15 The assumption that IST postholders were more likely to be higher achieving candidates in a competitive environment therefore appears to have been fair. In practice however, the situation is more complex, as candidates may have been amongst the higher achievers within their region, but this still leaves difference between regions. Also, trainer testimony suggests that while some IST posts have attracted exceptional candidates (with one IST trainer, for example, saying their trainee was 'the best we have had'), the more frequently expressed view was that there was little difference between the calibre of IST and CT trainees. They reported that some IST postholders experienced difficulty adjusting to the demands of the role and were not able to make the expected progress.

"The IST [trainees] need as much input as anyone else - they don't seem to have any superior abilities and need as much support as anybody else - which was not what I thought would be the case." IST Trainer.

6.1 The evidence suggests that IST postholders are typical in terms of their ability to perform well in comparable training posts.

6.2 A further factor may be that these candidates were not necessarily higher achievers in examination or work-based assessment, but that they were more motivated and committed to their specialty. Those interviewed often mentioned that they had either been committed to their specialty from an early age, or had experiences after Foundation Stage (such as in other medical posts or time abroad) that had exposed them to the specialty. They would need to be committed to apply for run through and may therefore have been more keen to learn and practice their chosen specialty.

6.3 Other variables affecting outcomes and comparability are the training culture of the sites hosting posts and the calibre of supervision. As noted in chapter 3, there was a perception that IST posts were more likely to be in sites which already had good an effective training culture.

Box 8: Case study of a training culture

Site x had a reputation for a strong focus on training, and renowned educational and clinical supervisors. This reputation was one of the key motivations for trainees to apply; the site is reported to have consistently attracted high calibre candidates.

IST trainees stated that a key positive aspect of their training was the level of **'hands on experience' accessible** to them. The trainees felt that the balance between training and service provision was appropriate, and felt they had sufficient opportunities to attend theatre. One trainee also stated that even when they were undertaking service provision (e.g. on-call or discussing cases) they felt that they were being trained, due to the hands on nature of the consultants and registrars across their team. This was consistent across CSTs; all trainees commented on the quality of training, and on the **welcoming, approachable and supportive culture** at the site. They stated that this was **not a reflection of IST, but rather on the embedded focus on surgical training at the hospital.**

All trainees commented positively on their relationship with their educational supervisor. They reported that **supervision had been regular, both formally and informally**, and all felt highly supported by their supervisor. They stated they had developed 'close professional relationships' with their supervisors. In addition to professional support, it was reported that trainees received strong **pastoral support** from their educational supervisors; one IST trainee referred to their educational supervisor as a 'father figure'.

Overall, IST and CT trainees felt that there was little difference between their training experiences. They commented that the level of training at site x was already 'really high', and therefore all trainees had a good quality experience. The only key difference in training identified by trainees was the fact that IST trainees had a consistent AES across their first two years. Trainers broadly agreed with this sentiment, highlighting that they did not want to create 'two tribes of equivalent grades', and therefore they **ensured that CSTs all had the same rota set up, and had equal access to theatres.**

While it was reported that IST trainees had 'exceeded expectations' in terms of progression at the site, there was limited attribution of this to IST itself. Interviewees cited the existing culture of training and development at site x has a key contributing factor to IST trainee

progression, although it was noted that this existing culture enabled key aspects of IST to work particularly well.

Source: Case study interviews in a Trust

6.4 Most trainers, when asked about adjustments or changes they had made as part of the pilot, mentioned one or two changes - suggesting that these sites were able to demonstrate that they already aligned (to some extent) with the principles of IST prior to their involvement in the pilot. The changes made typically related to:

- Adjustments to rotas, for example to maximise training time (where possible), and minimise time on night shifts and on-call
- Restructuring rotations to have fewer, longer and selected rotations
- Using IST as a lever to capture resources to introduce additional roles to fill out rotas
- Providing more opportunities for formal educational supervision.

6.5 However, these were not reported in all sites with IST posts.

6.6 While the trainees may have been largely typical, the evidence suggests that the training places may not have been. Any difference in achievement by IST trainees may have been due to factors other than IST, including being part of a training culture and having access to effective supervision.

A two-tier system?

6.7 There was a risk that the IST pilot might have created a two-tier system of training at core level, with one cohort of trainees having superior and preferential treatment compared with their colleagues on the business as usual route. Several trainers interviewed explicitly mentioned their anxiety about creating a two-tier system and their insistence that all trainees be treated equally.

"We couldn't create two tribes. They [IST and CT trainees in this site] are at the same level, same rota, moving through the same theatres". IST Trainer.

6.8 In reality however, **the evaluation found very few instances where trainees within a specific site were treated differently in any aspect of their training** – with the exception of having more regular supervision with a consistent person. Where adjustments to training had been made for IST to improve its quality, the evidence indicates that this is likely to have positively affected all core surgical trainees in those settings.

6.9 It is important note however that the evaluation heard that some trainees were able to access different experiences compared with their colleagues, but that this was not due to the design of IST, rather it was due to the **attitude and initiative**

of the trainee. Several trainers noted that **trainees approach their training differently,** with the 'better' ones identified as being more proactive, open to learning, and deliberate in their actions to secure training opportunities.

6.10 Trainees generally did not reference a two-tier system in name or form during interview regarding their experience of training. They were however vocal about **differences in progression.** IST trainees were unhappy about the principle of benchmarking and the communication of expectations surrounding it (which were subsequently overtaken by the effects of the Covid-19 pandemic on national selection). Meanwhile some CTs and trainers noted the difference in how ISTs approached the end of their ST2 training period. Whereas CTs were focussed on preparing for national assessment and application to ST3 posts, ISTs were said to be more relaxed at this stage (one view suggested a degree of complacency). Some IST postholders said that this was a benefit of run through, because they could spend their time of building skills rather than preparing for assessment.

The effect of Covid-19 on trainee outcomes

6.11 From March 2020 the Covid-19 pandemic affected the experiences of trainees in multiple ways. Initially all elective surgery was cancelled, and medical staff (including trainees) redeployed. Some trainees had alternative training available via online learning, or simulation practice. **Access to surgery lists was however limited** for a period, with sites experiencing disruptions at different times and with varying intensity.

6.12 In some cases, **private hospitals** were kept Covid-free and NHS surgery was delivered in such sites. A few private hospitals allowed trainees on site. It was reported that such training opportunities were more likely to be made available to more senior grades. However, where they did happen IST trainees benefitted from extended time in theatre and with a stable and experienced surgery team to learn from.

6.13 ARCP outcomes provide a record of the effect of this disruption on trainees. **New outcome categories (10.1 and 10.2) were introduced** that recognised the progress being made by the trainee prior to Covid-19 and whether they were safe to progress to the next stage in their training.

6.14 ARCP outcomes for England for summer 2020 are presented in Table 6-1. This shows that:

- 14% of all trainees were awarded the no-fault outcomes 10.1 and 10.2 that acknowledge the effect of Covid-19 on trainee progression (186 of the total 1,304). This affected 9% of IST trainees and 14% of CTs
- Satisfactory awards (Outcomes 1, 5, 6, 7, 7.1 and 8) were recorded for 74% of CTs compared with 78% of IST trainees

- A higher proportion of the IST trainees recorded Outcome 1 compared with CTs (69% compared with 34% respectively).

6.15 This suggests that IST made minimal difference ultimately to progression, although a higher proportion of IST postholders presented the panel with cases that demonstrated they were achieving the competences within the specialty curriculum approved by the GMC at the rate required.

Table 6-1: ARCP outcomes for non-IST Core Trainees compared with IST trainees (2020)

Outcome	Number of trainees			
	Core Training		IST	
Satisfactory categories 1,5,6,7,7.1, 7.4, 8	923	74%	50	78%
Unsatisfactory categories 2,3,4,7.2, 7.3.	137	11%	8	13%
10.1 - No fault outcome	165	13%	6	9%
10.2 - No fault outcome	15	1%	-	-
Total	1,240	100%	64	100%
Not assessed	96	8%	2	3%

Source: SQW Analysis of HEE anonymised data.

IST trainee outcomes

Logbook data

6.16 All surgical trainees record their time in the operating theatre in a logbook (www.elogbook.org). This is held digitally and captures for each procedure recorded whether the trainee:

- **Assists** ('A', performs the approach and closure of the wound)
- Is **supervised with the trainer scrubbed** ('STS', the trainee performs key components)

- Is **supervised with the trainer un-scrubbed** ('STU', the trainee performs the procedure with the trainer in the operating suite for 70% of its duration)
- Or **performs** ('P', the trainee carries out the procedure with the trainer available but present for <70% of its duration).

6.17 One of these four categories (A, STS, STU, P) is recorded for each procedure. Procedures have their own codes and each speciality has a list of associated procedures.

6.18 The evaluation used logbook data to compare the operating theatre experiences of IST trainees with their peers. A group of procedures was selected by representatives of the ISCAB, which were considered typical of the types of procedures that trainees would be expected to perform within CST. These were: appendicectomies, circumcision, cystoscopy, debridement of wounds, hemiarthroplasty, inguinal hernia repairs, long saphenous vein removal, manipulation under anaesthesia (MUA) and plaster, and removal of skin lesions. Logbook data for these procedures was provided to SQW for trainees who were identified as either on the IST or non-IST pathway and who started in 2018, 2019 or 2020[19]. Data for all core surgical trainees for 2016 and 2017 was provided for trend data.

6.19 Data for 2,250 anonymous trainees in specialities covered by the IST pilots (general, core, urology, vascular and trauma and orthopaedics) who started in the years 2016–2020 inclusive, and their 317,746 recorded procedures, were used in the analysis presented in Table 6-2.

Table 6-2: Procedures recorded in the e-logbook by all trainees starting their core surgical training, 2016 to 2020

	2016	2017	2018	2019	2020
Long saphenous vein removal	245	191	87	75	20
Appendicectomies	23,213	18,858	16,803	12,648	9,135
Inguinal hernia repairs	13,993	11,095	9,425	5,682	3,388
Removal of skin lesions	2,393	1,835	1,429	881	483
Debridement of wounds	11,586	9,346	7,933	4,822	2,785
Circumcision	4,977	3,675	2,652	1,858	1,216

[19] The identification of IST trainees in the 2020 cohort was incomplete and therefore comparison of IST with non-IST is presented for 2018 and 2019 starts only.

	2016	2017	2018	2019	2020
Hemiarthroplasty	6,374	5,060	4,372	2,764	1,713
Manipulation under anaesthesia (MUA) and plaster	7,399	6,187	4,169	3,125	1,543
Cystoscopy	39,368	30,123	19,793	14,555	8,143
Total	111,564	88,387	68,681	48,429	30,446

Source: SQW analysis of full data download from logbook data relating to IST specialisms

6.20 As trainees progress, they record the accumulation of their training experiences in their logbooks. Table 6-2 reports all procedures logged by trainees starting in 2016 through to 2020. Therefore, those who started their training earlier will be reporting at least two full years of procedures (through to CT2) compared with the more recent starters. The 2019 and 2020 starters' training logbooks will have also been affected by the Covid-19 pandemic. Over the five-year period there were more cystoscopies recorded than any other procedure, with appendicectomies being the second most frequently recorded procedure.

6.21 The number of procedures performed by trainees (general, core, urology, vascular and trauma and orthopaedics) also varied by speciality. The volume of cystoscopies recorded by urology trainees was the highest (averaging 553 per trainee; 83% of surgeries performed by trainee urologists were cystoscopies).

6.22 With the exception of cystoscopies, there was little difference within each procedure[20] in terms of the proportion that were Performed compared with those Assisted or Supervised by IST trainees when compared with their peers. Of all the procedures involving each group, on average IST trainees were involved in more of them, but the difference was only one percentage point. Taking one procedure as an example, Table 6-3 shows the total number of appendicectomy procedures involving IST trainees who started in 2018 and 2019 compared with their peers. It shows that all trainees (both IST and non-IST) performed appendicectomies. Of all those IST trainees who were involved in the procedure, 2% fewer were recorded as Assisted and 1% more were recorded as Performed.

[20] Cystoscopies which were mostly undertaken by urologists.

Table 6-3: Appendicectomies recorded in logbooks by core surgical trainees starting in 2018 and 2019

	IST	Non-IST	% point difference IST / Non-IST
Assisted	898	6,741	-2%
STS – Supervised	1,466	10,354	1%
STU – Supervised	109	779	0%
P - Performed	200	1,267	1%

Source: SQW analysis of logbook data

Performed procedures

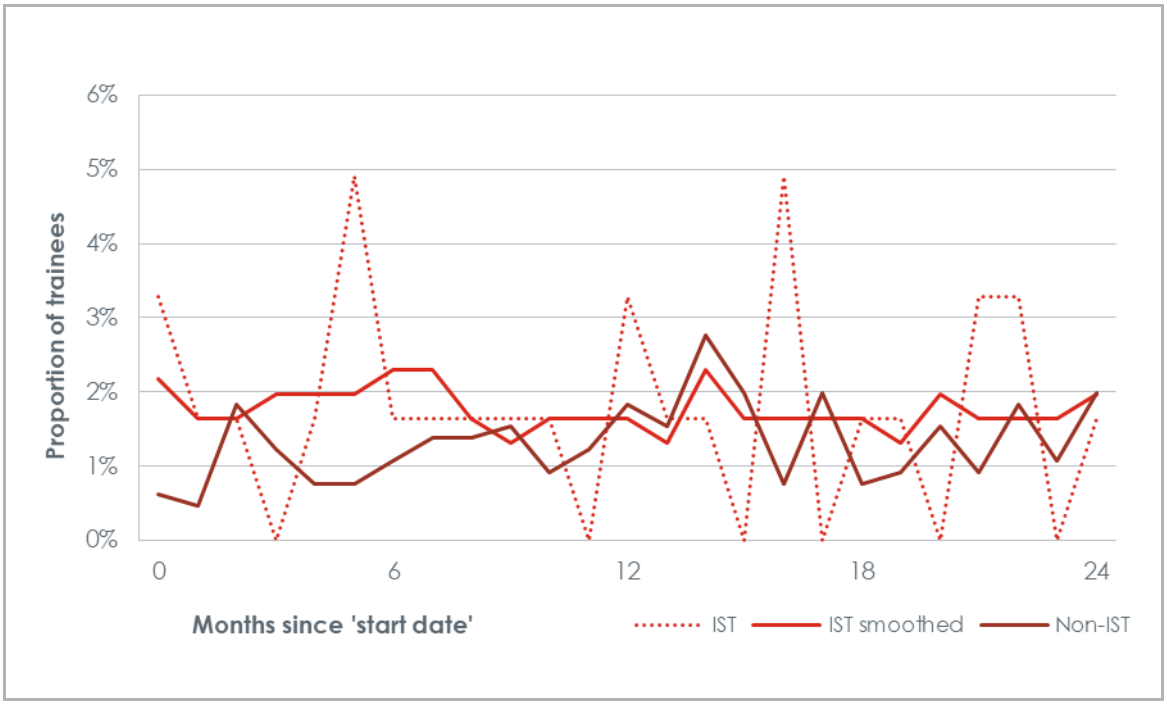
6.23 The data was analysed to see whether there were any differences between IST trainees and their peers in the time taken to reach a Performed procedure[21]. A subset of the data was used: trainees in general, urology, vascular and core training, and trainees who started in 2018 and 2019 (for whom we have data for at least two full years of training). Trauma and orthopaedics trainee data were excluded from this analysis, as their first IST trainees started in 2020. Analysis shows that IST trainees tend to achieve a Performed procedure earlier than non-IST trainees. The smaller number of IST trainees creates a spiky profile which is statistically smoothed in Figure 6-1 to show an overall trend. The extent of this can be observed by examining where the bright red line is higher than the dark red line. In each month of their first year of training, a little under 2% of IST trainees achieved a Performed procedure. For non-IST trainees, this figure was rarely above 1.5%. There is a decline in activity after 24 months as some individuals who were not on the IST run-through posts will not have proceeded to ST3.

6.24 Further analysis of these subset cohorts shows:

- 45 of the 61 IST trainees in the sample (74%) have a Performed procedure in their records, compared to 59% of non-IST trainees
- IST trainees each record an average of 1.39 Performed procedures, compared with 0.99 for non-IST trainees
- Across all procedure types, the average time taken to achieve a Performed procedure is slightly shorter for IST trainees, (14.8 months compared to 16 months for the non-IST trainees) by nearly 1.2 months. This result is not statistically significant.
- Taking the minimum time-to-performed for each trainee across all procedures performed gives the result that the IST group took on average 11.8 months compared to 13.4 months for the non-IST trainees (1.6 months quicker). This is statistically significant only at p<= 0.1% which shows a trend but provides only weak evidence of a significant link.

[21] Elsey, E. J., Griffiths, G., West, J., & Humes, D. J. (2019). Changing Autonomy in Operative Experience Through UK General Surgery Training: A National Cohort Study. Annals of surgery, 269(3), 399–406. https://doi.org/10.1097/SLA.0000000000003032

Figure 6-1: Time taken to record first Performed (for any procedure) by surgical trainees starting in 2018 and 2019.



Source: SQW analysis of e-logbook data.

6.25 The dataset was imperfect because not all those who were in IST posts were identifiable in the data drawn down by the e-logbook team and subsequently anonymised. Consequently, the analysis is of the 61 IST trainees that were in the dataset who started in 2018 and 2019, and for whom no data anomalies were found. This compares with 86 IST trainees that started their roles in 2018 and 2019. That said, there were differences between the reported experience and progress of IST trainees compared with their peers. IST trainees progressed to a Performed procedure faster than their peers, and did more of them. This may be due to a number of factors, including that some IST trainees may have held previous relevant posts or had other prior experiences of surgery, or that they were in sites that would have provided these experiences regardless of the IST pilot. However, it does suggest that where trainees have closer supervision and access to more training experiences (perhaps alongside the other features of IST), they typically make good progress. Until progression is based on the achievement of competences this cannot however translate into shorter duration of training.

Portfolio data regarding work-based assessment outcomes

6.26 Assessment data drawn from the portfolio has been analysed to explore the differences between work-based assessment outcomes for IST postholders compared with CT trainees. This data has been supplied in anonymised format. It is imperfect as not all IST postholders are identified within it, and there are known

inconsistencies in how it is completed. Data supplied related to all surgical trainees starting placements in 2018, 2019 and 2020 in England and Wales up to October 2021.

6.27 SQW analysed the 25 different placement work-based assessments recorded in the portfolio. A simple score was assigned to each of the outcome categories (outstanding, satisfactory, and development needed). Those that recorded not applicable were excluded from the analysis. For each assessment type the proportion of trainees awarded outstanding, satisfactory and development needed was calculated. These outcomes were then compared in percentage terms for the IST and CT trainee cohorts.

6.28 This analysis finds that the trainees on the IST pilot received proportionately more outstanding scores than the CT trainees in 24 of the 25 assessments – a finding that was statistically significant for 16 of the 25 assessments at p <= 0.1%, indicating there is a relationship but the evidence for it is statistically weak. That is, **according to most forms of assessment in the placement data, IST candidates performed better**. For some assessments this was more pronounced: e.g., for medical record keeping there was a difference of four percentage points, reflective practice / writing had a 3.7 percentage point difference, and organisation and time management had a 3.5 percentage point difference.

6.29 There is a similar set of findings for Multi-Source Feedback assessments. Using the same method as for placement assessments, IST trainees were awarded proportionately more 'outstanding' grades than their peers for all 17 assessment categories. The greatest differences were in initiative and leadership skills (3.8 percentage points), ability to formulate appropriate management plans (3.6 percentage points), and relevant knowledge and diagnostic skills (3.2 percentage points). All 17 of the Multi-Source Feedback assessments were associated with a comparison that was statistically significant, but only at p <= 0.1%.

Qualitative evidence on outcomes

6.30 The qualitative evidence is mixed regarding the progression of trainees. As is revealed in ARCP outcomes data, most trainees progress well. Some IST trainees in their second interview with the evaluation team said that they had progressed well and faster than they expected. **For some this meant that they were able to work to an ST3 role whilst still in their ST2 post.**

6.31 However, when we compare how IST trainees talk about their progression compared with CTs there are very similar themes:

- **Progress is often not smooth,** as some rotations or placements do not provide the number of quality of training experiences that trainees would like.

"I have come from [named site], and my experience there of trainees is that they were fighting to get into theatre, trainers seemed like they almost didn't care. Whereas here I have had a great experience so far. There are some consultants that aren't very supportive, but on the whole, most people know you, they have watched you. They want you to do the next thing." CT trainee

"There have not been enough opportunities to go to theatre. In the last 2 months, I have done two clinics, and this is crucial to training. I should be doing at least one a week…." IST trainee.

- **Differences between specialties** mean that some rotations or specialties require more time in surgery to achieve the same number of procedures for logbook records. For example, one trainee noted it was possible to get through up to 15 urology procedures in a day compared with other procedures that require several hours each.
- Some trainees either **actively manage their training** (approaching trainers, using days off to attend theatre if they need to), or work closely with their educational supervisor to ensure that their portfolio is as strong as it can be.
- The **effect of the pandemic** has disrupted training and opportunities for assessment in ways that are unrelated to the training programme.

6.32 There was one difference between the comments of IST and CT trainees. This was with regard to **progression to ST3**. Most of the IST trainees interviewed were on run through, whereas this was more of a concern for CT trainees. Two factors were raised. The first was **the lower number of posts available to apply to** (some of which are taken out of the list as they are allocated to run through), and the second was the **application process was more 'light-touch'** as a result of Covid-19 measures and therefore was felt to be less rigorous than it normally would be.

Summary

6.33 In the introduction to this report we noted that there was no single IST pilot experience, rather there were IST and CT trainees who were getting good quality training in some sites, and IST and CT trainees having less effective training experiences in others. If IST trainees were not receiving the IST experience, it is difficult to assess the effect of the IST model in terms of cohort level outcomes.

6.34 Other conceptual challenges for assessing the training outcomes attributed to IST were as follows:

- Simulation training was generally not affected by IST, and so any effects of IST should not be linked to simulation
- It was initially thought that IST trainees would be the best performing candidates coming into the system, and would therefore be the best performing at the end of ST2. Qualitative evidence suggests that they were

generally typical in terms of their attainment but atypical in terms of their commitment to a specialty, and may therefore have brought different levels of motivation and drive to their training

- Trainees experienced good training in sites with a good reputation for training and that were closer to the IST principles at the outset
- All trainees were affected by Covid-19 regardless of whether they were IST or CT trainees. The duration, type and intensity of that affect varied however by site and by individual.

6.35 In terms of trainee outcomes, the evidence reveals that:

- Based on portfolio data analysis, IST candidates on average perform better in 24 of the 25 placement work based assessments and all 17 Multi-Source Feedback categories
- There is little difference in the proportion of CT compared with IST candidates achieving satisfactory outcomes at ARCP
- Logbook data shows that IST trainees progressed to a Performed procedure faster than their CT peers (by 1.2 months) and on average, recorded more procedures.

6.36 Given the factors outlined above it is not possible to say whether this was due the quality of training available at a site (whether or not due to IST), the supervisory experience, access to opportunities, or the motivation/attitude of the trainee.

7. Learning from IST comparators

Introduction

7.1 Different versions of the IST model relevant to general surgery were implemented in Scotland and also in Wales. Both were evaluated separately with some common elements, for example use of the standard IST trainee survey initiated by the IST programme management team at RCS, and use of logbook data. Evaluation results from Scotland have been deferred for a year, as the pilot itself has been extended to allow for some recovery of training provision following the effects of the Covid-19 pandemic.

7.2 In addition, a desk-based exercise to explore learning from training improvements in a different surgical specialty was undertaken by the evaluation team. Summaries of key learnings from these are provided in this section.

IST in Scotland

7.3 IST in Scotland has been implemented differently compared with England and Wales. The Scottish Surgical Specialties Training Board has been running the Scottish arm of the IST pilot for three years, and has recently agreed to extend it for a further year. In Scotland, IST has been implemented with several key differences:

- All CT1 and CT2 trainee posts are classed as IST posts and combine a mix of run through and uncoupled models
- The Scottish Government invested in IST: £275,000 for cohort 1, rising to c£500,000 for cohort 2 in the first two years. This was for additional training residentials and take-home laparoscopy kits, as well as time allowances for educational supervisors (with an aspiration that it would fund 0.5 PA per trainee)
- Delivery of a series of four two-day bootcamps (clinical induction course, care of critically ill surgical patient, basic surgery cadaver course, minimally invasive surgical course). Alongside this was the requirement for trainees to practice and perform assessed tests on their laparoscopy kits.

7.4 The Scottish context is also different. There are fewer local Health Boards (14) and there are close links to the Scottish Government. Hospital sites in Scotland are widely dispersed with implications for economies of scale in terms of surgical teams and specialisms, and doctors in Scotland are employed under a different contract compared to those in England and Wales. The concept of the EST has not been widely adopted in Scotland.

7.5 The IST programme in Scotland provides useful learning about simulation. It embedded simulation and other shared training for IST trainees through a series

of mandatory residential bootcamps which were welcomed and valued by trainees, and provision of laparoscopy kits.

7.6 Some simulation training was organised regionally. Trainee access to this depended on rotas and time available for travel. In almost all cases this regional training was not specific to IST but open to all trainees.

7.7 Trainees were sometimes actively encouraged to use the simulation resources that were made available to them, either taking them home or locating them in convenient places in the hospital site. One IST trainee said that a simulator had recently been installed outside of theatre at their site (which they thought was as a result of IST), and noted a trainer-led competition to encourage engagement. The simulation aspect of implementation in Scotland has been reviewed[22] . The review reported very high rates of satisfaction with the courses from trainees. It also concluded that the **delivery of the courses was a necessary but not sufficient component to IST** which also needed to include 'vigilant oversight' of trainee progress, a need to align established practices (in terms of timetabling training so that all trainees can attend), and release of staff from service for training and supervision

IST in Wales

7.8 In Wales, the IST pilot was run more of an intervention and control experiment, with available resource being used to ensure that training in the three participating sites reflected the IST principles as much as possible. Each site also was paired with an academic fellow to capture evidence about its effect. It found that where training was prioritised and supported, trainees benefited with better training outcomes and more rapid progression.

7.9 In 2018, eight IST general surgery run through posts were implemented across three hospital training units in Wales. Resources and support were focussed on these three sites to try to ensure that the IST principles were adhered to. The specific principles introduced at these sites consisted of:

- **Longer rotation placements** (three placements in ST1 and two placements in ST2)
- **Rotations undertaken at the same site** for the duration of ST1 and ST2
- IST pilot sites were guaranteed **full training rotas** by the Wales School of Surgery for the duration of the pilot.

[22] Walker, K. and Baker, A. (May 2020) IST Scottish Pilot, Simulation Strategy. Paper for the Scottish IST Working Group.

7.10 Health Education and Improvement Wales (HEIW) delivered an internal evaluation of the IST pilot's impact on outcomes in Wales[23]. The evaluation was based on analysis of portfolio data accounting for achievements in work-based assessments, and MRCS examination pass rates, and did not include any qualitative evaluation evidence.

7.11 The evaluation found the IST pilot was associated with **significant uplift in National Training Number (NTN) progression**. The vast majority of the eight IST trainees achieved NTN success, compared with 21 of 59 (36%) general surgery CTs. Although there were no discernible performance differences in clinical or academic competencies, **the MRCS pass rate** was seven percentage points better in the IST cohort (75%) than the CT cohort (68%).

7.12 However, the evaluation did note that findings must be tempered by the potential impact of Covid-19 and the influence of the resulting modified selection processes.

7.13 Wales are considering continuing the IST pilot to explore its implications further, as it was felt that Covid-19 has impacted on their ability to achieve robust evaluation results.

Training in a different surgical specialty

7.14 The evaluation sought to explore differences in approaches to training and supervision with a different surgical specialty. Obstetrics and Gynaecology (O&G) was selected as it shares certain characteristics with the IST training model.

7.15 Run through is part of the model, and all O&G surgical trainees have run through (compared with IST which runs a mixed model), and is mediated by examination requirements after ST2 and ST5. Simulation is seen in both as a desirable element to training, but is not mandated for O&G. TIS data shows a higher progression rate for O&G compared with core surgery, with 79% progressing to ST3, and the progression rate remains high (although in subsequent years c.20% of trainees remain in the same level of training post more than a year after starting). Nevertheless, after seven years of training over a third consistently move into consultant roles.

7.16 It is acknowledged that different sites offer trainees a varying quality of training experience. In response the Royal College of O&G developed a checklist of quality criteria that training units can use to benchmark their education and training against, to improve their learning environment. The quality criteria are set out in Table 7-1. These differ from the General Surgery Quality Indicators[24] in as

[23] Mellor, K. et al. (2021) Improving surgical training: core programme performance related to rotation theme, design and trainee protocol engagement. Bulletin of The Royal College of Surgeons of England 103(S1):061-068. *DOI:10.1308/rcsbull.TB2021.16 This compared the achievement of eight ISTs with 181 CSTs enrolled between August 2014 and July 2020.*

[24] JCST Quality Indicators https://www.jcst.org/quality-assurance/quality-indicators/ Note these are due to be revised August 2021 to align with the new curriculum.

much as the O&G indicators focus on the training environment and processes, whereas those for general surgery provide a checklist of expectations and entitlements.

Table 7-1: Proposed quality training criteria. Royal College of Obstetrics and Gynaecology

Domain	Example criteria
Domain 1: ensuring safe and effective care	• **Multi-professional team-working**: There is an effective MDT which shows mutual respect, communication and support for each other • **Handover**: Is organised and scheduled to provide continuity of care for obstetric and gynaecology patients and involves consultants, O&G trainees and the multidisciplinary team • **Consultant contact**: Appropriate hands-on consultant supervision and support is available • **Clinics**: There is appropriate consultant supervision and support, including arrangements made for consultant leave and clear pathways for senior advice and onward referral
Domain 2: creating a supportive environment	• **Departmental induction**: Learners receive a meaningful induction that previous trainees have contributed to • **Valuing O&G doctors in training**: The contributions made by individual O&G doctors in training are valued at all levels (i.e. team, department, Trust) and there are systems in place to reward excellence • **College Tutor**: There is an effective RCOG College Tutor, with appropriate time in their job plan • **Rota design and management**: Doctors in training are involved in rota design and management with appropriate consultant and administrative support. Rotas are compliant, exception-reporting is encouraged and rota-gaps are minimised by effective, sustainable workforce solutions
Domain 3: improving educational experience	• **Procedures training**: Training and assessment of all essential procedures specified by the relevant curriculum is provided for all obstetric & gynaecology doctors in training, in a simulated environment where necessary, and tailored to individual trainee needs

Domain	Example criteria
	• **Named educational supervisor with appropriate knowledge**: Educational supervisors are appropriately trained and conversant with the curriculum and its implementation. They meet with the trainee every month, as a minimum, to assess the trainee's development in practice. Trainees will have a single educational supervisor during each year of training.

Source: SQW presentation of data from Royal College of Obstetrics and Gynaecology
https://www.rcog.org.uk/globalassets/documents/careers-and-training/assessment-and-progression-through-training/training-evaluation/quality-criteria-for-og-vfinal.pdf

8. Conclusions

8.1 The IST pilot has achieved national recognition and has ensured a sustained focus on the needs of core surgical trainees and their trainers. There is widespread agreement that the IST principles are appropriate and sensible and, where implemented, trainee experiences were positive. The pilot found that many sites were able to adapt their systems and practices to accommodate at least some of the principles to create incremental improvements. It encouraged those sites with a strong training culture to improve, but had insufficient leverage with those that had embedded barriers to innovation. This section of the report presents key conclusions and learning.

There are considerable structural challenges to training improvement

8.2 The challenge of improving training experiences of junior doctors in the NHS is considerable and enduring. The dilemmas were outlined in the Shape of Training Review but go back for many years. As one stakeholder commented, this group of trainees has been identified as the 'lost tribe' with a reputation for being used by employers as 'rota fodder'. Training practices rely on relatively few standard 'classroom' type inputs and instead follow a work-based training model. Responsibility for training delivery is therefore delegated across a diffuse workforce.

8.3 Trainees occupy a space between the needs of their employers who have to manage growing demands for healthcare services with limited resources, the Royal Colleges who have a responsibility to ensure that trainees are taught an appropriate curriculum to a high and safe standard, and their colleagues who have high and demanding workloads and may not see training as a main priority.

Challenges have been exacerbated by the effects of the Covid-19 pandemic

8.4 The effects of the Covid-19 pandemic on surgery in the UK have been felt by all trainees and trainers, albeit in several different ways, including redeployment, reduction of training time and an increase in stress and burn-out. The longer-term repercussions of longer waiting lists, an urgency to move patients through the system and the difficulties of still carving out training time will endure over the next year or two at least. ARCP outcomes in summer 2020 showed that these effects were sufficiently intense to affect around 10% of trainees' progress in England.

Resourcing is needed for management, communication and implementation of new training initiatives

8.5 The resources available for IST were used to support the management of the process and the delivery of face-to-face training days and events. Stakeholders

acknowledged that a national programme needed sufficient management resource to bring people together, but that additional resources were needed to support implementation.

8.6 The scale of resources was not commensurate with the task. Several stakeholders talked about the workforce being continually asked to do more for less, and noted that the investment made in one site to implement EST (Royal Derby Hospital) was more than for the whole national IST programme.

8.7 Communication between the programme management team and IST sites was focussed on key events (such as the launch event and trainer bootcamps), a website, and reliant on stakeholder dissemination. A more dynamic communication strategy that established two-way communication between the team and IST participants (trainees and trainers) might have enabled them to share learning and firefight emerging issues. This was however hampered, as there was no data sharing agreement to allow the management team to access the contact details of IST participants.

8.8 In addition, Board membership was limited in the first instance, which meant that some voices felt they were not heard in the planning or decision-making processes. This was felt to have been improved following introduction of the ISCAB, mid-way through the pilot.

IST oversaw improvements in training delivery in many sites – but not all

8.9 The IST pilot was developed as a response to the need for change. It was informed by RCS's recommended improvements to surgical training that were described as a set of 'principles'. The IST pilot was designed as a pragmatic approach to work with those sites and training teams that felt ready to adopt the IST principles.

8.10 In England IST sites either had to commit to delivering IST or to moving towards implementation of the IST principles – a condition that was further emphasised with the expansion of the pilot to include what were termed 'compliant but uncoupled' posts from 2020. In Wales, its implementation was much closer to a full 'treatment and control experiment' with three sites getting the full benefit of resources and priority support.

8.11 Resourcing was not allocated to individual pilot sites. Many sites adjusted their practices to become more compliant with IST principles, but this was not the case for all. Sites were allocated IST posts, and were able to retain these posts and continue with annual recruitment, even when it was clear that they were not adhering to IST principles. There were no obvious sanctions or support applied for non-compliant sites. In some cases where sites were not delivering what IST trainees expected at application, this led to frustration and a poor training experience for trainees.

IST did not create a two-tier model within IST sites

8.12 At the start of the IST pilot, concerns were expressed about the risk of creating a two-tier training programme where one set of trainees (IST) enjoyed better training conditions than their peers (CT). However, most IST sites actively sought to ensure that there was no difference to how their CST trainees were treated when they were part of the same rota team. With one or two possible exceptions, that initial fear does not appear to have been realised.

8.13 Inequalities in the training experience may however lie in the difference between good training sites and those that are less good. This is what risks a two-tier training model, with those sites with poorer quality training persisting at current levels, with implications for satisfaction, outcomes, and ultimately patient care. This indicates that the focus for improving surgical training needs to be on settings and trainers with the worst outcomes and improving surgical training across the board - not just in a self-selecting sample of settings. Stripping the focus back to the defined quality indicators and focusing on realising those across all Trusts is likely to lead to improved quality of training and care overall.

Sites with an established training culture provide good training experiences

8.14 There are some hospitals, or surgical teams within hospitals, that have an excellent reputation for training. Trainees acknowledged this in their interviews (both IST and CT trainees referred to this), and often wished to acknowledge the contribution that their supervisors - and indeed their wider team - had made to their learning and progress. These 'good' training sites generally appear to have continued to refine their training offer to seek alignment with IST principles as far as possible. There was no distinction however between the size of setting; good training was reported in major teaching hospitals but also in smaller general district hospitals.

8.15 The 'Modern firm' as a concept central to IST was not referenced in interview, but trainees and trainers did describe its features in certain sites. Where it was referred to indirectly it was credited with supporting training development.

8.16 The evidence indicates that the culture within departments is just as important as formal structures. Developing and embedding a culture whereby training is professionalised, valued and recognised continues to be key, and should be prioritised moving forwards.

Extended surgical teams were useful in some sites, but were not the only way to achieve more and better training time

8.17 ESTs were said by many to be a useful means to expand the capacity of surgical teams to release trainees for training rather than service delivery. There were examples of this in practice using ANPs to undertake ward based work, or to support training and learning in theatre.

8.18 However, it was by no means unanimous that ESTs were seen as essential for IST principles to be adopted. Furthermore, there remains some disquiet about inconsistent practice regarding the use of EST roles by different consultants and the demands of training additional team members alongside surgical trainees. The culture of a department and senior clinicians within it appeared to prove key, alongside the availability of resources to fund EST recruitment in the first place.

8.19 This remains an unresolved issue; the HEE EST pilot may help to provide models and business cases to support the development and exploration of ESTs further.

Sanctions on sites with a poor training culture or instances of poor training are not enacted

8.20 That not all pilot settings implemented IST as expected is perhaps not a surprise, given broader challenges facing the NHS and surgical departments. However, there were some sites where multiple trainees expressed dissatisfaction through the appropriate reporting routes and found nothing changed. In an extreme case it was reported that more than one trainee in the same department had left their post due to the poor quality of training and supervision.

8.21 The lack of either development support or the threat of sanctions for sites that consistently under-deliver against fundamental measures of training quality can send a message that the quality of training does not really matter. Sites that do not support their trainees should not be awarded trainees on an ongoing basis.

Trainee satisfaction varied but more ISTs were satisfied overall than were dissatisfied

8.22 Trainee satisfaction is an important metric reflecting both the rationale for the IST pilot and a measure of quality. Trainees reported mixed levels of satisfaction overall, with some extremely satisfied, others very dissatisfied. Across the IST cohort, more were satisfied than were dissatisfied.

8.23 Benchmarking generated the most dissatisfaction. A gateway process during run through was thought to be useful, but ARCP was perceived to lack sufficient rigour to perform this function. Consequently, it was proposed that participation in national selection should be required to ensure trainees achieved an acceptable threshold. However, trainees argued that if they were going through national selection then they were not on run through, and that this didn't align with their expectations on applying for an IST post. The issue was resolved with the cancellation of national selection for all candidates as part of the pandemic response, but the issue tainted the training experience for many IST trainees. The timeliness of communications and decision making regarding this further compounded trainee concerns.

The focus on trainer support was valued

8.24 The trainer bootcamps were an effective way for those who could attend to raise awareness of the expectations of trainers and supervision aligned with the IST principles. However, attendance was optional.

8.25 Trainers were not all allocated their PA allowance in all sites. Trainees were typically not meeting their trainer on a weekly basis, but this was not seen as problematic as long as they could see them when they needed to (either informally or formally). The quality of supervision was considered by trainees to be more important than ensuring weekly meetings.

Simulation could be further embedded in training programmes

8.26 In Scotland all general surgery trainees attended training bootcamps that included some simulation training. They also all were loaned laparoscopy boxes. In England and Wales most sites found it difficult to offer trainees simulation training as described in the IST prospectus. Trainees and trainers tended to regard simulation as a poor substitute for time in theatre or clinic rather than as a valuable learning experience in its own right to develop skills prior to practice in the workplace, or to hone or refresh them.

8.27 One of the challenges for sites is to resource simulation facilities on hospital sites (either in terms of finance or space). Some trainees reported they valued simulation training that had been offered through HEE regional teams, although access to this was more limited. Creation of simulation training programmes for multi-professional teams at a regional facility was proposed as one way to develop this further.

Placement duration matters

8.28 HEE's London pilot evaluation suggested that a 12-month duration placement was optimal, but that two years was too long. This generally reflected practice elsewhere but there were exceptions, with some trainees enjoying the range of opportunities they had within their site. Others experienced two 12-month placements and found the contrast in experience striking - raising the question of whether it would have been better to have two years in a good training environment. This may be linked to the quality of training on offer in individual sites (and variability of this), rather than placement duration.

IST trainees made good progress with their training, with some marginal gains compared with their core training peers

8.29 In terms of trainee outcomes and based on portfolio data analysis, IST candidates on average performed better in 24 of the 25 placement work based assessments, and all 17 Multi-Source Feedback assessments. Logbook analysis shows that IST trainees across all procedure types, the average time taken to achieve a Performed procedure was slightly shorter for ISTs, by nearly 1.2

months. ARCP data showed little difference in the proportion of CT compared with IST candidates achieving satisfactory outcomes at ARCP.

8.30 In Wales there were no discernible performance differences in clinical or academic competencies, but the MRCS pass rate was seven percentage points better in the cohort of eight IST trainees (75%) than the comparator CT cohort (68%).

Trainee experiences may vary according to EDI characteristics

8.31 The evidence presented in this report talks about IST and CT trainees and does not include data on equality and diversity characteristics.

8.32 Data is not widely reported in this way, which means that EDI is not discussed in an informed or regular way. It would however be useful for partners to know what the experiences and outcomes of trainees from different backgrounds are, and whether training programmes are sufficiently flexible to accommodate those who may prefer or require less than full time posts. Monitoring should also be built into future pilots to enable exploration of any EDI implications.

The contribution of run through to training outcomes is unproven

8.33 Run through made some posts more attractive, and created the conditions for stability and longer-term relationships, and thus opened up the prospect of more personalised training programmes and accelerated progress. It was never intended that all posts would be run through posts as it is not appropriate for all candidates.

8.34 Trainees on the run through model welcomed the stability offered and saw it as particularly attractive when applying for core surgical training posts. That said, given that many of the early IST posts were in settings most committed to training in any case, it is unclear whether that additional 'carrot' was needed to encourage high performing candidates.

8.35 Furthermore, the creation of run through posts removes opportunities that would otherwise be open to a wider pool of candidates, meaning that non-IST postholders face increased competition for the smaller pool of ST3 posts remaining open to them. Run through also creates rigidities in the workforce planning system, as the run through commitment can last for seven or eight years (or indeed longer), limiting the scope for flex in line with evolving service demand needs.

IST: Lessons from what worked well

Design

- IST principles are considered sensible and appropriate by key stakeholders
- Longer placements created better relationships within surgical teams, with one-year placements typically seen as optimal
- Training programme design to facilitate training with careful management of placements and rotations to ensure full coverage of curriculum requirements
- Balancing training time with service delivery and ensuring that learning is reflected and captured from both
- Sufficient PA allocation to support training in practice - and for employers to signal the importance of quality training
- Run through attracts trainees who are committed to their specialty, can help to build relationships with supervisors and others, and enable trainees to focus on further developing competences rather than preparing for national selection.

Delivery

- Bootcamps were well received and seen as useful by those trainers who attended
- Learning agreements between trainers and trainees, setting out mutually agreed expectations
- Fully staffed rotas with use of locums or other members of ESTs to fill gaps and protect training time
- Proactive academic and clinical supervisors who:
    - gave their trainees sufficient time, but not necessarily weekly
    - supported trainees with creating the clinical opportunities needed for progression
    - were available to trainees when they were needed
    - fostered relationships underpinned by mutual respect
    - provided constructive clinical training and career advice
    - understand (and can guide trainees regarding) the curriculum requirements
    - provide regular feedback

- Access to simulation and an expectation that trainees would use available resources
- Opportunities for trainers to train with peers from different sites either at bootcamps or via online training
- The focus on achieving IST principles in some sites worked well – particularly those where quality surgical training was already prioritised
- FS2 trainee awareness of (and willingness to consider a training post in) IST increased as the pilot progressed.

IST: Lessons from what worked less well

Design

- The self-selecting nature of the pilot meant that those sites already committed to quality training and/or well placed to implement IST principles were more likely to engage, meaning those sites with poorer training cultures or performance could avoid the pilot or making improvements to training practices
- Communication and clarity regarding benchmarking
- There are perceived shortcomings regarding use of ARCP as a gateway assessment tool which informed the IST design
- Awareness amongst those in (IST and non-IST) sites regarding IST principles and expectations was variable, and in some cases lacking
- Limited involvement of employers in IST pilot governance
- Private hospitals delivering NHS work during the pandemic rarely offered training opportunities for core surgical trainees
- Trusts failed to allocate PA training time to all trainers, and some of those receiving enhanced PA time were unable to utilise it due to service demands
- Run through limits opportunities for CT trainees to progress to ST3, and limits adaptability of workforce planning in response to changing service demands
- The lack of focus on EDI monitoring data to inform decision making risks inequalities emerging
- Additional resources were unavailable to pilot sites in England compared with both Scotland (which secured additional government funding) and Wales (which focussed available resources on three sites).

Delivery

- The Covid-19 pandemic hugely affected training experiences, and experiences and opportunities during the peak varied for trainees across different sites
- Limited alternatives were offered for IST trainer training other than bootcamps
- Placements with consistently poor trainee feedback continued to be allocated trainee posts. This includes IST sites who were not adhering or demonstrably working towards achieving IST principles, but were able to continue offering IST posts
- Trainers in some cases did not deliver training that met the needs of individual trainees or aligned with their expectations at application. This applied to some IST as well as some CT trainees
- System buy in was not evident consistently, despite IST principles being largely welcomed as sensible
- There is no evidence that IST led to improvements in training in poorer performing sites
- Quality of training depends on the resilience and self-sufficiency of the trainee in some cases, and depends on the culture and prioritisation of quality training by the site and trainer. Training quality and experience remain variable as a result.

9. Recommendations

9.1 The following recommendations are informed by study findings and conclusions and have been grouped into key themes.

Recommendations for governance and management

Recommendation 1. Maintain the Improving Surgical Care Assurance Board to continually improve surgical training, and involve employers in dialogue

9.2 ISCAB should be sustained with membership to reflect key stakeholder groups. Members of the Board should discuss with employers improvements to surgical training as part of an ongoing professional development dialogue. Training to meet the needs of the current and future workforce must be at the heart of service provision and resourcing discussions.

Recommendation 2. Implement a communication strategy to maintain and build on IST progress

9.3 Stakeholders broadly agreed that the early stages of the IST pilot involved planned communications and information. However, not all staff within surgical units were fully aware of what IST meant or involved. Any future developments to improve surgical training should embed a communications strategy to reach all those directly and indirectly affected. Introducing IST Champions (or similar) may help with disseminating messages at different levels across the workforce.

Recommendation 3. The evidence indicated that run through posts should only be offered where clear criteria are met:

- A proven and urgent need for this specialty (and end grade) in the workforce
- A personalised training programme (conforming with the curriculum and aligned with the context) is devised to accelerate trainee development.

Recommendations regarding the use and capture of evidence and data

Recommendation 4. The development of (and learning capture from) EST should continue

9.4 Focus on consistency of job role descriptors, to ensure that postholder contributions as both service providers and learning facilitators are recognised. There is also a need to ensure that consultants appreciate the training and job roles of EST members, so that their contribution to service delivery and training can be maximised. Resourcing for ESTs should consider not just the costs of employing the posts, but also the time required to effectively develop postholders. Sharing learning emerging from the current EST pilot will likely prove key to this.

Recommendation 5. Monitoring trainee progress by EDI characteristic should routinely be reported

9.5 This is to ensure that any issues pertaining to inequalities of experience or outcome are identified so that positive action can be taken.

Recommendation 6. Design future pilots to generate evidence of effects

9.6 Pilot interventions for workforce development should be designed with discrete and clearly articulated objectives, to enable assessment of their effects.

Recommendation 7. Agree data sharing protocols based on informed consent to facilitate evaluation

9.7 GDPR necessitates informed consent for personal data to be shared. In future similar programmes where evaluation is anticipated, we recommend building requests for trainees to consent to evaluation research into existing recruitment or induction processes. Evidence of informed consent should be maintained and refreshed periodically.

Recommendations for resource allocation

Recommendation 8. 'Good' training sites should be allocated training roles

9.8 Sites that meet training quality criteria and consistently achieve good progression or examination results should be offered the number and type of specialty training places that they can accommodate. Sharing learning and good practice to inform practice in other settings is also recommended.

Recommendation 9. Poor training sites should be offered support to improve, with mechanisms in place for training posts to be removed

9.9 Sites that do not meet training quality criteria, and/or have consistently poor feedback from trainees, should be offered support and guidance to improve. If improvements are not forthcoming, we recommend training roles be withdrawn.

Recommendations for trainer/supervisor support

Recommendation 10. Different modes of trainer training should be offered

9.10 A blended offer of digital and face to face training to align with participant preferences and availability should be offered by either regional or national teams. We recommend considering whether to mandate aspects of trainer training, to support the adoption of key principles or ways of working.

Recommendation 11. Trainers should receive training CPD for PA allocation

9.11 Trainers should understand current curriculum requirements including use of the portfolio. CPD can include peer support and reflection, providing opportunities for trainers to share practical tips as well as space for reflection.

Recommendation 12. PA allocation should be linked to number of trainees

9.12 Trusts need to resource training in ways that are transparent and equitable. We recommend guidance regarding PA time be provided linked to trainee numbers, with feedback to explore the extent to which trainers can use allocated time.

Recommendations for delivery of training improvements

Recommendation 13. Training programmes should have one year placements with careful management of rotations

9.13 Placements of at least one year enable trainees to build relationships with supervisors, understand systems and manage their competence development.

Recommendation 14. Rotas should balance training time with service delivery

9.14 Service delivery should be recognised as an important element of learning in its own right, but it needs to be effectively managed to ensure space is reserved for on and off-site training, supervision, use of simulation resources and scheduled time in theatre. Local solutions for a 1 in 10 rota or the 60% training time equivalent need to be devised.

Recommendation 15. Continue to ensure that learning agreements are formulated early in a trainee's appointment

9.15 Learning agreements provide a useful way to record mutually agreed expectations from the outset. Emphasising the importance and benefits of these may prove useful in encouraging consistent development of agreements.

Recommendation 16. Trainers should proactively create training opportunities where gaps emerge in logbooks or curriculum requirements

9.16 In many cases trainees managed this process themselves by requesting theatre time, but this has not always been possible. We recommend emphasising the key role trainers can (and should) play in this going forward.

Recommendation 17. Trainees should have access to simulation facilities - and trainers should require that they are accessed

9.17 Simulation should be seen as an integral and essential part of the trainee experience. This requires effort to change the culture regarding simulation, as well as practical steps to enable access to high quality simulation resources.

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