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Better Training Better Care

Health Education England and NHS Employers

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Acknowledgements

The report was written by Christina Theodore, Priya Oomahdat and Clive Pritchard (Matrix Knowledge – TMKG Ltd) with contributions from expert advisors Janice Steed, Professor David Welbourn and Dr Duncan Empey.

We would like to thank everyone who has supported the research and development of this report. This includes, but is not limited to, the Better Training Better Care (BTBC) Programme team, the trust pilot projects, NHS Employers, the BTBC Taskforce, Health Education England, and our other partners and stakeholders who have contributed along the way – we hope you find the evaluation valuable and that the learning will be shared to support positive change on the front line.

Foreword

Health Education England

Health Education England's Better Training Better Care (BTBC) programme was established in 2011 to deliver on the key recommendations of Sir John Temple's *Time for Training* and Professor John Collins' *Foundation for Excellence*. The programme was designed around nine distinct workstreams, the first of which focussed on supporting NHS trusts to implement pilot projects to improve education and training, and, as a consequence, improve patient safety. This report sets out what these trusts achieved through their projects: the benefits that were realised and opportunities that have arisen, as well as any challenges and lessons that have been learnt along the way.

The projects were evaluated against three key Temple recommendations of making every moment count for training and education, ensuring there is appropriate supervision and ensuring that service delivery explicitly supports training. Sixteen pilot projects were selected from 96 national bids to test these recommendations, and they have evolved into something much bigger and better than we could have hoped for.

The projects were originally established as a formative approach to change, although we sought to ensure some rigour to allow both qualitative and quantitative analysis. We asked NHS Employers to lead the evaluation of these projects to ensure a level of independence. Consequently, Matrix Consulting was commissioned to undertake the formal evaluation leading to this report.

It is edifying to read about the positive impact these projects have had on culture and behavioural change for doctors in training, trainers and patients. By putting more structure into medical education, the evaluation results show that this in turn created positive change for clinical practice, engagement and communications increased with multi-professional teams, unanticipated efficiency savings were made, and most importantly, the quality of service and the safety of our patients improved.

We have been delighted by the ongoing interest in the programme from the Directors of Education and Quality in our Local Education and Training Boards (LETBs), Postgraduate Deans, Directors of Medical Education, employers and the enthusiasm of so many trainees. Emerging technologies have brought about great innovation and change and we are heartened that our future workforce is enthusiastic, engaged, inspired and self-motivated to make a real difference. This has been evident throughout the pilot projects and also through our trainee Inspire Improvement Programme where a number of trainees have introduced their own quality improvement projects in the workplace. Through the powers of social media and the network channels they present, many of these projects have gained a huge amount of interest on their own accord, which is something we had not envisaged at the beginning. This change to the way we communicate and engage has evidently brought about new ways of working and it is exciting to see the positive impact this can have to support innovation and change.

On behalf of the BTBC team and Health Education England, we would like to thank our Taskforce and NHS employers for their support and advice, the trusts for their dedication and ability to deliver alongside competing service demands, our partners and stakeholders and everyone who has contributed along the way – the learning that has been identified will be invaluable to others across the NHS.

Our next steps involve sharing these learnings with wider organisations and supporting the national spread of these projects across multi-professional teams. The fact that many of Temple and Collins fundamental recommendations are still relevant today and represented in reports from Professor Don Berwick, Robert Francis, and Professor David Greenaway, demonstrates that these issues remain at the heart of delivery of service and education and the importance of continuing this change journey.

We look forward to working with you as we continue to strive towards excellence in education and training to improve our workforce and the quality of service we provide, for the safety of our patients.

Sir Jonathan Michael FRCP

Chair of the Taskforce – BTBC Oxford

University Hospitals NHS Trust

Patrick Mitchell

Director of National Programmes

Health Education England

NHS Employers

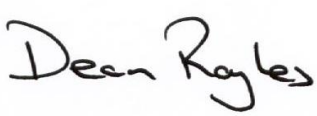
Through our involvement in the evaluation of the Better Training Better Care (BTBC) pilot projects, the NHS Employers organisation has been able to see exactly what individual employers can achieve when given the right incentive and environment to create positive change.

In setting out to improve the delivery and quality of postgraduate medical training, these pilot projects have not only achieved that aim, but, more importantly, have also increased engagement among trainees and among other members of the multidisciplinary team, and have successfully improved services for patients. There has been a growing area of research in the NHS showing the links between good engagement and training, and these projects have demonstrated clear impacts from improvements made in these areas.

The challenge for employers, educational supervisors and trainees is now to make some of these initiatives part of the everyday life of doctors across the NHS, and rapidly. Our evaluation report clearly spells out the evidence base needed to support this change. We, as employers, can help to ensure the environment supports it locally.

Organisations will want to look seriously at whether their change projects have the sound footing of the critical success factors that supported the positive results seen in the pilot projects. If they don't have these, they need to act quickly to make sure they are in place at every level of the organisation.

Our participation in this project has helped us to identify where employers can create the most impact on improving medical training and I would like to thank Health Education England (HEE) for involving us as their partner on this programme. And, as we move on to the next steps for BTBC, NHS Employers are looking forward to continuing this relationship by supporting HEE and clinical leaders to spread the learning from the pilot projects over the next 12 months. We will share the tools, experience and knowledge that will help the NHS deliver even better results for our current patients and our future doctors.



Dean Royles

Chief Executive

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Executive Summary

Introduction

The Better Training Better Care (BTBC) programme aims to improve the quality of training for doctors in training, and thereby improve the quality of patient care by enabling the delivery of the key recommendations from Time for Training, Foundation for Excellence and other related reports.[1] The programme consists of nine workstreams in total, which together aim to deliver on this objective. This evaluation looks at workstream 1 – local implementation and pilot projects, relating to the local implementation of pilot projects to address 3 out of the 5 key recommendations arising from the Temple review:

- Appropriate supervision, and/or implementing a consultant present service
- Service delivery must explicitly support training
- Make every moment count

BTBC conducted an assessment of 96 proposals submitted by various NHS Trusts across England. Sixteen Trust sites were selected to be supported by the BTBC programme in their implementation of pilot education and training initiatives across a variety of topics and departments. The 16 pilot projects were wide ranging, covering a number of areas. These were:

- Handover/ care transition;
- Out of hours and 24/7 services;
- Technology and simulation to enhance training and education;
- Communication and quality improvement;
- Front door / A&E;
- Patient rotas and scheduling; and
- Multi-disciplinary working.

Matrix was commissioned to evaluate the implementation of the pilot projects and their impact on doctors in training, trainers, patients and services; to assess the financial implications of the pilot projects; to evaluate whether pilot projects met the objectives for which they were awarded funding and how they met at least 1 of the 3 Temple recommendations mentioned above; and to draw on the findings to outline a recommended approach for spread and adoption outlining key enablers of success.

Methodology and approach

A theory of change approach was used for the evaluation to identify the following key questions: Should it work? Can it work? Does it work? Is it worth it? Is it sustainable? Is it adoptable? There were three aspects to the evaluation in order to answer the above questions: a process evaluation to look at how the pilot projects were implemented; an evaluation of the impact of the pilot projects; and an assessment of the financial implications, including cost savings and return on investment implications.

Phase 1 of the evaluation ran from February to May 2013. A document review exercise was conducted to identify the inputs, outputs and outcomes expected for each pilot project. A series of interviews was conducted with project leads and BTBC relationship managers to 'plug' any information gaps. An interim report was published with early findings in the implementation process, including critical success factors and lessons identified in the design and implementation of the pilot projects. In Phase 2 of the evaluation, carried out from August to November 2013, analysed outcome data were collected for each of the 16 pilot projects. A series of qualitative enquiries was conducted with pilot project leads, and a workshop was held to capture the perspective of doctors in training linked with the pilot projects.

[1] *Temple, John Time for Training: A Review of the Impact of the European Working Time Directive on the Quality of Training,*. London: Medical Education England,2010; Donaldson, Liam *Unfinished Business: Proposals for reform of the Senior House Officers Grade.* London: Department of Health, 2002; Department of Health *Modernising Medical Careers: The Next Steps: The Future Shape of Foundation, Specialist and General Practice Training Programmes.* London: Department of Health, 2002; Collins, John *Foundation for Excellence: An Evaluation of the Foundation Programme.* London: Medical Education England, 2010; Wilson, Ian *Maintaining Quality of Training in a Reduced Training Opportunity*. London: MMC Programme Board Task and Finish Group on Quality, 2009.

Findings

Overview

The pilot projects designed solutions to improve medical education of doctors in training, for instance by changing rotas to increase opportunities to train or be supervised; using technology to increase supervision or consultant input; drawing on the wider multidisciplinary team to support trainee development; developing the handover process; and, incorporating training elements in current systems and processes.

The evaluation found that the pilot projects were viewed positively by doctors in training, trainers and consultant supervisors. For doctors in training, the ability to attend training sessions, the presence of consultant input, and the support from the wider team are some of the aspects that had a positive effect on them; while trainers and supervisors were positive about their increased ability to supervise doctors in training, and the ability to identify and support development of doctors in training.

The aim and emphasis of the pilot projects were to improve the skill and knowledge of doctors in training through the restructuring of medical training, which would, in the medium-to-long term, improve patient care. A number of pilot projects provided indications and evidence of improvement to patient safety and care; with four pilot projects providing quantitative data on the impact on patient care, for instance reduced length of stay and increased weekend discharges.

Other outcomes observed were improvements to:

- the handover process
- out-of-hours working
- multidisciplinary team working, with the doctor in training integrated and supported by the wider team.

Below is a summary of the main findings from the evaluation. The pilot projects were assessed on the original objectives against which they were awarded funding, including whether they met at least 1 of the above mentioned Temple recommendations. This section will be followed by a summary of the findings in respect of the benefits and outcomes to doctors in training, trainers and patients, and an assessment of the financial implications of the pilot project. The last section will summarise the assessment on local spread of the pilot project to other departments followed by recommendations for national spread drawing on the findings from the evaluation.

Assessment against objectives

Across the 16 pilot projects, the evaluation found varying degrees of success against the objectives, with more than half of them demonstrating a high level of achievement. Two of the pilot projects experienced significant issues with the implementation process and were therefore unable to sufficiently meet their objectives at the time of this evaluation. For other pilot projects, there was insufficient information to demonstrate that all the objectives had been met.

Links to Temple recommendations

The pilot projects were assessed on how they linked to 3 out of the 5 key Temple recommendations. The findings indicate that most of the pilot projects have addressed more than 1 of the 3 recommendations, and this was achieved by varying models of training. Specific areas within each theme that were most common or frequent across all pilot projects include:

- increasing the amount of supervision or supervised activity
- increasing the amount of supervision or supervised activity
- making every moment count to increase mentoring and support for trainees

This has demonstrated ways in which innovation in education is able to align with national recommendations and improve the quality of medical education, adhering to the European Working Time Directive, to improve ultimately patient safety and care.

Assessment of impact

Fourteen of the 16 pilot projects were able to demonstrate benefits and outcomes to doctors in training in terms of improvement in skills, knowledge and confidence, ability to attend training and to complete workplace-based assessments and increase productivity. One of the ways this was achieved was through improving the amount of supervision by increasing the opportunities for consultant input, drawing on the multidisciplinary team to mentor and support trainees, increasing the amount of supervised activities, and reorganisation of roles to include more supervision. Other ways that the skills of doctors in training were improved were by means of dedicated training sessions or increased opportunity to attend training sessions.

Thirteen pilot projects were able to demonstrate an impact on trainers, for instance facilitating the ease of supervision; allowing more opportunity for supervised activities; enabling ease of identification of trainees' development needs; and allowing trainers to be developed in areas like facilitation and the use of specific technology and software.

Twelve of the pilot projects were able to demonstrate, by means of qualitative and quantitative data, an impact on patient care and safety. At this stage in the process, it might not have been possible for all pilot projects to demonstrate (by means of quantitative data) an impact on patient care and safety.

However, 4 of the pilot projects have had positive impacts on services and patient care, as demonstrated by an increased rate of weekend discharges, a reduction in the length of stay, and reduction in the time taken to treat patients. For other pilot projects, qualitative data from focus groups or clinical supervisors, based on their experience and observations, showed that the pilot project had improved patient care, safety and time to treat. This was achieved through various ways, such as increasing consultant presence in treatment and in handovers, improving knowledge around quality improvement methodologies, increasing knowledge around serious incidents and prescribing.

Other outcomes demonstrated include improvement to the hospital at night, delivering 24/7 care or a consultant-led service, and improving multidisciplinary team working.

While the pilot projects were not designed to deliver any cost savings, the changes in medical education and resulting change in culture and the service delivery environment have had an impact on patient care and safety-related cost savings. Using a mixed approach of the pilot project's own outcome data and literature evidence, the evaluation was able to quantify the financial implications for 11 of the pilot projects; presenting a cost savings value for some, and, for others, determining a point at which the specific activity will break even on the cost of the pilot project.

Assessment of implementation

The process evaluation produced a set of factors that was critical to the success of the pilot projects, and identified lessons learnt during the design and implementation process. Stakeholder commitment and engagement is an essential element to the success of the pilot project. This encompasses:

- Trust support to improve engagement, address issues in implementation, and support or drive the spread and adoption of the pilot project
- clinical leadership to champion the pilot project and improve engagement
- doctors in training and other participants to commit and engage with the pilot project
- the multidisciplinary team to support the doctors in training and the pilot project in its implementation phase.

A recurrent factor throughout the implementation was the availability of time to engage with the pilot project, in light of service commitments. This was expressed by both doctors in training and trainers. The evaluation also identified the need to engage with senior Trust members, doctors in training and academic partners earlier on the design phase to ensure continuous support, improve engagement and uptake, and allow identification of appropriate outcome measures.

Local spread and adoption

The aim of the BTBC programme is to create a legacy of innovative ways in improving medical education. As such, ensuring pilot projects are sustainable and adoptable is an important aspect of the evaluation. Eleven of the 16 pilot projects had already taken steps towards initiating adoptability across other Trusts or departments, by means of identifying or developing resources that 'adopters' would need to implement the pilot project. Three of the pilot projects have already achieved local spread to other departments and/or other hospitals within the Trust, while others have had interest from neighbouring Trusts. For at least 4 of the pilot projects, other Trusts wanting to adopt and replicate these outcomes in their own local setting, would be able to use the existing resources or software developed without the need for significant set-up costs.

The recommendations for national spread and adoption are summarised as follows.

Recommendations for national spread and adoption

Based on the findings of the evaluation, a differential approach for spread and adoption was recommended. This approach takes into account the differences in success of implementation and outcomes achieved by the pilot projects. As such, pilot projects have been grouped into those that:

- have been implemented and were able to demonstrate significant outcomes
- have the potential to deliver significant outcomes but require further testing
- require additional support in implementation before they can achieve early indicators of outcomes.

This differential approach will form the basis for a series of spread and adoption activities. As part of the national spread and adoption campaign, the outcomes have been used to shape opportunities for spread and adoption to promote the pilot projects as ways to address national agendas..

1.0 Introduction

1.1 Aim of the final report

Health Education England (HEE) commissioned NHS Employers to oversee the evaluation of all the workstreams in the Better Training Better care (BTBC) programme, and Matrix Evidence was subsequently appointed to undertake the evaluation of the NHS Trust pilot projects (workstream 1).

This evaluation aims to assess whether pilot projects have achieved their stated aims and objectives, whether they meet the recommendations against which they were awarded funding and to explore how some had initiated adoption of the pilot projects across the individual Trusts. Findings from the evaluation will be used to identify which pilot projects offer the potential for adoption of similar schemes elsewhere within the NHS.

This final report covers the evaluation and builds on the findings set out in the interim report. It presents:

- the framework adopted for the National Evaluation (i.e. theory of change) and summarises the methods employed to deliver the project scoping phase and the evaluation of workstream 1 – local implementation and pilot projects
- a narrative around the achievement and successes the pilot projects experienced in terms of benefits to doctors in training, trainer benefits and patient outcomes, illustrating these, where possible, with examples of qualitative and quantitative data
- an assessment of the cost savings or financial impact that each of the 16 pilot projects represent
- the key findings from the pilot projects in terms of critical success factors that affected the implementation of the pilot project
- an indication of sustainability and local spread beyond the BTBC-funded scope
- an indication of the lessons identified during implementation to be able to feed into the wider adoption plan
- an overview of how the pilot projects initiated local spread and adoption
- recommendations for the spread and adoption of the pilot projects, identifying factors critical to success for spread and adoption.

1.2 Background

Good training and education of health care professionals is essential for the effective delivery of high quality health care, contributing to efficiencies in health care provision, and improved patient outcomes and experiences. The quality and adequacy of training is dependent on a number of factors, including the suitability of training mechanisms, resource availability, identification of training needs and alignment with training provision. The publication of the Chief Medical Officer's report *Unfinished Business* in 2002 highlighted inadequacies in the existing experimentally based and unstructured training and education systems for doctors in training, and proposed that a new framework for training be created.[2]

This brings postgraduate medical education and training for doctors in line with the needs of a modern National Health Service (NHS).[3,4] The Modernising Medical Careers (MMC) programme implemented the Foundation Programme in 2005 – a new 2-year structured postgraduate training programme followed by up to 8 further years of specialist training to become eligible to enter the specialist of General Practitioner (GP) register.[5]

In addition to the above changes in the NHS, doctors were also affected by the implementation of the European Working Time Directive (EWTD) from 1 August 2009, which restricted the number of hours that could be legally worked in a year: laying down a series of policies, including minimum requirements in relation to working hours, rest periods and annual leave, and limiting doctors in training to a maximum of 48 hours a week averaged over a 6-month period.[6] In terms of training and education this meant that doctors were expected to achieve the same level of training in fewer hours.

In 2009 the Secretary of State commissioned Medical Education England (MEE) to ascertain the impact of the newly imposed EWTD on postgraduate medical education and training, and to evaluate the early years of the new Foundation Programme. In 2010, Professor Sir John Temple published *Time for Training*,[7] his review into the impact of the EWTD on the quality of training for dentists, doctors, health care scientists and pharmacists.

In his review, Temple concluded that high-quality training can be delivered in reduced hours provided that trainees do not have a major role in out-of-hours service, are well supervised and that there is good access to training. He emphasised that high-quality training leads to professionals who deliver high standards of safe patient care, but recommended that the traditional experiential model of learning had to change; consultants needed to take responsibility for, and be more directly engaged in, the delivery of care. *Time for Training* called for better use of the expanded consultant workforce, not only to ensure improved training for doctors in training, but also in terms of efficiency savings for the service and for enhanced safety and higher quality care for patients.

Professor John Collins was commissioned to evaluate the Foundation Programme, specifically focussing on the needs of patients and foundation doctors, and the changing context of social care, health service and the education environment, as well as the regulatory environment.

His 2010 review *Foundation for Excellence*-[8] echoed and built on Temple's report and identified Trusts that were adapting well to the changes in practice required to cope with reduced working hours. However, the review also highlighted concerns that in some cases foundation doctors were expected to practise beyond their level of competence, and sometimes without appropriate or adequate supervision.

The reports of Temple and Collin reflect the findings of an earlier report commissioned by the MMC board on how reduced training opportunities impacted on the maintenance and quality of training. In his 2009 review *Maintaining Quality of Training*[9] Dr Ian Wilson focussed on the need for benchmarking standards and incorporation of training and education into service delivery, funding mechanisms and everyday practice to meet the needs of trainees and trainers, and health care, education and commissioning providers.

All 3 of these reports made clear that a multifaceted approach to training of foundation doctors needed to be taken. This approach needed to be coordinated across a variety of organisations to address the issues raised around the standards, quality and monitoring of training and education for both trainees and trainers. As such, a range of broadly encompassing actions and tools were identified and recommended as part of the regulation, delivery and evaluation of training and education. These included:

- incorporating training and education into service delivery, funding mechanisms and everyday practice

[2] Donaldson, Liam *Unfinished Business: Proposals for Reform of the Senior House Officer Grade.* London: Department of Health, 2002.

[3] Department of Health Modernising Medical Careers: *The Response of the Four UK Health Ministers to the Consultation on Unfinished Business: Proposals for Reform of the Senior House Officer Grade.* London: Department of Health, 2003.

[4] Department of Health *Modernising Medical Careers: The Next Steps: The Future Shape of Foundation, Specialist and General Practice Training Programmes.* London: Department of Health, 2004.

[5] Modernising Medical Careers NHS Speciality Training, *http://www.mmc.nhs.uk/specialty_trainingspecialty_training_2010_finalintroduction_to_training/training_structure_2010 .aspx* (accessed 21 May 2013).

[6] NHS Employers. *European Working Time Directive, http://www.nhsemployers.org/PlanningYourWorkforce/MedicalWorkforce/EWTD/Pages/EWTD.aspx* (accessed 22 May 2013).

[7] Temple, John *Time for Training: A Review of the Impact of the European Working Time Directive on the Quality of Training,* London: Medical Education England, 2010.

[8] Collins, John *Foundation for Excellence: An Evaluation of the Foundation Programme.* London: Medical Education England, 2010.

[9] Wilson, Ian *Maintaining Quality of Training in a Reduced Training Opportunity.* London; MMC Programme Board Task and Finish Group on Quality, 2009.

- developing planning and monitoring mechanisms
- reviewing existing practice
- revising rotas, job contracts and reconfiguring services
- implementing a consultant-delivered service
- embracing multidisciplinary working
- ensuring appropriate mentoring and support mechanisms
- using technology in a coordinated and integrated manner
- training, accrediting and supporting for trainers
- involving foundation doctors
- revising curricula and required placements
- building flexibility into the Foundation Programme and into rotations
- revising training duration based on evidence
- ensuring value for money.

1.3 The Better Training Better Care programme

The BTBC programme was created under the auspices of MEE and was designed to deliver nationally on the key recommendations from Time for Training and Foundation for Excellence, with the aim of improving the quality of patient safety and care; reducing the risks associated with reduced available hours from the EWTD, through the provision of high-quality postgraduate medical education, training and learning.[10] The programme transitioned to HEE - set up in shadow form in October 2012.[11]

HEE mapped the recommendations of both reports into the BTBC programme, creating 9 workstreams for delivery through 2 overlapping elements:

1. **Local elements:** The identification, piloting, evaluation and dissemination of good education and training practice, being delivered through :
    i. Local implementation and pilot projects

2. **National elements:** Improvements to curricula and the underpinning education and training frameworks to ensure training is fit for the purpose of providing safe, effective and improved patient care. This is being delivered through 8 workstreams focussing on the following areas:

    ii. role of the trainee
    iii. role of the trainers
    iv. workforce planning
    v. improving careers guidance and availability
    vi. integrated technology enhanced learning
    vii. broadening the Foundation Programme
    viii. regulatory approach to supporting BTBC
    ix. funding and education quality metrics

A description of these workstreams can be found in Appendix 1, section 6.0.

A major element of the BTBC programme was the local implementation of the pilot projects – workstream 1. In December 2012 an event was held to inform interested Trusts on the 'Local Implementation and Pilot' phase, and invite them to submit proposals focussed on 1 or more of the 3 key Temple recommendations outlined below.

Appropriate supervision, and/or implementing a consultant present service:

- consultants directly involved in 24/7 care
- appropriate supervision using multidisciplinary teams
- clarity about role and capabilities of foundation doctor
- transfer of information about foundation doctors
- addressing concerns about foundation doctors.

Service delivery must explicitly support training:

- service redesign to deliver high-quality patient care and training (e.g. 24/7 care, hospital at night)
- relationship with commissioning of clinical services
- job planning and tailoring clinical sessions to allow for training
- multidisciplinary team-working to support training.

[10] Health Education England *Better Training Better Care*, http://hee.nhs.uk/work-programmes/btbc/ (accessed 24 July 2013).

[11] The Health Education England Establishment and Constitution Order 2012. SI 2012 1273, http://www.legislation.gov.uk/uksi/2013/1197/pdfs/uksi_20131197_en.pdf (accessed 24 July 2013).

Make every moment count:

- handover
- technology enhanced learning
- mentoring and support for foundation doctors
- foundation doctors involved in planning and innovation
- mentoring for newly appointed consultants
- foundation doctor choice about training

Ninety six proposals were submitted for assessment, 16 of which were chosen in a competitive assessment process where proposals were evaluated for the ability to demonstrate:

- qualitative and quantitative outcomes and measurables that would improve the quality of training and patient care and safety
- the existence of Trust Board support
- the sustainability and adoptability of projects
- affordability and appropriate use of funding

Approved pilot projects were wide-ranging, covering a number of areas as follows:

- specialties: including emergency medicine (A&E), psychiatry, surgery and infectious diseases
- key aspects of good clinical care delivery: including clinical handover, communication skills in consultations, prescribing, improving confidence in psychiatric decision making and serious incidents
- training delivery methods: including the use of new technology, simulation for training, re-structuring and creation of new processes and rotas, quality improvement projects and telemedicine.

Each of the 16 successful pilot projects was supported by one of four regional BTBC Relationship Managers who met regularly with the pilot project teams and attended pilot project Board meetings.

Matrix was commissioned to:

- evaluate the implementation of the pilot projects and identify critical success factors and lessons identified;
- evaluate the impact of the pilot projects to doctors in training, trainers, patients and services as well as identify unexpected outcomes;
- assess the financial implications of the pilot projects;
- evaluate whether pilot projects met the objectives for which they were awarded funding; including assessing whether they met at least one of the three Temple recommendations; and
- identify critical success factors and recommendations that would enable the national spread and adoption of the pilot projects.

Table 1.1 provides a summary of the individual pilot projects mapping them across key areas or themes provided by the BTBC programme team, with 11 of the 16 pilot projects mapped against more than one theme. This is followed by Table 1.2 providing a description of the pilot projects.

Table 1.1 Summary of pilot projects against themes

	Handover/care transition	Out of hours/24/7	Technology and simulation to enhance training and education	Communication and quality improvement	Front door/A&E	Patient rotas and scheduling	Multidisciplinary working
Airedale and Western Sussex	✓		✓	✓			✓
Dudley Group							✓
East Kent	✓	✓				✓	
East London			✓				
Guys and St Thomas'						✓	
Heart of England			✓				✓
King's College					✓		✓
Leeds Teaching			✓				
Leeds and York Partnership	✓		✓	✓		✓	✓
Mid Cheshire	✓		✓				
North Bristol			✓				
Pennine EPIC			✓		✓		
Pennine handheld	✓		✓				
Royal Berkshire				✓			✓
South Manchester			✓			✓	✓
Tees, Esk and Wear Valley				✓		✓	✓

A&E, Accident and Emergency; EPIC, Emergency Physician In-house Challenge.

Table 1.2 Description of the 16 pilot projects

	Pilot site	Description
1	Airedale NHS FT and Western Sussex Hospitals NHS FT	The aim is to show telemedicine can be used over large geographical distances to: 1. Deliver direct patient care in out-of-hours and elective (satellite clinics) settings 2. Deliver training to health care professionals 3. Maximise training opportunities by using a network of hospitals for shared training This is being delivered in 3 main locations and over 4 sites, with each main site focussing on different aspects of the objectives.
2	King's College Hospital NHS FT	The RAT system places a senior clinician at the beginning of the patient journey in the 'Majors' area of A&E, enabling early decision making and thus improving the quality of care and reducing the length of time spent in the ED. RAT+ places 2 consultants in the patient journey: one as part of the initial assessment team and the other working with doctors in training in the 'Majors' area, supporting their decision making, training and development.
3	Pennine Acute Hospitals NHS Trust (EPIC)	EPIC was designed as a 'game': doctors in training receive weighted credits for specific types of clinical work, WBAs, procedures and teaching. Doctors in training can access results to check their own progress and how they compare with their colleagues. They are awarded small prizes when they reach certain 'levels'. The aim is to motivate doctors in training working in A&E through competition and instant feedback, and to encourage them to engage in more formative educational learning from an earlier stage of their placements.
4	East Kent Hospitals University NHS FT	This pilot project aims to improve training by enhancing supervision out of hours and at weekends. The project involves the creation of a new service model in medicine at the William Harvey Hospital in Ashford, Kent. Learning opportunities are maximised for doctors in training by rotating them through 'hot' and 'cold' teams: under the former they treat acutely ill patients under supervision without being pulled into wards; under the latter they are focussed on maximising learning through attending clinics, observing/practicing procedures, experiencing simulated environments and WBAs.
5	Pennine Acute Hospitals NHS Trust	The aim of this pilot project was to optimise training and education by giving doctors in training in the Infectious Diseases Department networked iPads to record a brief summary of any issues, actions planned, tasks already undertaken and any follow-up or review required for each patient. The consultant will have direct and detailed access to the progress of the on-call shift and the care of individual patients so they can follow up any serious issues or educational opportunities immediately and identify areas for group training sessions.
6	Mid Cheshire Hospitals NHS FT	The aim of this pilot project is to improve clinical handover, so that patients benefit from better continuity of care and improved safety. The pilot project delivers enhanced training and education to medical doctors in training on what makes a good clinical handover, as well as introducing a new electronic handover tool on the acute medical unit. The tool enables staff to schedule and record the completion of clinical tasks electronically, patient lists, and ward and admission details. As well as supporting doctors in training with decision making and effectively recording and prioritising patients, the aim is to reduce the risks associated with paper-based handover. This was piloted on one ward before adoption by other wards.

	Pilot site	Description
7	Heart of England NHS FT	The aim of this pilot project is to enhance the transition from student to doctor, promoting excellence in safe patient care. To do this the pilot project uses an e-learning tool called VITAL. The STEPS programme provides improved mentoring during the shadowing week and support for doctors in training in difficulty. The initiative aims to 'make every moment count', using mobile technology enhanced learning, mentoring and support.
8	The Dudley Group NHS FT	The pilot project is based upon the ethos of a synergistic relationships fostered by having pharmacists and medics working and learning together, and is likely to be of huge potential benefit to training and patient care. This pilot project focusses on improving prescribing from the point of view of doctors in training and improving the understanding of the clinical context of prescribing from the point of view of young pharmacists. The idea is to get trainee/preregistration pharmacists and doctors in training learning together and developing closer working relationships on the wards as a result.
9	Leeds and York Partnership NHS FT	This pilot project focussed on a radical overhaul of the out-of-hours care pathway and working patterns to bring more doctors in training into daytime hours, where they can benefit from greater supervision and support. For doctors in training working out of hours WBAs are carried out by the multidisciplinary team so every last drop of learning can be extracted from the work that they do. The pilot project is also delivering an improved package of training focussed on enhancing key skills such as communication and clinical interviews and for undergraduate teaching.
10	Tees, Esk and Wear Valley NHS FT	This pilot project focussed on enabling doctors in training new to adult and old age psychiatry services to perform core tasks more quickly, and earlier into post. By reconfiguring posts each doctor has a 'home team' where they carry out the greater part of their clinical work and they then rotate to other teams to ensure they get access to the right mix of clinical experience. Doctors in training go through a familiarising 'green phase' followed quickly by a 'blue phase' where they complete a core list of psychiatric tasks in key areas (e.g. information gathering and processing, communications and prescribing). New processes for clinical supervisors mean they carry out WBAs with doctors in training for every patient encounter.
11	East London NHS FT	This pilot project aims to enable members of multidisciplinary teams to learn from simulated serious incidents. The training will be developed in-house using anonymised information from Trust internal serious incident reviews, which will inform the learning points included in the clinical simulation scenarios.
12	Royal Berkshire NHS FT	The pilot project 'Making Every Moment Count' aims to address the apparent gap between learning opportunities from every day recognised problems (e.g. working at the front line, from incidents or complaints) and how these translate into effective action and improvement change. Doctors in training across all specialities are encouraged to design and implement a quality improvement project with multidisciplinary team involvement to address these everyday problems.
13	University Hospital of South Manchester NHS FT	This pilot project focussed on increasing learning and training opportunities for core surgical doctors in training by creating dedicated 'BTBC surgery lists' so doctors in training could undertake a variety of procedures and all aspects of surgery from prechecks to postoperative care under direct supervision. The pilot project also delivered cadaveric skills workshops to allow doctors in training to develop skills in a safe environment and which could be transferred to the clinical setting as part of their training timetable.

	Pilot site	Description
14	Leeds Teaching Hospitals NHS Trust	This pilot project was aimed at advanced training and education in acute general surgery alongside normal surgical training through WBAs targeted to specific areas, a specially designed 'power wall' hosting an array of learning materials and cadaveric dissection to simulate surgical procedures.
15	Guy's and St Thomas' NHS FT	This modular training project was planned with rotation based on training modules, rather than traditional firm or service-focussed cover. As a pilot project, the feasibility was tested in a specific core training module. Balancing excellent service provision with delivering first class training has remained a challenge since the introduction of the EWTD and MMC in specialties such as obstetrics and gynaecology. Provision of facilities, such as StratOG (the RCOG's online learning resource), regional training programmes and local teaching programmes has addressed this issue partially in the unit. With the traditional rota, exposure to various subspecialty modules within the specialty has been luck of the draw, with a few trainees spending 6 months in a particular subspecialty such as gynaecology oncology, and a few other trainees finishing their core training without having had enough exposure to or experience in all the modules in the RCOG curriculum.
16	North Bristol NHS Trust	The Video Assisted Consultation Programme pilot project uses video recording of the consultations of doctors in training as a training tool in the outpatients department. The pilot project aims to improve training in consultation skills and to investigate the use of video-recorded consultations as a training tool for specialty doctors in training in secondary care.

NHS, National Health Service; FT, Foundation Trust; EPIC, Emergency Physician In-House Challenge; RAT,Rapid Assessment and Treatment; A&E, Accident and Emergency; ED, Emergency Department; WBA, workplace-based assessment; VITAL, Virtual Interactive Teaching and Learning; STEPS, Supporting Transition through Enhanced Personalised Support; BTBC, Better Training Better Care; EWTD: European Working Time Directive; MMC, Modernising Medical Careers; RCOG, Royal College of Obstetricians and Gynaecologists.

2.0 Approach

2.1 Approach to evaluating the pilot projects

The evaluation adopted a 'theory of change' approach to develop a better understanding of the 16 pilot projects. A theory of change sets out the relationship between the processes and objectives of proposed pilot projects and intended outcomes. Six evaluative questions were articulated in this theory of change, underpinning the innovations in the postgraduate medical training. The table below lists the six evaluative questions, a description of each one and a reference to the sections in the report that provides evidence of how these have been answered.

Table 2.1 Description of the 'theory of change' approach

Theory of change question	Description of what the question will look at	Reference to sections of the report
Should it work?	The rationale behind the pilot projects	Chapter 3, section 3.5 presents the learning from the implementation process, including findings around the rationale behind the pilot projects and key enablers that were the drivers behind the successful implementation of the pilot projects. The critical success factors are also summarised in Chapter 4.
Can it work?	What are the resources, inputs and processes – financial, human, and political – that are required to implement the pilot projects in line with theory?	
Does it work?	What evidence is there that the desired impact and outcomes are being achieved and are correctly attributed to the pilot projects in isolation of other interventions or changes that are also taking place?	Chapter 3, section 3.4 presents evidence of the impact and outcomes on doctors in training, trainers, patients and services, grouped against themes, e.g. handover, out of hours, communication and quality improvement.
Is it worth it?	Is the programme likely to be cost-effective, cost beneficial and provide value for money?	Chapter 3, section 3.4 presents an assessment of the financial implications, cost savings ability or theoretical estimate of the activity required to break even on the cost of the pilot project, grouped against themes, e.g. handover, out of hours, communication and quality improvement.

Theory of change question	Description of what the question will look at	Reference to sections of the report
Is it sustainable?	Are the pilot projects able to be sustained in light of changes in	Chapter 4 presents early indications of local spread and adoption of the pilot
	context, leadership, human/financial resources, and local and national policy drivers?	project to other departments within the Trust. The chapter also presents a summary overview of factors critical to the spread and adoption, and any barriers or learning identified.
Is it adoptable?	Ultimately, the pilot projects would want to demonstrate aspects that are adoptable in other areas of medical education across a number of providers and geographical areas.	Chapter 4 and 5 will present findings and recommendations for spread and adoption based on the findings of the evaluation, i.e. impact or outcomes reported, success in implementation and financial implications. Chapter 5 will also present ways in which the pilot projects, based on outcomes, can provide innovative solutions to national issues in medical education and health services.

Matrix was commissioned to address all these areas.

There were 3 aspects to the overall evaluation:

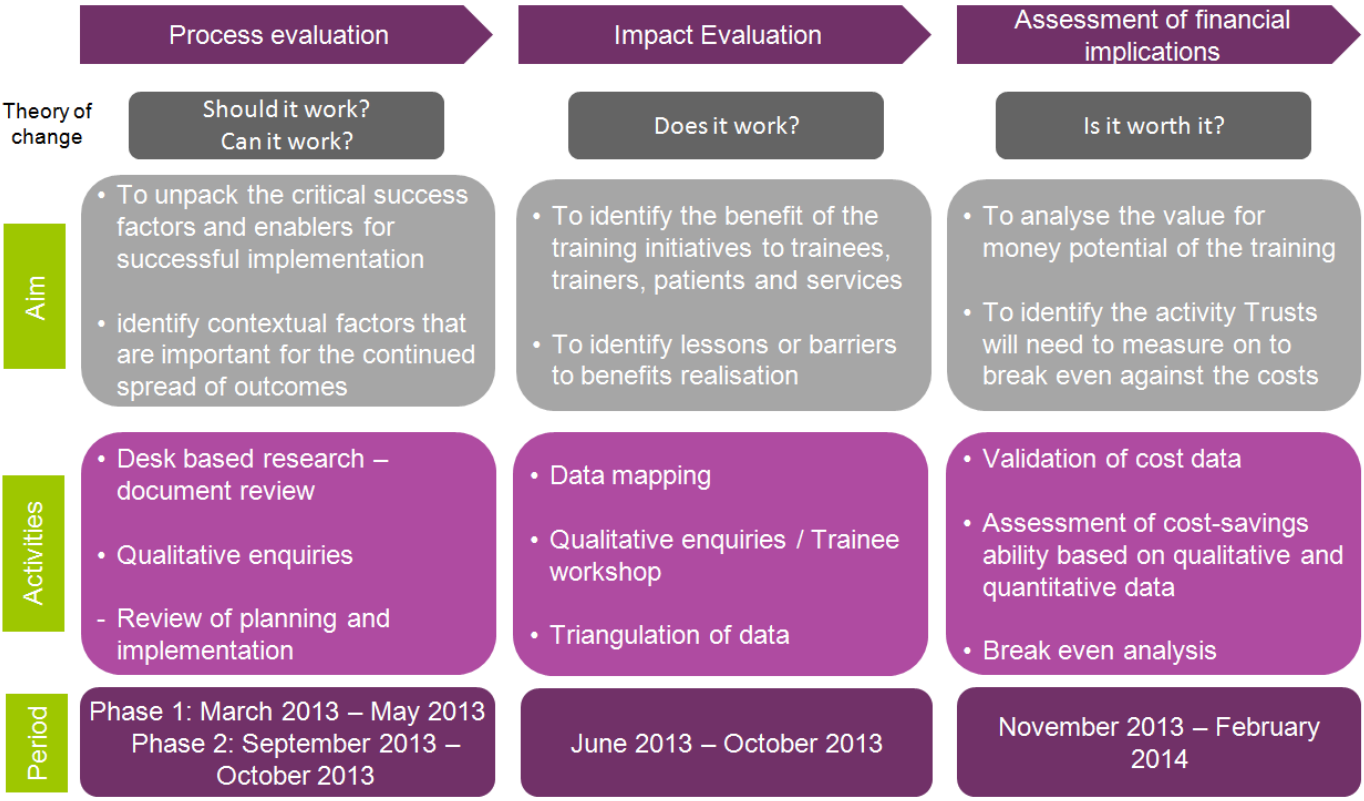
1. A process evaluation, which looked at the learnings identified during the implementation process and identified drivers for successful implementation across the 16 pilot projects (Chapter 3, section 3.5)

2. An evaluation of the impact of the pilot projects, which looked collectively at the benefit that the pilot projects have demonstrated to doctors in training, trainers, patients and services across preidentified themes, and an assessment of whether the pilot projects link to at least one of the Temple recommendations (Chapter 3, section 3.4)

3. An assessment of the financial implications, presenting the cost of the training initiative against evidence that the pilot project would generate a measure of cost savings or return on investment. Where outcome measures could not be provided to indicate financial benefit, we established a theoretical link as an illustration of the activity that would be required to break even on the cost of the pilot project. Where this was unavailable, we were unable to assess and report any financial implications (Chapter 3, section 3.4).

The activities that were undertaken to deliver on each aspect of the evaluation are presented in Figure 2.1; a detailed methodological approach is outlined in Appendix 2.

Figure 2.1 Methodology used to conduct the evaluation



3.0 Findings

This chapter presents the findings from the evaluation, commencing with a brief collective overview of the outcomes achieved across the 16 pilot projects. This will be followed by an assessment of the pilot projects' achievements against their original objectives for which they were awarded funding, including whether they met at least 1 of the 3 Temple recommendations; the impact of the training initiatives on doctors in training; trainers and patients; and an assessment of the financial impact of each pilot project. The chapter concludes with an overview of the lessons learnt from the process of implementation of the pilot projects and challenges experienced by the national evaluation.

3.1 Overview

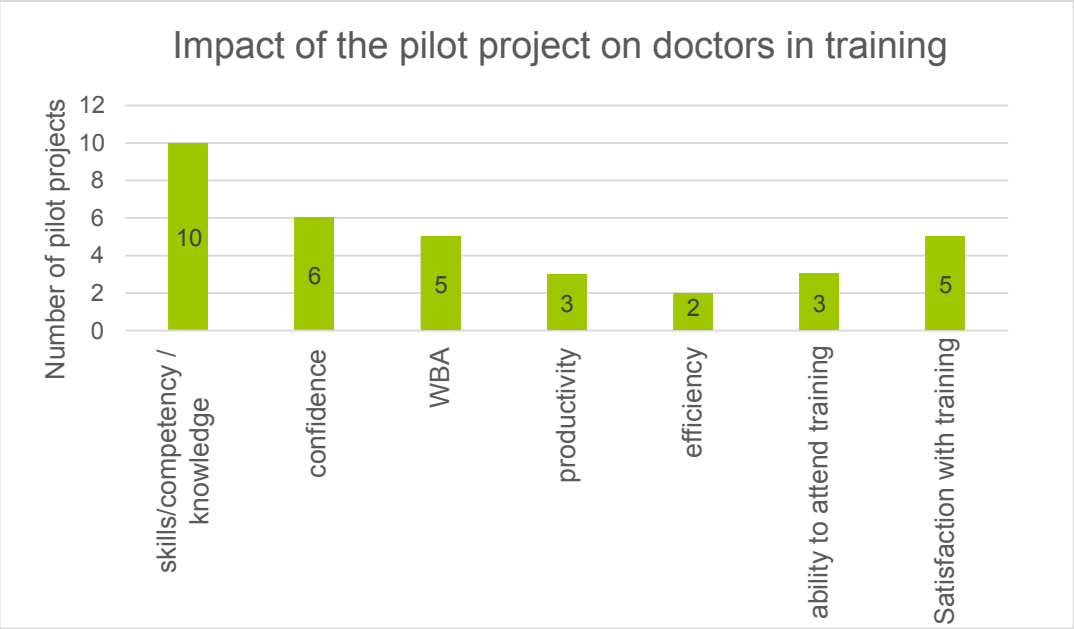
The pilot projects designed solutions to improve medical education for doctors in training (hereafter also referred to as 'trainees'), for instance by changing rotas to increase opportunities to train or be supervised; using technology to increase supervision or consultant input; drawing on the wider multidisciplinary team to support trainee development; developing the handover process; and incorporating training elements into current systems and processes.

The evaluation found that trainees were very positive about their experiences with the pilot project. In addition to improving skills, knowledge and confidence, a number of the pilot projects presented trainees with the opportunity to:

- develop leadership skills
- develop within a service driven area and to attend training sessions
- improve productivity and completion of workplace based assessments
- become more integrated in multidisciplinary teams.

As a result of the positive impact on trainees and the level of trainee satisfaction with the pilot project (Figure 3.1), trainees have been taking on the role of champions and change agents with the ability to facilitate spread and adoption across new departments and Trusts.

Figure 3.1 Overview of benefits achieved for trainees



Trainers and consultant supervisors also viewed the pilot projects positively as it enabled them to better identify development needs of trainees and provided routes to facilitate the supervision of trainees within a clinical setting.

At the time of the evaluation, the aim and emphasis of the pilot projects was to improve the training of doctors in training which would ultimately improve care. However, 12 of the 16 pilot projects provided indications and evidence of improvement to patient safety and care, with 4 providing quantitative data on the impact to patient care.

Other outcomes observed were improvement to the handover process and out-of-hours working, and improvement in multidisciplinary team working, with the trainee integrated and supported by the wider team.

Section 3.2 will address the impact of the pilot projects in more detail with regard to the objectives and outcomes achieved, and provide an assessment of the financial implications of the pilot projects within the areas or themes listed in Table 1.1.

3.2 Assessment against initial objectives

Each pilot project developed a series of initial objectives that set out what the project team wished to achieve, against which they were awarded funding. This section will present the assessment against those initial objectives by reviewing quantitative and qualitative data

submitted by the pilot projects, and including the outcomes from the qualitative enquiries that were conducted as part of this independent evaluation.

Overall, the pilot projects have achieved their objectives with varying degrees of performance against their stated objectives. The pilot projects that were able to demonstrate and evidence a high level of achievement against their objectives are:

- Airedale and Western Sussex
- Dudley Group
- East Kent
- East London
- Leeds and York Partnership
- Mid Cheshire
- Pennine EPIC
- Royal Berkshire
- Tees, Esk and Wear Valley
- South Manchester

In contrast there were 3 pilot projects (listed below) that were unable to provide sufficient information to allow assessment of whether they have met their objectives, or were unable to sufficiently meet all of their objectives at the time of this evaluation.

- Heart of England: the pilot project has increased learning opportunities for the trainee to be more engaged with the learning material. However, insufficient evidence was available for this evaluation to demonstrate the impact on reducing prescribing errors, whether the FY1 doctors felt their educational experience was improved or whether trainees felt additional support was provided following the assessments.
- Leeds Teaching: at the outset, the pilot project had several deliverables and objectives; however, challenges regarding the implementation of the pilot project impacted on their ability to meet all the objectives they had set out to achieve. The pilot project successfully demonstrated the ability to improve training by means of cadaveric dissections and that this had improved the analytical and technical skills of surgical trainees, and increased trainee confidence.
- Pennine handheld (infectious diseases): the pilot project achieved success in developing new software to facilitate handovers, but delays in development of the software affected the levels of uptake and engagement. As a result, at the time of the evaluation, the pilot project was not able to demonstrate any impacts on patient care or improved learning to trainee doctors.

Table 3.1 presents a detailed overview of how the pilot projects performed against their initial objectives.

Six of the pilot projects were unable to demonstrate that they had met all of their initial objectives; however, all of them, except for Pennine handheld and Leeds Teaching, have demonstrated meeting at least 1 of the Temple recommendations – see section 3.3.

Additionally, all except Pennine handheld, were able to demonstrate an impact on either trainees, trainers or patients – see section 3.4.

Table 3.1 Assessment of each pilot project against their initial objectives

Pilot project	Area/themes	Initial objectives	Assessment against initial objectives
Airedale and Western Sussex	Handover/care transition Technology and simulation to enhance training and education Communication and QI Multidisciplinary working	1. Deliver direct patient care in out-of-hours and elective (satellite clinics) settings 2. Deliver training to health care professionals 3. Maximise training opportunities by using a network of hospitals for shared training	The pilot project met all of its objectives to some degree, but this was not uniform across all departments in which the pilot project was implemented. Telemedicine was thought to be a good way of providing consultant support during handovers and improving patient care. There were initial concerns by senior clinical leads on having time to engage with the pilot project when they were delivering care. Using telemedicine for supervised activities and for training was useful; however, it proved challenging in the demonstration of specific skills, and there was preference amongst the users for face-to-face interactions in certain instances. It was also an invaluable tool to facilitate teaching across sites, making efficient use of resources and thus freeing up clinician time. The quality of interactions is an issue that needs to be addressed as providing just the means might not be sufficient.
King's College	Front door/A&E Multidisciplinary working	1. Improve 'time to treatment' quality indicator for patients 2. Improve time to referral from arrival for majors patients 3. Improve total time in the Emergency Department 4. Improve supervision, education and learning opportunities for trainee clinical staff	The pilot project has successfully demonstrated the meeting of objectives 1–3 by demonstrating a reduction in the time for the patient to be assessed and time to referral, thereby reducing overall patient time in the emergency department. This also made significant improvements to MDT working and trainee support. Pilot project leads perceived the pilot project to be beneficial in terms of supervision, education and learning opportunities. Further evidence is required to assess if the pilot project improved supervision, education and learning opportunities for trainees.
Pennine EPIC	Technology and simulation to enhance	1. To pilot the EPIC rewards system 2. Develop a system that trainees can	The pilot project has met all of its objectives to some degree. Objective 1 – the EPIC system was piloted

Pilot project	Area/themes	Initial objectives	Assessment against initial objectives
	training and education Front door/A&E	access and use to engage in the project – a dashboard to display the results 3. Improve the involvement of trainees in all aspects of training and service delivery 4. Improve patient care and safety through improved and earlier training of trainee doctors 5. Encourage doctors to excel and get involved in projects that will develop themselves and improve patient care 6. Encourage increased productivity	and trainees engaged substantially with the pilot project such that there were significant improvements in productivity and ability to complete WBAs; as a result, trainees were more confident. Objective 2 – while a dashboard was developed, trainee feedback shows it was not particularly user-friendly, it was sometimes difficult to access because of the limited number of sites from which one could log in and the time required to log in was too long. Objective 3 – the pilot project environment allowed the trainee to be involved in training and service delivery. Objective 4 - trainees felt they were getting more knowledge and training, and were better able to practise safe and effective medicine. Objective 5 – the pilot project environment encouraged trainees to take an interest and stronger role in their own development and in improving patient care. Objective 6 – the pilot project demonstrated improving productivity of trainees.
East Kent	Handover/care transition Out of hours/24/7 Patient rotas and scheduling	1. To provide enhanced support/training for trainees, especially at weekends 2. To improve the care and safety of patients	The pilot project met both its objectives through the reorganisation of rotas into hot and cold shifts. Objective 1 – the hot and cold rotas provided the necessary support and improved training opportunities for trainees during the weekends. Data suggest that trainees felt they had more contact with senior staff and more opportunity to learn. Objective 2 – in terms of patient outcomes, the pilot project reduced the length of stay and increased the number of weekend discharges. Qualitative data show that the handover process improved and patients were being seen quicker. Further evidence is required to demonstrate how the pilot project improved patient safety. Having more senior support and input is likely to impact on accurate treatment and patient safety, but no data were provided to say that this was achieved.

Pilot project	Area/themes	Initial objectives	Assessment against initial objectives
Pennine handheld (infectious diseases)	Handover/care transition Technology and simulation to enhance training and education	1. Develop new software to facilitate the handover process and record learning opportunities 2. Pilot this new handover system 3. Improve patient care and safety through electronic handover of patient data 4. Improve learning outcomes for trainee doctors	The pilot project developed an electronic system for handover; however, the software took longer to develop and therefore couldn't be delivered within the original timescale. As a result, meeting the objectives proved challenging. At the time of the evaluation the pilot project had experienced significant delays in implementation owing to technical issues and plans are underway to test the system further.
Mid Cheshire	Handover/care transition Technology and simulation to enhance training and education	1. To provide training for doctors to develop key handover skills such as leadership, task prioritisation and time management 2. To support handover by the introduction of an e-handover solution (Ascribe) 3. Modification to the structure and standardisation of the handover process and utilising the good practice guidelines from the RCP	Objective 1 – the pilot project demonstrated an improvement in handover skills and knowledge, and better-quality information is being recorded and handed over. Objective 2 – following initial technical difficulties, the pilot project has used the e-handover system to facilitate handovers. At the time of the evaluation there was not an entire change over to, of implementation of, Ascribe and paper systems were still being used. Objective 3 – The pilot project has achieved the objective by formalising the handover process, developing a culture for using SBAR and having greater consultant presence at handovers. Notwithstanding, the slight variation in the handover process being followed, which can be attributed to leadership, the pilot project has met this objective.
Heart of England	Technology and simulation to enhance training and education Multidisciplinary working	1. To increase learning opportunities for FY1 doctors 2. Reduce prescribing errors amongst FY1 doctors 3. Improve the educational experience of FY1 doctors 4. Improve the support FY1 doctors receive	Objectives 1 and 3 – by having the learning material in different formats and by repeated testing of various subject areas, the pilot project increased the opportunity for the trainee/learner to be engaged with the learning material, and increased the learning opportunities, which has had a positive impact on the trainees compared with the control group. Objective 2 –additional evidence on a reduction in prescribing errors or on trainee feedback was not available at the time of this evaluation, although, a slight increase in antibiotic prescriptions, including a stop date, has been observed. Objective 4 – insufficient evidence

Pilot project	Area/themes	Initial objectives	Assessment against initial objectives
			was provided to demonstrate how support to FY1 doctors was improved compared with the control group. The pilot project was designed to identify areas in which additional support is required; however, it is not clear if this translated to actual additional support being given to the trainees, and how trainers used this information.
Dudley Group	Multidisciplinary working	1. To increase training opportunities to prescribe in a non-threatening learning environment 2. To increase patient safety by improved quality of prescribing 3. To improve the confidence and competence of individual prescribers 4. To determine the level of pharmacy experience suitable for interprofessional learning with FY1s and FY2s 5. To utilise the e-learning package SCRIPT to supplement the in-house training package	The pilot project successfully demonstrated the meeting of all its objectives. The pilot project site provided a training platform via SCRIPT for learning prescribing skills through simulated sessions on dummy charts; patient safety improved as per performance in the insulin and antibiotic audits; trainees also seem to be considering the consequences for patients when administering medication; trainees have noted an improvement in confidence when prescribing and reduced anxiety. Trainees and pharmacists found the level of MDT working to be satisfactory, with very good feedback received from both trainees and pharmacists about the pilot project.
Leeds and York Partnership	Handover/care transition Technology and simulation to enhance training and education Communication and QI Patient rotas and scheduling	1. To improve patient safety and trainee experience through increased consultant-supervised direct and indirect patient contact, by streamlining out of hours rotas to return 5 CTs into daytime hours 24/7 when supervision and need for service provision greatest 2. To integrate doctors in training on call into MDTs through collaborative revision of the out-of-hours Care Pathway, placing trainees on-call where they can benefit from the experience provided by working within an MDT, and access more opportunities for WBAs	Objective 1 – qualitative data show that trainees felt the new system allowed for better contact with the supervisors, more opportunities for training and more patient contact. Having greater supervision or consultant presence is likely to improve patient care and safety. This has been backed up by qualitative data from members of the MDT, which show that there was a strong feeling the system would improve patient care. Objective 2 – trainees also felt that the new rota gave them more time to work within the team, and data showed increased productivity compared with data prior to the pilot project. Members of the MDT also felt that the pilot project created a more team-based working environment.

Pilot project	Area/themes	Initial objectives	Assessment against initial objectives
	Multidisciplinary working	3. To improve the quality and outcomes of referrals between MDTs and doctors in training, through implementation to all multidisciplinary staff of the SBAR tool on psychiatric inpatient wards in the Leeds area 4. To increase curriculum competencies in the fields of communication and CT teaching skills, following the introduction of a programme of development through CT1–3 utilising clinical simulation training and support of mentors, in addition to protected supervised teaching experience of second-year medical students in the field of mental health 5. To review and develop resources available to support training successfully	Objective 3 – the pilot project was aware that they would not be able to provide SBAR data within the timescale of the evaluation. However, surveys show that more than 50% of MDTs felt that the SBAR tool was likely to benefit MDT working. Objective 4 – the pilot project provided feedback that showed strong agreement from trainees that the Formative Assessment Communication Skills was a useful process in identifying their communication skills and facilitating development of communication skills. Objective 5 – the pilot project developed a quick reference guide to describe the role and grades of trainee psychiatrists, and support training. In addition, information and clips on the trainees teaching is available on the School of Psychiatry website.
Tees, Esk and Wear Valley	Communication and QI Patient rotas and scheduling Multidisciplinary working	1. Make psychiatric training posts relevant to all doctors in training 2. Introduce standard work for training and supervision around core medical tasks 3. Improve productivity of training grade doctors new to psychiatry	Objective 1 – by reconfiguring job descriptions, the pilot project has included training as part of training posts, but evaluating the impact on trainees would be challenging owing to trainee rotation. The pilot project is likely to have the effect of creating a legacy in trainees. The trainees ranked the quality of training slightly higher than the control group. Objectives 2 and 3 –the pilot project has successfully achieved an increase in supervised clinical activities compared with a control group and feedback from the trainers and members of the MDT team is that there has been an improvement in the productivity of trainees new to psychiatry; additionally, trainees are now prepared for clinical practice more quickly.
East London	Technology and simulation to enhance training and education	1. To embed simulation training in the Trust's training programme for clinicians 2. To engage all levels of clinical staff in the promotion of learning from serious	The pilot project has demonstrated the meeting all of its objectives. The pilot project has provided information that simulation training is being embedded in the Trust as part of the training strategy.

Pilot project	Area/themes	Initial objectives	Assessment against initial objectives
		incidents via simulation training 3. To use in-house expertise to deliver and facilitate training sessions 4. To provide a detailed schedule of training that will enable the attendance of a large number of delegates over a 6-month period 5. To access the benefits of simulation training in relation to the prevention of serious incidents and/or the management of serious incidents 6. To promote learning in multiprofessional teams and highlight the importance of team working and communication in the clinical arena	The pilot project also demonstrated MDT working as part of this project, engaging with clinicians, and using various clinical experts to design and facilitate the sessions. The simulation sessions were designed to provide training around serious incidents by using actual incidents as examples. The pilot project was designed to meet all of these objectives, although no data were collected to show if the changes had an impact on patient safety or on the number of incidents. However, the pilot project has provided a successful model for training around serious incidents using real-life examples and drawing on the expertise in the department. Trainees did feel that the sessions would change their practice and have demonstrated an improvement in knowledge and confidence which is likely to impact on patient care.
Royal Berkshire	Communication and QI Multidisciplinary working	1. To 'make every moment count' by embedding QI as normal practice and utilising every learning opportunity, incident and complaint to enhance the quality of care for patients 2. To provide high-quality training for the trainee and MDT, to support the learning and development of new and relevant skills in QI methodology and enable delivery of effective QI projects at the front line 3. To develop a model of learning in the simulation environment around the processes, challenges and impact of incidents and complaints to inform learning and potential targeted improvement change 4. To embed consultant-led supervision in these processes as normal practice	The pilot project has successfully achieved its objectives and implemented a project that embeds QI into normal practice by utilising every learning opportunity as a method of improving training and patient care (objective 1). Objective 2 – data showed an increase in knowledge around QI methodologies and developing and implementing QI projects. Objective 3 – the pilot project provided a successful method of improving training on the design and implementation of QI projects. Trainees also responded positively to the simulation training environment, and felt that it provided a unique and valuable learning opportunity. Objective 4 – each QI project had a dedicated supervisor and structured systems for meetings and supervision; consultants felt this was an appropriate and feasible method of supervision and reported that they would supervise more of these QI projects. Objective 5 – the pilot project developed a dissemination plan involving a

Pilot project	Area/themes	Initial objectives	Assessment against initial objectives
		5. To develop the appropriate resources to facilitate easy dissemination and spread of these approaches nationally	series of tools such as DVDs, presentations, electronic applications and toolkits to enable the spread of these approaches nationally.
South Manchester	Technology and simulation to enhance training and education Patient rotas and scheduling Multidisciplinary working	1. To improve patient safety and quality of patient care 2. To create and assess specific learning environments for surgical trainees in years 1 and 2 at UHSM by initiating 'BTBC' operating lists 3. To maximise the learning environment in theatre for trainees created by multidisciplinary trainers, including consultants, scrub practitioners and recovery staff 4. To increase collaborative work in the theatre environment	The pilot project has met all of its objectives. Objective 1 – quantitative data on surgical procedures around hernia show improved quality of patient care in an environment that supports training, as the standard of care was maintained while the procedure was conducted more efficiently. Additionally, qualitative data identified that the experience of the patient surgical journey has improved. Objectives 2–4 – the pilot project has successfully created an environment for learning. It has integrated learning as part of service delivery by creating dedicated theatre lists and increasing the amount of supervision and support for the trainees, nurturing a better learning environment, and drawing on the experience and support of the wider MDT to facilitate the learning process during surgical procedures, as well as supporting and supervising the trainees during cadaveric simulation sessions. The trainees rated the learning environment highly and felt the MDT supported them.
Leeds Teaching	Technology and simulation to enhance training and education	1. To create an enhanced training programme 2. To improve the technical ability of trainee general surgeons 3. To improve the analytical ability of trainee general surgeons 4. To increase confidence and accuracy in decision making 5. To enhance communication skills 6. To develop trainer skills and enhance	Objective 4 – the pilot project provided before and after self-reported measures of trainee confidence to show an improvement in confidence and skills amongst trainees following cadaveric dissection training sessions. However, no data were supplied to show how this has affected decision making. The pilot project was unsuccessful in delivering against any of the other objectives or elements of the training programme.

Pilot project	Area/themes	Initial objectives	Assessment against initial objectives
		time for training 7. To improve the training experience for core and specialist trainees 8. To measure accurately the time required by a trainer to complete a WBA	
Guys and St Thomas'	Patient rotas and scheduling	1. To improve quality of training 2. To improve patient care and safety	Objective 1 – trainees were very satisfied with the pilot project and felt it improved their knowledge confidence and skills, and that they had sufficient time for training. Data showed that trainees in the pilot project received the same amount of knowledge compared with trainees in the control block, but in a much shorter time period. Objective 2 – qualitative feedback shows that the pilot project is likely to improve patient care. Both trainees also scored highly in the clinical competency assessment. While it is difficult to make any firm judgements on this based on 2 trainees, both trainees felt strongly that the quality of training was good and that this is likely to impact on quality of care.
North Bristol	Technology and simulation to enhance training and education	1. To improve training of speciality trainees in secondary care 2. To estimate the desire for consultations skills training 3. To estimate the feasibility of using video recordings in an outpatient setting to facilitate training in consultation skills 4. To study whether reflection and personal feedback on outpatient video recordings is an acceptable teaching method for specialist trainees in secondary care 5. To enhance trainer/trainee interaction 6. To add value to the completion of	Objective 1 – trainee feedback showed complete agreement that the pilot project helped develop consultation skills, and trainees felt this should become standard practice. Objective 2 – trainees, consultants and patients equally felt this was a good way to improve training and that this method of training was widely accepted as a suitable teaching method. Objectives 3–6 – the pilot project was designed around enhancing trainer and trainee interactions by video feedback, and this seemed to have supported the completion of WBAs in an outpatient setting. Consultants felt this was a useful way to assess trainee consultation skills, provide feedback and develop trainees' consultation skills.

Pilot project	Area/themes	Initial objectives	Assessment against initial objectives
		workplace-based assessments 7. To develop the skills of consultant trainers in providing consultation skills training 8. To improve the experience and quality of outpatient consultations for patients 9. To enhance links between primary and secondary care	This was a novel way for consultant trainers to assess and develop trainee consultation skills, especially since a third of the responding consultants had never observed registrars in consultation in outpatient clinics. Objective 7 – prepilot project questionnaires showed 84% of consultant trainers had never had training in assessing consultation skills; however, information was not supplied as to how the consultant trainer skills were developed and if they felt their skills were developed in this area. Objective 8 – patient surveys reported that patients would feel more confident in a doctor who had been trained this way. However, no information was provided after engaging with the pilot project with regard to whether there were improvements in experience and quality of care for patients, nor was any information provided about how the pilot project enhanced links between primary and secondary care.

MDT, multidisciplinary team; EPIC, Emergency Physician In-house Challenge; WBA, work-based assessment; RCP, Royal College of Physicians; SBAR, Situation, Background, Assessment, Response; CT, Core Trainee; QI, quality improvement; UHSM, University Hospital of South Manchester; BTBC, Better Training Better Care.

3.3 Overall assessment of pilot projects against the Temple recommendations

Pilot projects were also awarded funding based on their ability to meet at least 1 of the 3 following Temple recommendations:

- appropriate supervision, and/or implementation of a consultant-present service;
- service delivery must explicitly support training
- make every moment count.

This section provides a summary of whether pilot projects were able to meet the Temple recommendations against which they were awarded funding. For example, drawing on the findings of the evaluation (section 3.4), how innovation in education is able to align to national recommendations and improve the quality of medical education and patient care.

Appropriate supervision and/or implementation of a consultant-present service

Most of the pilot projects (12/16) have designed and implemented innovative ways to improve the support and development of doctors in training by facilitating the ease of supervision, enabling consultants to be more involved. This has been achieved by various training models.

- The Airedale and Western Sussex pilot project used telemedicine to maximise and share consultant resources from remote locations, facilitating training and education across locations and freeing up clinical time elsewhere, and allowing consultants to remotely have oversight and input into the handover process. Therefore, the pilot project also designed an innovative way of delivering a consultant-present service from remote locations.
- East Kent, and Leeds and York Partnership patient rotas and scheduling pilot projects allowed trainees to be brought into daytime hours thereby allowing more opportunities to be supervised, drawing on the wider team for support. The Guy's and St Thomas' pilot project also rearranged rotas to create concentrated blocks of training in specific areas.
- Technology and simulation to enhance training and education pilot projects allowed clinical supervisors to identify areas in which further support and development are required, and have oversight of the specific activity in which the trainee is involved. Examples of how this has been achieved include the Heart of England pilot project, which used the Virtual Interactive Teaching and Learning (VITAL) system to test knowledge in specific areas, scoring the trainee on his/her knowledge. The North Bristol pilot project used video feedback to improve the trainees' consultation skills, allowing greater supervision in an outpatient setting. The Pennine Emergency Physician In-house Challenge (EPIC) pilot project used gaming technology to score trainees on specific activities, allowing a dashboard view of results and areas of improvements, and increasing the amount of supervision and development around specific areas and skills.
- The King's College pilot project delivered a consultant-present service and improved the amount of supervised activity in an emergency department by means of the Rapid Assessment and Treatment (RAT+) model.

- The handover pilot projects also improved the amount of consultant input by creating more structured handover systems, using electronic devices and drawing on the support from the wider clinical team. The Airedale and Western Sussex pilot project is one example that used telemedicine to improve the handover process. Another example is the Mid Cheshire pilot project that used Situation, Background, Assessment, Response (SBAR) and an electronic handover device. Both these pilot projects were able to provide greater supervision and support to doctors in training.
- The South Manchester pilot project improved the amount of supervised procedures across all surgical departments, and improved the amount of support and training for the doctors in training, drawing on the wider team.
- Similarly, the Tees, Esk and Wear Valley pilot project also presented an innovative way of improving supervision to doctors in training by restructuring roles to incorporate supervision across all positions.

Service delivery must explicitly support training

The evaluation showed that the 16 pilot projects could be grouped into 2 categories: those that built training into service delivery, and those that delivered training sessions outside of clinical commitments by providing separate sessions that allowed the trainee to focus solely on the educational material.

Those pilot projects that incorporated training into service delivery include Airedale and Western Sussex; East Kent; Guy's and St Thomas'; Kings College; Leeds and York Partnership; Mid Cheshire; North Bristol; Pennine EPIC; Royal Berkshire; Tees, Esk and Wear Valley; and South Manchester. The Pennine handheld pilot project is still in its implementation phase, but, by design, also falls into this category. A key element of incorporating training into service delivery includes the potential for the multidisciplinary team (MDT) to support the training of doctors in training; as such, this would be expected to be inherent in the above group.

The pilot projects that delivered training outside of the service delivery environment, were also able to use the MDT to support the training of doctors in training. The Dudley Group pilot projects enabled improved communication and understanding between the pharmacist and the doctors in training to improve the prescribing skills of the trainee. Similarly, for the East London pilot project, a key lesson for the trainees was the importance of communication and working as part of a multidisciplinary team, and the pilot project enabled an improved understanding between doctors and nurses leading to a more open multidisciplinary culture.

A few of the pilot projects demonstrated an improvement in services that address issues like hospital at night or 24/7 care. These include the Airedale and Western Sussex, East Kent, Leeds and York Partnership, and King's College pilot projects.

Make every moment count

Most of the pilot projects designed solutions that would enable improved mentoring and support for doctors in training, either by providing innovative solutions that allow the consultant to have more input and oversight into the activities of the trainee, or by incorporating training into service delivery and drawing on the wider team for support. This has been presented in the two preceding Temple recommendations.

Other ways in which the pilot projects have taken what happens in current service provision and used it as vehicles of improvement to medical education include the Royal Berkshire pilot project that developed the trainees' ability to identify areas of improvement in daily issues, and empowered trainees to plan and design innovative solutions to improve the quality of services.

This was an effective way of making every moment count by using the information that exists to drive improvement. Another example is the Tees, Esk and Wear Valley pilot project, which, by incorporating training as part of all roles, has built into the design a significant amount of supervision, mentoring and support for doctors in training.

From this summary overview, it is evident that the pilot project designs were aimed at achieving against more than 1 of the 3 key Temple recommendations. This section has highlighted ways in which innovation in medical education can be achieved in line with the Temple recommendations, but also deliver improvements to patient care and safety, and align with national health agendas. The latter is covered in Chapter 5 on 'Recommendations for spread and adoption'.

3.4 Assessment of impact

The aim of the programme was to identify innovative training methods to restructure and improve medical education, and to share these best practice innovative 'schemes' nationally with a view to replicating some of the outcomes and benefits achieved by the pilot projects across other Trusts, with the long-term goal of improving patient care and safety. As such, the primary focus or emphasis was on improving the education of doctors in training, restructuring training sessions or making them more accessible to trainees, and creating behavioural changes and changes in culture or commitment across the wider multidisciplinary team.

Table 3.2 presents an overview of the intervention costs and benefits reported by each of the 16 pilots projects, including their associated themes or areas that they link to, with most of the pilot projects linking to more than one theme or area, as identified in Table 1.1. Benefits have been broken down into those to the trainee, trainer and patient, and those to the service, or other types of impact, based on quantitative and qualitative data to demonstrate outcomes such as behavioural changes and changes in commitment.

Assessment of financial/resource impacts

The assessment of impact for the pilot projects was carried out primarily in terms of the qualitative and quantitative measures reported above. When attempting to arrive at an overall picture of the costs and benefits of the pilot projects, it should be borne in mind that they were not designed to report benefits which could be valued in monetary terms for comparison with the costs of the intervention. Thus, it was not the intention to report a net monetary benefit from the pilot projects nor was it envisaged that financial savings would be required to justify the resources devoted to the pilot projects. Nevertheless, improvements in patient care, which were their ultimate goal, suggest that the pilot projects may be associated with a favourable cost impact.

For a group of 4 pilot projects, monetised cost savings or other financial impacts were reported or could be calculated from the interventions studied. These were the East Kent, King's College, Pennine EPIC and the Mid Cheshire pilot project. The East Kent, Pennine and Mid Cheshire pilot projects provided estimates of cost savings, while the King's College pilot project improved time to treatment, which could be converted into an increase in patients treated and thus an increase in Payment by Result (PbR) tariff payments received by the trust.

For 7 other pilot projects, it was possible to apply a monetary value to the intended outcome of a pilot project or to draw on literature suggesting that the pilot project in question was capable of favourably influencing an outcome that could be valued in monetary terms. The 2 outcomes we selected for the analysis were a reduction in the length of stay/ bed days saved and severe adverse events avoided. Where a directly observed impact on either of these measures was not available, we performed a break-even analysis, which gives the magnitude of impact required to offset the costs of the pilot project.

For bed days avoided, we used a cost per bed day of £352 based on NHS Reference Costs for Elective Inpatient Excess Bed Days as at 2011–12. Thus, an intervention costing £10,000 – for which there was evidence to suggest it could result in a reduction in bed days – would break even if it resulted in 28.4 bed days avoided. In each break-even analysis based on length of stay we referred to the study by Blakey et al. (2012)[12] for evidence linking the type of intervention in the pilot project with reductions in length of stay. A break-even analysis based on bed days was performed in 2 pilot projects.

In the remaining 5 pilot projects for which we conducted a break-even analysis, we hypothesised that the intervention would have the effect of improving patient safety and quality of care in such a way as to reduce the occurrence of serious adverse events (with one also potentially having an impact on length of stay). we based the cost of a serious adverse event on Vincent et al. (2001),[13] which estimated the costs of adverse events in 2 London acute hospitals. By uprating the cost per adverse event from that study to 2013 prices gave a cost per adverse event of £3172.

It should be noted that the break-even analysis is limited as it is based on a single outcome measure and therefore fails to take account of the range of indicators presented in this report. It should not be interpreted to mean that a training intervention needs to be cost neutral for it to be justified.

It should also be noted that, in the pilot projects for which we performed a break-even analysis, we did not have direct evidence that the intervention studied would result in a benefit that we could value in monetary terms. The break-even analysis should therefore be considered illustrative of the scale of benefits, which might generate savings equivalent to the costs of the pilot project. As with the directly observed financial and resource impacts, the break-even analysis is presented in Table 3.2 as a supplement to the key outcomes reported by the pilot projects.

[12] Blakey JD, Guy D, Simpson C, Fearn A, Cannaby S, Wilson P, Shaw D (2012). Multimodal observational assessment of quality and productivity benefits from the implementation of wireless technology for out of hours working. BMJ Open 2: e000701.

[13] Vincent C, Neale G, Woloshynowych M (2001). Adverse events in British hospitals: preliminary retrospective record review. BMJ 322: 517–519.

3.4.1 Handover/care transition

The 5 pilot projects that looked at handover and care transition were Airedale and Western Sussex, East Kent, Leeds and York Partnership, Mid Cheshire and Pennine handheld. At the time of the evaluation, the Pennine handheld pilot project was not able to achieve any outcomes owing to delays experienced during the implementation phase. Therefore, this section will relate to the other 4 pilot projects.

In terms of trainee outcomes and benefits, the four pilot projects were able to demonstrate an improvement in the skills, knowledge, confidence or productivity of the trainee. Both the East Kent and Leeds and York Partnership pilot projects reported an improvement in trainees' ability to complete workplace-based assessments (WBAs), with East Kent demonstrating a 4% increase in opportunities to complete WBAs while on ward duty, and an increase of 27% while on shift. Additionally, in the East Kent pilot project, there was an 11% increase in the number of trainees who were satisfied with their ability to attend training sessions. An increase in productivity was reported for the East Kent, Leeds and York Partnership, and Mid Cheshire pilot projects, with the Mid Cheshire pilot project achieving a 25% increase in the job or task completion rate. For the Leeds and York Partnership pilot project, weekday evening activity of trainees increased by 38%, weekend activity increased by 29% and night-time activity by 22%

Trainers in the East Kent pilot project felt that they had more time to supervise trainees, especially at weekends, and were able to provide more feedback to support the development of trainees. For the Leeds and York Partnership and Pennine EPIC pilot projects, trainers felt that the pilot project enhanced the ease with which trainee development needs could be identified. The Airedale and Western Sussex pilot project made efficient use of consultant and supervisor time by sharing resources across sites and allowing remote supervision, thus freeing up clinician time.

All 4 pilot projects reported an impact on patient care and quality with both the East Kent and Mid Cheshire pilot projects providing early quantitative evidence of the impact on patient care. The Mid Cheshire pilot project achieved a statistically significant 10% increase in overall out-of-hours discharges compared with the previous year, while the East Kent pilot project reported a 12% increase in the number of discharges per day. Both pilot projects increased the number of weekend discharges with a 3% increase for the Mid Cheshire pilot project, while a 20% increase in Saturday discharges and a 6% increase in Sunday discharges were reported in the East Kent pilot project. The East Kent pilot project also reduced average patient length of stay for patients admitted on Wednesdays and Fridays by approximately 6%, and found a reduction in crude mortality rates, including on weekdays and at weekends, of 1%. For the Airedale and

Western Sussex and Leeds and York Partnership pilot projects, qualitative data from trainees and consultants indicated that the pilot project is likely to have an impact on and improve the quality of patient care and safety.

Both the East Kent and Mid Cheshire pilot projects have reported improvements in the handover process, with the East Kent pilot project showing improvements in the Friday handover process. The handover process in the East Kent pilot project was used as a learning experience by taking the opportunity to discuss patient management, while the Mid Cheshire pilot project improved the quality of information that was being recorded and handed over, allowing for ease of prioritisation of tasks.

Financial implications

The East Kent and Mid Cheshire pilot projects provided estimates of cost savings based on the patient outcomes achieved. In the East Kent pilot project, cost savings were estimated at £663,912, for an outlay of £163,282, giving a net monetary benefit in 1 year of over £0.5 million. The Mid Cheshire pilot project recorded an increase in out-of-hours discharges of 10% (relative to a baseline of 2961 discharges) over a 3-month period, generating a total cost saving over the 3 months of £156,200.

For the other 3 pilot projects it was possible to apply a monetary value to the intended outcome of a pilot project or to draw on literature to determine a monetary impact using a break-even analysis, modelled around either bed days or serious adverse events. However, it must be noted that these are illustrative and not indicative of future outcomes. For both the Airedale and Western Sussex and Pennine handheld[14] pilot projects a break-even point was calculated in terms of bed days, with the break-even points being 228 and 141 days, respectively. The break-even analysis for Leeds and York Partnership pilot project was modelled against serious adverse events. The break-even point was calculated as a reduction of 32 serious adverse events to break even on the cost of the pilot project.

[14] The Pennine handheld pilot project was not fully implemented at the time of the evaluation; therefore, this is a theoretical link for illustrative purposes.

3.4.2 Out of hours/24/7

The East Kent pilot project is the only pilot project that appears under this theme. As summarised in the above handover/care transition theme, it has substantially achieved its intended outcomes for trainees, trainers, patients and for the services. Both trainees and trainers reported satisfaction in the pilot project, as well as the ability to improve training and facilitate the supervision of trainees.

Financial implications

The monetised benefits for the East Kent pilot project have been reported in the preceding theme. East Kent pilot project is the only pilot project that appears under this theme. As summarised in the above handover/care transition theme, it has achieved considerable outcomes for trainees, trainers, patients and to services, and both trainees and trainers reported satisfaction in the pilot project and the ability to improve training and facilitate supervision of trainees.

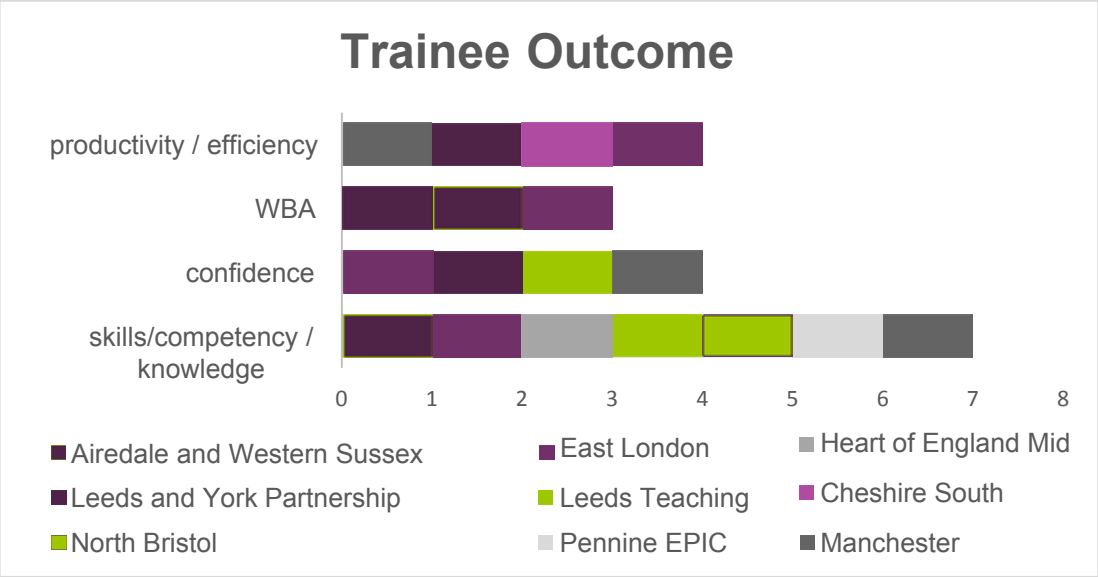
3.4.3 Technology and simulation to enhance training and education

Ten (of 16) pilot projects used technology and simulation to improve the quality of medical education for doctors in training. These are:

- technology – Airedale and Western Sussex, Heart of England, Mid Cheshire, North Bristol, Pennine EPIC, Pennine handheld
- simulation – East London, Leeds Teaching, Leeds and York Partnership, South Manchester.

As mentioned above, Pennine handheld does not form part of this assessment owing to delays in implementation at the time of this evaluation.

Figure 3.2 Overview of trainee outcomes



With regard to skills, knowledge, confidence, ability to complete WBAs and productivity, all 9 pilot projects have had an impact on trainees. Seven of the pilot projects were successful in improving trainee skills and knowledge, with 4 pilot projects increasing trainee confidence. These were East London, Leeds and York Partnership, Leeds Teaching and South Manchester. In both the East London and Leeds and York Partnership pilot projects, more than 80% of trainees reported an increase in confidence. Four pilot projects also reported an increased ability of trainees to complete WBAs or that they had increased productivity; these were Leeds and York Partnership, Mid Cheshire, North Bristol and Pennine EPIC. The Pennine EPIC pilot project reported a 25% increase in the mean number of WBAs per FY2 doctor in Accident and Emergency, and a 20% increase in the number of trainees who felt that they had sufficient opportunity to complete WBAs.

With the creation of double-credit weeks, the WBA increased more than 5-fold compared with baseline. The Mid Cheshire and Pennine EPIC pilot projects also increased the productivity of trainees, with Mid Cheshire reporting a 25% increase in the job completion rate, and Pennine EPIC reporting that doctors were seeing 2 patients more per shift. Leeds and York Partnership also increased the productivity and activity of trainee doctors, and reported a 38% increase in time on weekday evenings that the trainees spent occupied; a 29% increase at weekends; and a 22% increase for night-time activity.

In 8 of the pilot projects trainers responded positively for various reasons, including:

- increased opportunities for supervision (South Manchester)
- the ability to identify trainee development needs (North Bristol, Leeds and York Partnership, Heart of England, Pennine EPIC)

- trainers themselves being developed in certain skills(East London)
- the ability of consultants to attend handover meetings (Mid Cheshire)
- the facilitation of accurate decision-making (Airedale and Western Sussex)

Six of the 9 pilot projects provided qualitative validation and feedback from trainees and consultants to the effect that the pilot projects would improve patient care and safety, while 3 pilot projects reported or demonstrated an impact on patients. The Mid Cheshire pilot project demonstrated, by means of quantitative data, a 10% increase in discharges compared with the previous year, while the Heart of England pilot project reported a 6% increase in the use of antibiotic stop dates on prescriptions. The East London pilot project reported an increase in the number of incidents being reported.

Other outcomes achieved include improved/ standardised handover processes (Mid Cheshire and Airedale and Western Sussex) and MDT working (East London, Leeds and York partnership and South Manchester).

Financial implications

For 4 of the pilot projects (East London, Leeds Teaching, North Bristol and South Manchester), it was not possible to determine any monetary benefits as it was not possible to assign any monetary value to the outcomes achieved at the time of the evaluation, nor was it feasible to use any literature evidence to determine any break-even points.

The Mid Cheshire and Pennine EPIC pilot projects provided estimates of cost savings based on the outcomes achieved. The Mid Cheshire pilot project generated a total cost saving over a 3-month period of £156,200 in terms of out-of-hours discharges; and the Pennine EPIC pilot project achieved increased productivity leading to a potential cost saving of £120,000 compared with a cost of the intervention of £44,240, giving a net monetary benefit in 1 year of £75,760.[15]

A break-even analysis was conducted for the remaining 4 pilot projects based on:

- serious adverse events for Heart of England and Leeds and York Partnership, with each requiring a reduction of 31 and 32 serious adverse events, respectively, to break even
- bed days for Airedale and Western Sussex and Pennine handheld, with the pilot projects requiring a reduction in 228 and 141 bed days, respectively, in order to break even on the cost of the pilot project

[15] It should be noted that the outcome in the Pennine EPIC pilot project is a general assessment of the impact of the gaming device on the productivity of the trainees; it is also not specific to any speciality and would produce variable outcomes in other departments pending revision of the software and scoring criteria of the device.

3.4.4 Communication and quality improvement

Four of the pilot projects (Airedale and Western Sussex, Leeds and York Partnership, Royal Berkshire, and Tees, Esk and Wear Valley) were designed around improving medical education with regard to communication and quality of services.

All of the pilot projects reported benefits to the trainees in at least 1 of the following areas: skills, knowledge, confidence, ability to complete WBAs and productivity. The Royal Berkshire and Leeds and York Partnership pilot projects reported an increase in trainee skills and knowledge around quality improvement and management skills, respectively. In the Leeds and York Partnership pilot project, 100% of trainees felt more confident and that the training had a positive impact on communication and behaviours, while the Tees, Esk and Wear Valley pilot project reported a slight increase in trainee confidence. The Leeds and York pilot project improved trainee productivity during weekday evenings and weekends, and improved the night-time activity of trainees. Trainees also reported having more time to undertake WBAs. There was an increase in the amount of supervision in the Airedale and Western Sussex and Tees, Esk and Wear Valley pilot projects, with the Tees, Esk and Wear Valley pilot project reporting a 55% increase in the amount of directly supervised clinical work. The Airedale and Western Sussex pilot project also improved the amount of support from a senior clinician at evening handovers, and trainees expressed an improvement in hospital night-time working.

All 4 pilot projects had an impact on trainers in terms of:

- improving the ability to identify trainees' development needs (Leeds and York Partnership)
- allowing better decision making (Airedale and Western Sussex)
- providing opportunities for increased support and supervision, or improving the process of supervision (Airedale and Western Sussex, Tees, Esk and Wear Valley, Leeds and York Partnership, Royal Berkshire).

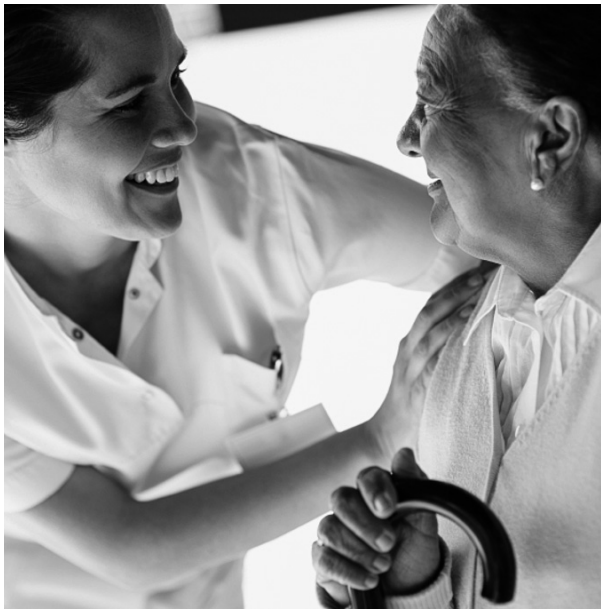
Across the pilot projects, consultant/clinical supervisors or trainees felt that the pilot project would improve patient care and safety. In the Airedale and Western Sussex pilot project, it was felt that better decision making and accurate assessments by consultants would improve patient safety, and that consultant presence via telemedicine would improve patient care in the nurse-led preoperative clinic.

Other outcomes include improvements to MDT working in the Leeds and York Partnership and Tees, Esk and Wear Valley pilot projects, with an improvement in communication, behaviours and commitments within the team, and the latter pilot project fostering a more tolerant MDT culture. The Royal Berkshire pilot project also reported a positive impact on organisational culture and practice, with a change in the role of the trainees, who became seen as strong initiators to good organisational practice.

Financial implications

A break-even point was calculated for each of the 4 pilot projects using bed days and serious adverse events. The break even points for the 4 pilot projects were calculated as follows:

- serious adverse events for Leeds and York Partnership, Royal Berkshire and Tees, Esk and Wear Valley, with each requiring a reduction of 32, 30 and 14 serious adverse events, respectively
- a reduction in bed days for Airedale and Western Sussex and Royal Berkshire of 228 and 273 days, respectively, in order to break even on the cost of the pilot project.



3.4.5 Front door/A&E

The 2 pilot projects designed around improving medical education within front door/A&E departments are the King's College RAT+ and the Pennine EPIC pilot project. Both provided different models and ways of improving training and education of doctors in training.

The King's College pilot project was not able to provide any further data on the impact of the pilot project on trainees owing to challenges in establishing a control group against which to measure the impact of the pilot project; however, qualitative data from the pilot project leads indicated that the pilot project improved multidisciplinary working, trainee support and productivity.

The Pennine EPIC pilot project provided increased opportunity for trainees to undertake WBAs, with a 25% increase in the number of WBAs per FYS2 doctor compared with the previous year. Trainees were satisfied with their ability to attend or undertake training as part of service commitments, and the increased opportunity for supervision and support. As a result, trainees felt that the pilot project provided opportunities for them to develop competences and that the educational input improved their ability to practise safe and effective medicine. Trainee productivity also improved, with trainees seeing 2 more patients per shift.

Both pilot projects were successful in improving supervision and support to trainees within a multidisciplinary team. Trainers in the Pennine EPIC pilot project felt that the tool enabled ease of identification of trainees' development needs and increased the amount of supervision and monitoring of trainee activity.

The King's College pilot project demonstrated how improving the education of doctors in training has resulted in improvements to patient care, in the time taken to treat patients and in the time taken to reach a decision. Reductions of 24% for time to treatment and 44% for time to referral to inpatient teams were reported. Additionally, there was strong agreement amongst nursing, clinical and medical staff that the RAT+ system improved quality of care and patient safety.

Financial implications

For both the King's College and Pennine EPIC pilot projects it was possible to determine a net monetary benefit. For the King's College pilot project a net monetary benefit to the Trust through increased PbR payments would be achieved in just over 5 shifts, while for the Pennine EPIC pilot project a net monetary benefit in 1 year was calculated at £75,760 (*see footnote 15*).

3.4.6 Patient rotas and scheduling

Five pilot projects were variously designed around improving medical education by restructuring rotas and patient schedules to maximise the learning from everyday activity; increasing opportunities for trainees to attend training sessions; or increasing opportunities for supervision. These are the East Kent, Guys and St Thomas, Leeds and York Partnership, South Manchester, and Tees, Esk and Wear Valley pilot projects,

All pilot projects were successful in achieving at least 1 of the following trainee outcomes: enhanced skills, knowledge or confidence, the ability to complete WBAs and increased productivity. An increase in trainee knowledge and skills was reported for the Guy's and St Thomas', and Tees, Esk and Wear Valley pilot projects, with the trainees from the Guy's and St Thomas' pilot project achieving the same level of knowledge in an 8-week period as achieved by doctors in 6 months of training via the usual training system or route. Trainees from all 5 pilot projects reported feeling more confident as a result of the pilot projects.

The East Kent, Guy's and St Thomas', and Leeds and York Partnership pilot projects improved trainees' ability to complete WBAs, with East Kent achieving a 4% increase in the opportunity to complete WBAs while on the ward and a 27% increase while on shift.

The East Kent, Guy's and St Thomas', Leeds and York Partnership, and South Manchester pilot projects reported improving trainee productivity or activity.

Other benefits achieved for trainees include:

- the ability to attend training sessions or increased opportunity for training (East Kent, Guy's and St Thomas', South Manchester)
- increased supervision and support (East Kent, Tees, Esk and Wear Valley)
- opportunity to develop leadership skills (East Kent)
- positive impact on behaviours and communications (Leeds and York Partnership).

Benefits to trainers include:

- increased opportunity for supervision (East Kent, Leeds and York Partnership, south Manchester)
- ease of identification of trainee development needs (Leeds and York Partnership)
- an improvement to the supervision process (East Kent, Tees, Esk and Wear Valley)
- an improved feeling of confidence in the trainees (Guy's and St Thomas').

All pilot projects reported improvements to patient care in either qualitative or quantitative terms. The East Kent pilot project was able to demonstrate quantitatively early benefits to patient care, while the other pilot projects provided consultant and clinical opinion to support the conclusion that there would be an improvement in patient care and safety.

The East Kent pilot project reported that patients were seen more promptly, that length of stay was reduced and that discharges had increased (please refer to data in the preceding themes and Table 3.2 for details).

Other outcomes achieved include:

- improvements to the handover process (East Kent)
- improvements to MDT working and communication (East Kent, Guy's and St Thomas', Leeds and York Partnership, South Manchester, Tees, Esk and Wear Valley)
- doctors new to psychiatry being better prepared for practice (Tees, Esk and Wear Valley).

Financial implications

For the Guy's and St Thomas' and South Manchester pilot projects it was not possible to determine any monetary benefits as it was not possible to assign a monetary value to the outcomes achieved at the time of the evaluation, nor was it feasible to use any literature evidence to determine any break-even points.

The East Kent pilot project produced a net monetary benefit in 1 year of over £0.5 million, while for the Leeds and York Partnership, and Tees, Esk and Wear valley pilot projects a break-even point modelled against serious adverse events was calculated as a reduction in 32 and 14 serious adverse events, respectively.

3.4.7 Multidisciplinary working

There are 8 pilot projects in this group, namely Airedale and Western Sussex, Dudley Group, Heart of England, King's College, Leeds and York Partnership, Royal Berkshire, South Manchester, and Tees, Esk and Wear Valley. Using a variety of methods, all have had a significant impact on trainees and on improving medical education.

All 8 pilot projects have been successful at achieving at least 1 of the following trainee outcomes: improved skills, knowledge and confidence, the ability to undertake WBAs, and increased productivity and efficiency.

Four of the pilot projects reported increased skills or knowledge among trainees, with both the Heart of England and Dudley Group reporting an increase in knowledge in patient safety and adherence to national guidelines, while Leeds and York Partnership reported improvements to management skills and Royal Berkshire reported improvements in knowledge around quality improvement project methodologies. Additionally, trainees in the Dudley Group, Leeds and York Partnership, South Manchester, and Tees, Esk and Wear Valley pilot projects reported an increase in confidence. Trainees in the Leeds and York Partnership pilot project also reported increased opportunities to undertake WBAs.

Four of the pilot projects reported improving trainee productivity or efficiency, with the Leeds and York Partnership pilot project significantly improving trainees' productivity on weekday evenings, at weekends and during the night (specific percentage improvements in activity have been provided in the preceding themes or in Table 3.2)

Other trainee outcomes observed were:

- improved trainee support and supervision (Airedale and Western Sussex, Kings, Royal Berkshire, South Manchester, Tees, Esk and Wear Valley)
- improvement to hospital night working (Airedale and Western Sussex).

Seven of the projects under this theme were able to report benefits to the trainers in the following areas:

- improved opportunities for supervision and support (Dudley Group, Leeds and York Partnership, Royal Berkshire, South Manchester, Tees, Esk and Wear Valley)
- increased consultant attendance at meetings (Airedale and Western Sussex)
- development of supervisor skills (Dudley Group)
- enabling better decision making (Airedale and Western Sussex)

- ease of identification of developmental needs (Heart of England, Leeds and York Partnership)
- improvements to the supervision process (Tees, Esk and Wear Valley).

All 8 pilot projects provided indications of improvements in patient care and safety, with the King's College pilot project providing quantitative data that the pilot project has improved time to treat and time to referral in an emergency department (specific quantitative data on outcomes has been provided in the preceding themes or in Table 3.2)

Other outcomes observed include:

- improvements in MDT working and communication (Dudley Group, Kings, Leeds and York Partnership, South Manchester, Tees, Esk and Wear Valley)
- improvements to organisational culture and practice (Royal Berkshire)
- change in the role of the trainees who became seen as initiators to good organisational practice (Royal Berkshire).

Financial implications

For the South Manchester pilot project it was not possible to determine any monetary benefits as it was not possible to assign any monetary value to the outcomes achieved at the time of the evaluation, nor was it feasible to use any literature evidence to determine break-even points.

A potential net monetary benefit was calculated for the King's College pilot project using the outcomes achieved, indicating that a monetary benefit could be achieved through increased PbR payments within just over 5 shifts.

A break-even analysis was conducted for the remaining 6 pilot projects, using bed days and serious adverse events. The break-even point was calculated in terms of:

- serious adverse events for Dudley Group, Heart of England, Leeds and York Partnership, Royal Berkshire, and Tees, Esk and Wear Valley, with each requiring a reduction of 12, 31, 32, 30 and 14 serious adverse events, respectively
- a reduction in bed days for Airedale and Western Sussex and Royal Berkshire of 228 and 273 days, respectively, in order to break even on the cost of the pilot project.

Table 3.2 Trainee outcomes and financial implications

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
			Trainee	**Trainer**	**Patient**	**Service/other**	
Airedale and Western Sussex	Handover/care transition Technology and simulation to enhance training and education Communication and QI Multidisciplinary working	£214,000	Trainees reported that they felt more supported as a result of consultants being more accessible. The pilot project enabled formative and summative assessment of the skills and knowledge of doctors in training, in simulated and real patient environments It improved the amount of support from a senior clinician at evening handover. It improved hospital at night working.	The trainers felt that having immediate and accurate feedback allowed them to make better decisions as a result of accurate assessment of patients. The pilot project allowed clinicians to be able to provide more support to doctors in training and nurses in clinics.	Trainers and trainees felt that there is likely to be an improvement in patient safety as a result of better decisions and accurate assessment of patients Having consultant presence, via telemedicine, enabled facilitated consultant opinion in patient care in the nurse-led preoperative clinic.	The pilot project highlighted existing inefficiencies in the current handover system in two acute NHS Trusts, resulting in a new commitment for standardised procedures.	The pilot project represented a financially viable method for seeing clinical cases at a distance. There is a direct potential to reduce travel, time and other opportunity costs through the more efficient use of clinical professionals' skills and knowledge, and their associated networks. The use of telemedicine in direct patient care scenarios is likely to have a rapid return on investment and quality improvement. This pilot project would break even if 228 bed days were saved from the change in handover techniques, equivalent to

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
							1% of the Airedale elective inpatients per annum. This is based on 1 of the 6 interventions, with a cost of £80,250.
East Kent	Handover/care transition Out of hours/24/7 Patient rotas and scheduling	£163,282	There was a 4% increase in the opportunity for trainees to complete WBAs while on the ward and a 27% increase when on shift. 11% increase in trainees who were satisfied with the opportunity to attend clinics while on ward duty. A 21% increase in trainees who regularly receive feedback from senior colleagues was reported.	Trainer's felt that there was greater availability of time for supervision and assessment of trainees. As a result of the pilot project, the trainers were able to train in a more focussed manner.	Patients are being seen more promptly, more appropriately and procedures are being carried out in a more timely manner. The pilot project reduced patient average length of stay by 6.0%, and reduced overall length of stay by 0.5 days. There was a reduction in crude mortality rate, including weekdays and weekends, by 1%. There was a 12% increase in discharges per day compared with the previous year, with Saturday discharges	Improvement to Friday handover process was observed, as was an improvement in MDT working. Trainees felt more empowered to take ownership of their requirement to undertake WBAs. Nurses were able to provide much needed and valued support to trainees; felt empowered at weekends to make a significant difference to the patient experience; and were able to work effectively as part of a new enhanced weekend team.	Based on the costing of a medical bed day being £200–£250, savings to the Trust were estimated to be up to £663,912.

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
			As a by-product of improvement in clinical outcomes, trainee felt more confident. Trainees felt more supported in their development as a result of increased frequency in feedback from senior colleagues. Trainees demonstrated greater leadership skills.		increasing by 20.0% and Sunday discharges by 5.5%.		
King's College	Front door/A&E Multidisciplinary working	£44,090	The pilot project reported increased productivity and support to the trainees.		The pilot project reported a reduction of 24.3% in 'time to treatment' when compared with the non-RAT control group. There was a 43.6% reduction in mean time to referral to in-patient teams from arrival when compared with the non-RAT control group.	The majority of medical and nursing staff agrees that RAT+ improved flow through Majors. The pilot project also reported improved MDT working.	If all patients seen between 10:00 and 18:30, at an average of 39.7 patients across the 10 days, spent 27.0 minutes less in the emergency department, extra trolley time of 17.9 hours or the capacity for an extra 4.9 patients (based on 218.7 minutes per patient) would be provided. That is an increased capacity of 12.3%, which gives a

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
					There was a 10% reduction in the total time in the emergency department when compared to the non-RAT control group. The pilot project reported a reduction in the median time to treatment for Majors patients to 53 minutes compared with the non-RAT group with a median of 69 minutes. 60.0% of nursing staff and 66.6% of medical staff agreed that RAT+ improved the quality of care for patient in the Majors area. Clinical staff (78.0%) agreed that RAT+ improved patient safety.		gain per shift in PbR of £8,408.40. It would take just over 5 shifts to break even.

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
Pennine EPIC	Technology and simulation to enhance training and education Front door/A&E	£44,240	25% increase in mean number of WBAs per FY2 doctor in A&E compared with the previous year. 20% increase in the number of trainees who reported sufficient time to do WBAs. 94% of trainees rated the EPIC project as good or excellent. Trainee productivity improved, with trainees seeing 2 more patients per shift, i.e.an 24 additional patients per day. Trainees felt that they received good supervision and support from senior staff and nurses. There was an increase in the number of trainees	Trainers felt that the tool had helped guide trainee development plans, and increased the amount and quality of supervision. The dashboard allowed trainers to more easily monitor the activity of trainees, by recording the number and triage category of the patients they were seeing, as well as recording details of procedures and training carried out. This aided trainers in directing learning.			An increase in clinical productivity was reported. For FY2, GPVTS and STQ grades, there was an average increase of 2 patients seen per trainee per shift. With an average of 12 shifts per day, this equates to an additional 24 patients seen per day, which is equivalent to the workload of 2 extra doctors, for which 3–4 full-time FY2s would need to be employed at a gross cost of roughly £120,000 per year. The outcomes reported are not specific to a particular speciality, and this assessment is a general assessment based on the impact the gaming device has had on efficiency and productivity of the trainees in an A&E department. Additionally, the pilot project can be transported to other departments with restructuring of the scoring criteria to the local setting, and outcomes will vary accordingly.

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
			who saw their clinical supervisor; and trainees reported that they saw their supervisor as much as they wanted.				
Pennine handheld (infectious diseases)	Handover/care transition Technology and simulation to enhance training and education	£49,577	Initial findings demonstrate that trainees are enthusiastic about the pilot project.				The pilot project was not implemented fully at the time of the evaluation; therefore, a theoretical assessment of financial implications was made. This pilot project would break even if 141 bed days were saved from the change in handover techniques. This is equivalent to 2% of the Pennine area's elective inpatients per annum.
Mid Cheshire	Handover/care transition Technology and simulation to enhance training	£136,293	There was a 25% increase in the jobs/ tasks completion rates by trainees.	The pilot project resulted in greater consultant attendance at handover meetings. The pilot project tool	Focus group reported improvements in patient safety. There was a 9.5% increase in out-of-hours discharges, and a 3.3% increase in	A culture for handover has been embedded in the department. There were improvements in MDT	An increase in out-of-hours discharges of 9.6% was observed (relative to a baseline of 2961 discharges) over a 3-month period. Assuming a cost per night of £550 and

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
	and education			allowed the interpretation of data on jobs completed and handed over and those not completed.	weekend discharges. Critical incident analyses revealed a change in the types of critical incidents reported, moving from a mixture of human and systematic error to only human error as a result of implementing a safer, more auditable, e-handover system. Improved quality of care out of hours as a result of tasks being logged clearly and allocated to named doctor for completion during the next shift.	working relationships. Clear leadership in the handover process was present in 100% of handover meetings.	that each out-of-hours discharge saved 1 night in hospital, the total cost saving over 3 months was put at £156,200. As a result of the pilot project, nurse coordinators in the assessment areas were able to document when the bed was ready for the patient to move from the emergency department and thereby ultimately reduce phone calls. Audit times for pharmacy were reduced with regard to medicines reconciliation and confirming compliance with performance for CQUIN.
Heart of England	Technology and simulation to enhance training and education Multidisciplinary	£97,000	The pilot project demonstrated increased F1 knowledge in patient safety areas.	The pilot project supported early identification of F1 doctors requiring professional support	A 6% increase in the use of antiobiotic stop date prescriptions was reported.		Based on sources available, a health economist has valued serious adverse events to cost an average of £3,172

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
	working		There was a 4.5% improvement in VITAL assessment score of trainees.	and observed an improvement in their scores after remedial action, for instance educational support meetings.			to resolve. This pilot project would break even if 31 serious adverse events were prevented as a result of the change in evaluation.
Dudley Group	Multidisciplinary working	£36,600	There was an increase in the confidence and skills of trainees, and a notable increase in efficiency and productivity. Adherence to national guidelines increased from 40% to between 55% and 60% for respiratory and elderly care wards, respectively. The pilot project reported an improvement in completion of prescription charts. The insulin audit	Trainers were able to share risks of prescribing in their speciality with the trainees, and to raise awareness and improve prescribing in protected time away from the ward environment. Feedback from trainees helped them improve their teaching technique, and tailor their teaching session to enable trainees to get the most out of the session.	An audit conducted by the pilot project showed there to be an improvement in prescribing that would lead to an improvement in administration, reduction in incidents and better, safer care for the patients.	There were improved working relationships between pharmacists and trainees, and improved communication and understanding of each other's roles.	Based on sources available, a health economist has valued serious adverse events to cost an average of £3,172 to resolve. This pilot project would break even if 12 serious adverse events were prevented as a result of changes in prescribing behaviour.

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
			results showed an increase from 79% to 100% in the recording of insulin device on charts. The pilot project made people more safety aware with prescribing both with doctors in training and those involved in the sessions and this was a great achievement.				
Tees, Esk and Wear Valley	Communication and QI Patient rotas and scheduling Multidisciplinary working	£43,655	The pilot project reported a 55% increase in the amount of directly supervised clinical work, especially to doctors new to their post. A slight increase in trainee confidence was observed. Trainees ranked the	There was a consensus among 26 clinical supervisors that the project had resulted in a more standardised approach to supervision.	Clinical supervisors agreed that patient care had benefited as a result of the pilot project.	The pilot project improved MDT working and fostered a more tolerant multidisciplinary culture. Trainers and nonmedical staff believe that doctors new to psychiatry are now more quickly prepared for practice and that their contribution to service	The piloting of changes in IT and electronic records training has resulted in new arrangements for this training being rolled out across the Trust. At the end of this, there will be a 50% reduction in time spent in induction on e- training on their systems but with an improvement in electronic records competency.

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
			quality of training higher than in the control group. Trainees' experience of induction, supervision, training and clinical experience was scored as a mean of 4.4, with a high of 5.0 for 'excellent', against a control group that achieved a mean score of 3.6.			delivery has improved.	Based on sources available, a health economist has valued serious adverse events to cost an average of £3,172 to resolve. This pilot project would break even if 14 serious adverse events were prevented as a result of the change in supervision.
Leeds and York Partnership	Handover/care transition Technology and simulation to enhance training and education Communication and QI Patient rotas and scheduling	£100,011	All trainees felt more confident. All trainees felt the training has had a positive impact on communication, ehaviours and commitment, patient contact time and trainee/trainer time. The pilot project reported an increase in productivity for	The trainers felt that the pilot project facilitated identification of areas for development in communication skills. There was more opportunity for supervision.	Fewer incidents were reported and feedback shows strong agreement of improved clinical care.	Improved MDT working and improvement in behaviours and commitments in the MDT. The pilot project reported a positive impact on MDT communication and relationships.	Based on sources available, a health economist has valued serious adverse events to cost an average of £3,172 to resolve. This pilot project would break even if 32 serious adverse events were prevented as a result of the change in supervision.

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
	Multidisciplinary working		weekday evenings by almost 38.0% and weekends by 29.1%. Night-time activity increased by 2.1%. The pilot project resulted in an improvement of management skills important for higher training, e.g. time management, delegating and utilising skills mix of working group. Trainees had more opportunity to undertake WBAs.				
East London	Technology and simulation to enhance training and education	£52,200	Strong trainee enthusiasm for the pilot project was reported, and 98% trainees felt that the training initiative would change their practice.	Nursing and medical trainers were given the opportunity to develop their facilitation and teaching skills. Trainers reported satisfaction and the	Review of pre- and postincident reporting data for the delegates who attended the training indicated an increase in incident reporting.	There was an improvement in MDT working and improved communications. Feedback from MDT delegates regarding the pilot project	At the time of the evaluation, the pilot project did not report any outcomes that could be monetised, nor was a break-even analysis feasible in this case.

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
			88% of trainees felt they had improved in confidence in communicating with senior health professionals and the wider team. There was an improvement in knowledge on key areas around serious incidents.	personal learning obtained from providing multiprofessional training with nursing and medical colleagues. Trainers were provided with training in simulation and debrief by expert simulation trainers. All trainers who participated in the pilot project, expressed a wish to continue providing this type of training, after the pilot project was completed		indicates that simulation training is seen as a very effective way of enabling staff to learn from serious incidents.	
Royal Berkshire	Communication and QI Multidisciplinary working	£95,951	Increase in knowledge and skills in delivering and completing a QIPP and in QIPP methodologies and change implementation.	All QIPP project supervisors agreed the pilot project was a valuable practical learning exercise for the trainees and all agreed they would supervise another QIPP project.	All QIPP project supervisors agreed the pilot project had a significant impact on improving clinical practice – 29% (4/14 strongly agreed).	Supervisors felt there was a positive impact on organisational structure and practice. A change in commitment was observed as trainees	Based on the sources available, a health economist has valued serious adverse events to cost an average of £3,124 to resolve. Excess bed days are

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
			There was strong trainee enthusiasm for the pilot project. 93% of trainees faired above expectation for their stage of training in areas of change implementation. In the subject of quality indicator measures, 86% of trainees scored above their stage of training and 100% of trainees scored above their stage for future application of QIPP.			were being seen as strong initiators to good organisational practice.	valued at £352. This pilot project consists of multiple separate projects that had a multitude of outcomes. This makes the pilot project difficult to evaluate as it is likely that it would be made up of more than one benefit. The break-even point for adverse events is 30 and for bed days it is 273.
Leeds Teaching	Technology and simulation to enhance training and education	£89,000	The pilot project demonstrated an improvement in skills and confidence by approximately 40%. The pilot project achieved satisfaction amongst trainees.			The pilot project provided 4 teaching sessions on trauma skills using subspecialty colleagues as trainers and using wet-lab cadavers. This will act as a teaching aid for	At the time of the evaluation, the pilot project did not report any outcomes that could be monetised, nor was a break-even analysis feasible in this case.

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
						training surgeons in key trauma skills.	
South Manchester	Technology and simulation to enhance training and education Patient rotas and scheduling Multidisciplinary working	£89,587	The pilot project demonstrated a 12.7% increase in the number of surgeries with a training component for trainees. Trainees reported improved confidence and productivity. 94% of trainees felt their trainer was enthusiastic about the training. Breast and Trauma and Orthopaedics Surgery showed improvement in the training of CST.	Trainers felt that the pilot project enabled increased opportunities for supervision.	Evidence suggests improved patient outcomes.		At the time of the evaluation, the pilot project did not report any outcomes that could be monetised, nor was a break-even analysis feasible in this case.
Guy's and St Thomas'	Patient Rotas and scheduling	£10,000	The trainees reported satisfaction with the pilot project. The pilot project increased	There was a more than 50% improvement in the confidence levels of the trainers.	Feedback indicates improved care and management of patients; reduction in	There was an observed improvement to MDT working with the integration of the	At the time of the evaluation, the pilot project did not report any outcomes that

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
			trainees' ability to attend training sessions. There was a more than 50% increase in confidence in trainees. Similar improvement in knowledge in trainees in the 8 weeks of the pilot project was observed as compared with 6 months of training via the normal route. Trainees achieved 100% of RCOG logbook requirements. Trainees completed more WBAs as part of the pilot project compared with what they completed during 'traditional' training in the same year.	Trainers communicated an improved satisfaction and experience in the pilot project.	incidents and improvement to clinical outcomes.	trainee as part of the team, and a change in the way other members of the team viewed the trainees.	could be monetised, nor was a break-even analysis feasible in this case.

Pilot project	Areas/themes	Cost[16]	Benefits and outcomes to trainee, trainer, patient, services				Financial implications
North Bristol	Technology and simulation to enhance training and education	£12,960	As a result of the pilot project there was an increase in the number of WBAs in an outpatient area. Feedback sessions helped the trainee learn and develop their consultation style. 100% of trainees felt satisfied with the pilot project.	100% of feedback sessions have helped the consultant trainer to learn about their registrar's consultation style. Consultants have been trained in the delivery of video-assisted consultation. Trainer satisfaction in WBAs has increased.		The pilot project developed a robust method for recording and playback of outpatient consultations, which is acceptable to clinicians and patients, reliable and compatible with the storage and transfer of sensitive material.	At the time of the evaluation, the pilot project did not report any outcomes that could be monetised, nor was a break-even analysis feasible in this case.

QI, quality improvement; WBA, workplace-based assessment; A&E, Accident and Emergency; RAT, Rapid Assessment and Treatment; PbR, payment by result; EPIC, Emergency Physician In-house Challenge; CQUIN, Commissioning for Quality and Innovation; VITAL, Virtual Interactive Teaching and Learning; IT, information technology; QIPP, Quality Improvement Project; CST, Core Surgical Trainee; RCOG, Royal College of Obstetricians and Gynaecologists.

3.5 Lessons learnt from pilot project implementation

The aim of process evaluation was to review progress of the pilot projects in planning, set-up and implementation of their training initiatives, and to identify critical success factors and lessons learnt with particular focus on the wider spread and adoption process. The first phase of the process evaluation undertaken from January 2013 to May 2013 identified the factors that need to be built into the planning and design stages of the process to allow for successful implementation of the pilot projects. The findings were covered in an interim report dated August 2013 (Appendix 3); an overview is presented in Box 3.1.

Box 3.1 Interim findings

Early findings identified the factors critical to the successful implementation of the pilot projects as:

1. Clarity of purpose and of objectives
2. Team-working
3. Buy-in, leadership and commitment from all levels of the organisation
4. An effective communication strategy
5. Organisational and project administration support
6. A good relationship and robust communication between education and service structures
7. An ability to adapt to feedback and changes in services, staffing and the pilot.

Building on the interim findings, further information was collected on areas such as leadership, engagement, governance and ease of implementation in order to ascertain how these factors affected the success of the pilot project, and what measures were taken to improve performance against them and further improve the local spread and adoption of the pilot project.. However, qualitative data collection exercises identified that the emphasis for some of the pilot projects was more on implementation of the pilot projects, with less around strategic thinking with regard to spread and adoption. Box 3.2 summarises the key messages regarding the lessons learnt; these are explained further with specific examples from pilot projects in the following section. It should be noted that while these lessons identified during the implementation phase are critical for the successful implementation of the pilot project, most of them are considered general lessons associated with the implementation of projects in similar environments.

Box 3.2 Lesson learnt

1. Having formally **agreed Trust support** is critical in making the pilot projects mandatory to ensure that clinicians and trainees are able to dedicate limited available time to either the pilot project or the alternate, thereby improving engagement.

2. **Clinical leadership** is an essential driver of change; drawing on the wider multidisciplinary team for clinical leadership ensures better working relationships, and increases the probability for success and wider buy-in for the pilot project.

3. The pilot project board should ensure that the **planning and project management responsibilities** are clearly defined and resourced appropriately to achieve agreed levels of quality, control and value-added support to the pilot project.

4. Pilot projects need to consider carefully in their design and implementation how they can contribute to supporting improvements in current service provision and meet the **strategic objectives of the organisation**.

5. A **multidisciplinary, multiprofessional approach to governance** meetings offers inclusive flexible support and fosters good working relationships with other departments.

6. Ensuring the **project manager** is enthusiastic about the pilot project, and roles and responsibilities are outlined to include communication to trainees and the wider team is an effective way to close the communication gap.

7. A common factor that affects implementation is **availability of time to engage** with the pilot project in terms of providing clinical leadership or to form part of the governance structure.

8. Having **flexible communication strategies** can facilitate engagement with the pilot project, and ensure necessary pilot project information is received by the relevant audience.

9. **Mapping out key stakeholders and engaging early** in the design and implementation process can affect the performance of the pilot project and impact on motivation and enthusiasm for the pilot project.

10. **Including trainees in key decisions**, and pilot project design and implementation is an important aspect to ensuring continuous engagement.

11. **Early engagement with academic partners** or representatives in the design phase is essential in the development of appropriate outcomes and in identifying ways to measure against them.

12. **Trusts need to consider the evolving role of the trainee** and his/her capacity to champion the pilot project and motivate other trainees.

13. **Setting objectives that are SMART** (specific, measurable, achievable, relevant, time-bound), and collecting the appropriate data to measure against them, enables accurate assessment of success and oversight of what needs to be delivered.

Trust support

Having support from senior Trust members like the Trust Chief Executive Officer, board members, Director of Education, and/or Medical Director has had a positive impact on the engagement, buy-in and success of the pilot projects. This was especially useful in overcoming challenges such as:

- managing service backfill or service issues when changing rotas
- getting support from other areas of the Trust, e.g. patient outcome data or information technology (IT) support
- funding additional supervisory clinician time
- making the pilot project mandatory to allow for complete engagement by the team.

Seven of the pilot projects had benefited from formally agreed Trust support when required, and in those pilot projects where this support was strong, this engagement paid dividends when senior members of the Trust took an active interest in the pilot projects, facilitating their roll-out to other departments. Furthermore, gaining Trust support ensured that the pilot project was kept in full view with the long-term goal of spread and adoption, and provided organisation-wide awareness of the national objective to bring about changes in education and training of trainees.

Clinical leadership and engagement

Clinical leadership was a major contributing factor in driving the success of the pilot projects, building enthusiasm and promoting engagement with the pilot projects. Eleven of the pilot projects provided evidence of having strong clinical leadership to drive the process and improve commitment and buy-in from the wider clinical team. In those pilot projects that had difficulty securing sufficient levels of clinical leadership, this was attributable to factors such as:

- time to be involved in the pilot project
- individual doubts or scepticism about the pilot project
- an unwillingness to be involved

However, demonstrating the benefits and impact of the training initiative was sometimes successful in improving clinical leadership, for example:

- involving the Medical Directors in influencing the process and championing the pilot project
- championing the pilot project to the clinical leaders
- engaging with the wider clinical team with the pilot project to provide support to the trainees.

Where pilot projects were dependent on multidisciplinary team (MDT) working, those that were able to draw on enthusiastic engagement through the extended leadership of the MDT worked well.

In contrast, those with poor engagement/ commitment from wider clinical team members (e.g. the nursing staff) provided some challenges and adversely affected trainee participation and enthusiasm. Nine of the pilot projects reported having engaged with Medical Directors, service leads or senior nursing managers. Where good clinical leadership was demonstrated and influential with other stakeholders, such as Royal Colleges, this was also shown to be an important factor.

There were mixed experiences with some trainees benefitting from strong clinical leadership and communication with a specific emphasis on driving organisational commitment/behavioural changes, while others felt that consultants were not on board, even when informed that the pilot project was to improve training of doctors in training. This lack of consultant leadership affected the enthusiasm of the trainees towards the pilot project.

Box 3.3 Examples of clinical leadership The Leeds and York Partnership and South Manchester pilot projects used individual champions at department or ward level to drive the pilot project forward and create sustained enthusiasm. There was also board support and links to Local Education and Training Boards (LETBs).

Box 3.3 continued

The East London pilot project received a lot of support and buy-in from the Deputy Director of Nursing, and engaged with nursing managers to ensure continuous nurse buy-in and involvement in the pilot project, and to allow issues to be addressed in a timely manner.

For the East Kent pilot project, clinical input was essential to the success of the pilot project; and the clinical lead was also the Director of Medical Education, which added significant credibility and support to the pilot project.

Governance

A multidisciplinary, multiprofessional approach to governance meetings helped overcome issues, form better working relationships, and gather and improve support and buy-in for the pilot project. The initial findings showed that 14 of the 16 pilot projects either had senior Trust management representatives on the pilot project team and/or reported regularly to senior Trust management. In addition, the majority of the pilot projects included trainees at project board meetings, therefore providing trainees with opportunity to feed into the decision-making process and be more engaged with the training initiative.

Patient involvement ensures the patient agenda is at the forefront of what the pilot projects are trying to achieve, thereby maintaining clarity of national objectives and development of appropriate outcome measures. However, most pilot projects were unable to include patient representatives as part of the governance process or the planning and design phases owing to difficulties in recruitment and engagement.

Box 3.4 Example of patient involvement In the North Bristol pilot project, a patient panel supervised the pilot project as part of their project governance. The panel elected a member, who joined the project board to provide a patient voice in the development of the methodology of the training initiative; all public-facing communications and paperwork were reviewed by the patient panel. This resulted in effective communication with patients regarding the nature of the pilot project and a well-designed approach, which was deemed fit for purpose from a patient's perspective.

Project planning and management

Project planning and project management required significant amounts of time and posed challenges for the pilot projects. The main lesson learnt from some of the pilot projects was that during the early set-up stages, there needed to be greater emphasis on project management and the time required to perform this function effectively. This was of particular importance to those pilot projects that were more complex or ambitious in their design as they required more effort, time and resources to drive implementation and engage stakeholders.

The difficulties in implementing any pilot project are dependent on the number of factors that are in the control of the project team. Some of the factors that affected the implementation of the pilot project include:

- how aligned the pilot project was with improving current service provision and meeting organisational objectives
- the department that the pilot project is being trialled in, for instance front-door Accident and Emergency departments
- the degree of stakeholder and wider engagement activities that would be necessary to deliver the pilot project successfully
- the impact of the greater multidisciplinary team (MDT) and workforce and how they perceive the pilot project
- information technology (IT) and technical issues
- effort and time to develop and implement pilot projects that change the curriculum or use enhanced software.

As such, these pilot projects would need to have robust planning and risk management of all dependent factors, including MDT behaviour and perceptions of the pilot projects. Furthermore, it was noted by pilot project leads that project management should be viewed as a discipline that adds value and is a critical success factor in implementation of projects.

Communication

It is well documented that a key enabler for success in a change project of this nature is the extent to which there is an effective communication strategy owned and promoted by the pilot project champions. Where communication and engagement with the Trust board, clinical leads and trainees took place, it made a difference to the support and wider buy-in for the pilot project compared with those where this was not as evident. Trust engagement and support was crucial to have at early stages to address resource and capacity issues, and to facilitate ease of managing risks and challenges of implementing training while maintaining service commitments.

The project managers themselves played an important role in maintaining trainee enthusiasm for the pilot project by way of closing the communication 'loop'. Trainee experiences identified that by allowing them opportunities to contribute effectively concerns and issues to the development of the pilot project, the project team influenced how the trainees related to the pilot project. Trainees felt that the method of communication was an important element to convey any information to them and to the wider team. Trainees attending the trainee workshop event differentiated the impact of the different types of communications received about the pilot project. They identified that a more direct dialogue between the trainee and those managing the project would facilitate trainee engagement.

Choosing the right communication method was essential to the engagement process, and careful consideration should be given to the nature and 'type' of audience, the information and content of the communication, the aim of the communication and whether face-to-face or electronic communication would be more suitable. In addition, trainee engagement was affected by the way the project leads communicated the nature of the pilot project. Use of words like 'research' and 'pilot' gave a connotation of this being a short-term initiative; therefore, it might not be considered as important as other work commitments.

In addition, early communication with other departments in the Trust was essential to the success of some of the pilot projects, especially for those that involved information technology (IT) and required the specific outcome data that was already collected by the Trust. This was an important step to be able to plan for risks down the line, overcome issues in implementation and ensure data was made available to demonstrate the achievements of the pilot project.

Trainee engagement

Eight of the pilot projects reported that they had good trainee buy-in. The degree of success achieved in the pilot project appears to link with the amount of involvement of the trainees in its design and implementation. The evaluation found that those pilot projects that had greater trainee engagement provided opportunities to drive the design and implementation of the training initiative had greater impact on trainee outcomes. In a few cases where the trainees had positive experiences with the pilot project, it resulted in them taking on stronger leadership roles to champion the pilot project, and, in turn, improve engagement amongst other trainees. Regular communication with the trainees and a good relationship with the project manager have been instrumental in driving the process.

Trainees also felt increased motivation from speaking to other trainee champions who had already been open to the pilot project, and this increased trainee engagement significantly. This also contributed to the development of trainee clinical leadership skills.

However, sometimes factors like service delivery constrained the time available to trainees to engage with the pilot project, despite the trainees relishing their role in being a part of the project meetings and project development. For those pilot projects designed around technical software initiatives, technical constraints and delays were found to limit engagement. Some pilot projects experienced limited trainee engagement as a result of inadequate communication (as described above) and a lack of opportunity for trainee feedback in the planning and implementation phases, or in the ongoing development of the pilot project.

Some of the solutions suggested by trainees to improve their engagement in the pilot project include:

- allocation of a trainee lead to each pilot project as an effective strategy to bridge the gap between trainees and management
- recognition that contributing to the pilot project is an important addition to the breadth of training
- consideration of and planning for training needs, as well as service commitments, to avoid compromising either the quality of patient care or the effectiveness of training

Box 3.5 Examples of how project teams ensured effective trainee engagement with the pilot project

The Leeds and York Partnership pilot project was one example of how pilot projects allowed dedicated time for education and training by reorganisation of the rotas; a strong sense of commitment from the trainees; the active involvement by senior Trust management on the project board and their protection of the pilot project's aims and objectives; and by planning for the likely impact of a new clinical service on the pilot project.

In the Heart of England pilot project, where it was found that trainees were not engaged with the learning materials, the pilot project was able to provide information on the bottom 10% achievers, to allow input and remedial action from clinical supervisors. Remedial action included individual discussions with trainees to identify and resolve engagement issues, and creation of individual learning plans. The outcome of this way of working was improved engagement by and outcomes for trainees.

Academic support

Pilot projects were encouraged to seek academic partners to support planning and implementation. This association would prove to be useful in providing objective rigour, independent review and supporting the pilot projects in developing effective outcome measures. As per findings during Phase 1 of the evaluation process, pilot projects engaged with academic representatives at various stages of the design and implementation; some had formal academic representation at project meetings, while others engaged with academic representatives or sought academic input in an informal way. It was evident that the pilot projects that had greater academic involvement in the design and implementation at the outset had been able to provide data that were considered by the evaluation to be more robust, complete and well linked to their objectives.

The interim report identified 8 pilot projects that had included academic involvement in either governance meetings, or to support the design, implementation and continuous management of the pilot project. Since then, other pilot projects have sought academic input as a result of learning that this was a critical success factor in ensuring fit-for-purpose data collection in order to measure appropriately the impact of the pilot projects.

Challenges experienced by the National Evaluation

Each pilot project developed a series of project objectives that set out what the pilot project wished to achieve. It was evident that for some of the pilot projects they had set defined objectives that fulfilled SMART (specific, measurable, attainable, relevant and time-bound) criteria, particularly in relation to timeliness and the interdependence between different objectives. Therefore, these pilot projects were more able to demonstrate the impact of their training intervention in comparison with those pilot projects which did not set SMART objectives.

Some pilot projects have demonstrated sustained focus on improving patient care by including this as an objective to measure their success by. However, in the majority of cases, short-term objectives had been set with a main focus on implementation the training intervention. A selection of pilot projects had not managed to put in place adequate plans to collect the appropriate outcome data to measure whether they had achieved their objectives. Furthermore, there were limited data available for some of the pilot projects owing to an underestimation of how long it would take to demonstrate an impact and/or owing to delays in implementation of their pilot project.

Although the selection process ensured that each of the chosen pilot projects established objectives for the implementation, the majority of pilot projects did not define a baseline, control or counterfactual against which the pilot project was intended to offer improvement. This poses a limitation on some areas of the evaluation findings, especially in relation to the optimum conditions for further spread of pilot projects. The evaluators had identified the above challenges prior to the final data collection phase and adopted a 'narrative' approach to supplement the limited quantitative data received by some pilot projects, in order to unpack areas of achievement against objectives and the impact of the pilot projects.

4.0 Spread and Adoption

In this chapter we will present findings on any early indicators of spread and adoption locally in the Trust, while also highlighting cases where pilot projects were able to spread the innovative training methods outside of the Trust. Drawing on the findings from the evaluation of the implementation process, this section will consolidate and present the factors that were found to be critical enablers in the implementation process, and therefore will be critical to the successful spread and adoption of the pilot projects, locally and nationally. This chapter also contains an overview of the learning identified during the evaluation process. This chapter will then lead onto Chapter 5, where we present recommendations for spread and adoption based on the outcomes, financial implications and the evaluation of the implementation of the pilot projects.

The 16 sites were tasked with implementing a pilot project that would improve medical education to doctors in training and thereby improve patient care within the clinical settings. The idea was to test the pilot project within a specific department, with the goal of spreading to other departments within the hospital and Trust, to feed ultimately into the national adoption strategy led by the national programme.

The evaluation found that project teams considered how national adoption could be achieved and what other Trusts would require to facilitate the process, for example what would be the cost requirements should other Trusts want to adopt the pilot project, or what sort of tools and guidance would be necessary. To that end, most of the pilot projects have developed resource materials to further enable adoption and reduce the 'labour' for other Trusts wanting to adopt the pilot projects.

Table 4.1 provides examples of pilot projects that have ensured sustainability and enabled spread and adoption. Table 4.2 provides stakeholder quotes on spread and adoption.

Table 4.1 Examples of findings around sustainability and local spread and adoption

Pilot project	Examples of how pilot projects have considered sustainability and local spreadream
Airedale and Western Sussex	Discussions are ongoing between the two Trusts to work together initially over the next year or so. There is a genuine desire on both sides to continue the relationship and to extend the use of telemedicine in educational and clinical settings, with a will to embed the successes of this pilot project and to continue to use the 12 telemedicine licences purchased through the BTBC project. The e-learning tool that has been developed and will be available for NHS staff and GP practice to use free of charge. The infrastructure to replicate the pilot project is very expensive, although other Trusts might be able to 'piggyback' onto some of the infrastructure in place already.
Dudley Group	The sessions and themes for the sessions have been developed and the consultants have been approached to deliver the sessions for the next near. Agreement has been obtained to conduct 1 session per year. All the material will be available for others to select off the website. Some outcomes will also be added to allow visibility of the impact of the pilot project.
East Kent	Senior Trust members are confident that the model could be taken on by other departments. The Trust committed to maintaining and rolling out the pilot project within medicine. The new rota remains in place at the William Harvey Hospital in Ashford, Kent and has been rolled out at the Trust's other acute hospitals – the Queen Elizabeth the Queen Mother Hospital in Margate and the Kent and Canterbury Hospital in Canterbury.
East London	The pilot project team has allocated a nursing (modern matron) and a medical (consultant psychiatrist) lead facilitator for the simulation training; and identified a pool of nursing (modern matrons) and medical (consultants and senior trainee) clinicians who would like to train as simulation trainers and be involved in delivering the training. They have commissioned a bespoke trainer course from expert simulation trainers with additional follow-up sessions. They have established the programme of simulation training to be delivered long-term, including the number and frequency of sessions per month. Training will continue to be managed and supported by the Medical Education Department, and reviewed and monitored by the Trust's newly established Training and Education Department.

Pilot project	Examples of how pilot projects have considered sustainability and local spreadream
Guy's and St Thomas'	The gynaecological oncology training is being delivered as modular training within a block of 12 weeks for 2 trainees at a time. This has been incorporated into the general rota without affecting the service. Resources have been developed and the rota structured for ongoing trainee 'recruitment'. Once the rota template is designed and implemented, it will not need maintenance costs for the subsequent years.
Heart of England	The VITAL for Doctors pilot project continues to run with the input of the project lead, the lead educator (SP), and administration assistance (1 day per week). There are plans to develop further interactive learning materials using CAPTIVATE software for existing modules only. In terms of adoption, some start-up costs will be necessary. However, beyond this, the pilot project has already done much of the work. There will be no need to start from scratch with the software, as certain modules have already been created – the pilot project could provide support on a not-for-profit basis. The use of work-based learning means that the programme is sustainable for future F1 cohorts, and requires a modest amount of administrative input to run.
King's College	The Trust has already supported the establishment of the first tranche of AAPs and they have commenced clinical duties and the Master's degree programme in the autumn of 2013. Further investment will be required to further expand the AAP group not only to provide consistent 7 day a week cover, but also to ensure an AAP and future ACP workforce, and to develop and support a consultant workforce able to deliver RAT+ for at least 8 hours a day. A clear plan, agreed by all stakeholders, is urgently required to establish the RAT+ area. The project leads are working with the national working group on ACP development at HEE to be able to influence the development and to incorporate the national framework due for release in the summer/autumn of 2014. Roll out of the training model to other Trusts would depend on the number of consultants available within the other Trusts that could be incorporated in the initiative. However, the project team are currently trying to implement the pilot project in another hospital.

Pilot project	Examples of how pilot projects have considered sustainability and local spreadream
Leeds and York Partnership	Resources have been developed and are available on the School of Psychiatry website, in addition to other information submitted by the Trust. These resources will be available for anyone to access anywhere. A quick reference guide to describe the role and grades of trainee psychiatrists has also been developed. All CT and ST job descriptions and timetables being reviewed and revised to ensure maximum consultant contact in core placement and have been approved by HEE Yorkshire and the Humber on behalf of the GMC. Formative Assessment for CT1s mandated. Introduction of an agreed programme for CT1–3 to assess and develop communication skills with patients and the MDT, along with recognising and managing both physical and mental health presentations. The strategy also involved piloting the RAMPPS in November 2012, which led to a CSF being secured by HEE Yorkshire and the Humber, who has developed the RAMMPS and incorporated it into training regionally. The continuation of the SBAR culture will be through e-learning, SBAR champions and SBAR training in all DiT inductions. Following the successful implementation of the new out-of-hours care pathway, all DiT from FY1 to CT3 are now on a daytime rota with the ALPS team and are able to achieve a WBA at least 12 weekly from a band 7 or senior medic to evidence their competencies in emergency psychiatry assessment and management. Teaching skills module agreed, via HEE Yorkshire and the Humber, to commence on MRCPsych course for all CT1 regionally from October 2013. The Patient Safety Manager will monitor and coordinate ongoing SBAR training and continue to plan and roll out within the Trust with the assistance of the DiT PSC and clinical champions.
Mid Cheshire	The pilot project team planned to create an e-learning package in handover technique to be introduced to the new cohort of doctors joining the department. They have been involved in various other activities to make the system or model more sustainable, e.g. updating the e-handover system to meet user needs, providing training on the system, creating an overall approach that encompasses the current system with the new one. The clinical lead for the pilot project will maintain ownership of embedding the business-as-usual process within the Acute Medical Unit and across the medical wards. It is possible to extend the learning to other specialties/divisions in terms of the enhanced education and training in handover (the principles and process), without wider implementation of the software. An end-user group has been set up that has a representative from all of the multidisciplinary teams; they are expected to meet monthly for at least the first 6 months to discuss/agree any future change requests or process workarounds. The pilot project is being rolled out across other departments within the hospital and is adoptable by other hospitals and Trusts.
North Bristol	Videotaped recordings will continue to be used to train doctors in training in the renal and neurology departments with ongoing support from the senior medical staff involved in the pilot project. Consultant trainers require further training, so a training course has been designed to be delivered in late 2013 or early 2014.

Pilot project	Examples of how pilot projects have considered sustainability and local spreadream
Pennine EPIC	Rolling out to other A&E departments should be very straightforward as it would require almost the exact same set up; there might need only to be minor changes to the online dashboard, if any are required at all. The training model has already been rolled out to other sites in the Trust, namely A&E departments at North Manchester General Hospital and Fairfield General Hospitals, with recruitment and training of staff to deliver the project.
Pennine handheld	The pilot project team has already designed and developed the software; therefore, other Trusts would be able to use the same software at no extra charge. There is no cost to adopting this pilot project. There might need to be slight adjustments from a technical perspective; therefore, local IT buy-in is essential. The pilot project lead has presented the pilot project to HEE North West, which has indicated interest in the initiative.
Royal Berkshire	The MEMC programme was re-launched successfully for the new intake of trainees in August 2013. MEMC is now an integral part of the trust QIPP programme, with agreement from Oxford Deanery and Thames Valley LETB for this to be established and accepted practice as part of education for doctors in training. Implementation of the RBFT academy modular programme on leadership, management and QI also enables sustainability of this approach, and was launched from November 2013. The pilot project was presented at the International Forum on Quality and Safety in Healthcare and the National Association of Clinical Tutors 12th National Multi-Specialty Conference. The spread is currently ongoing for all core medical trainees across the UK delivered by key individuals such as training programme directors and college tutors, and 6 clinical leaders in QI (HEE-funded). The pilot project has developed resources including a practical toolkit (resources available on the LTMD website) and developed the role of a QI champion in every UK Trust. A leadership academy for doctors in training has also been established.
South Manchester	A business case has been developed by the Postgraduate Medical Education Manager to maintain this role within the department to ensure sustainability within the Trust.
Tees, Esk and Wear Valley	The outcome of the pilot project was discussed at the Trust's biannual medical education faculty development day in October 2013. New standards for induction and supervision will be embedded within normal clinical and educational practice within the pilot project area with a view to rolling this out to the rest of the Trust over the coming year. Trust-wide medical induction will be revised followed a quality improvement event in November 2013, with a view to implementing the changes with the February 2014 cohort of new doctors.

BTBC, Better Training Better Care; NHS, National Health Service; GP, general practitioner; VITAL, Virtual Interactive Teaching and Learning; AAP, Advanced Assessment Practitioner; ACP, Advanced Clinical Practitioner; RAT+, Rapid Assessment and Treatment; CT, core trainee; HEE, Health Education England; ST, Specialist Trainee; GMC, General Medical Council; MDT, multidisciplinary team; RAMPPS, Recognising and Assessing Medical Problems in a Psychiatric Setting; CSF, clinical simulation fellow; SBAR, Situation Background, Assessment, Response; DiT, doctors in training; ALPS, Acute Liaison Psychiatry Service; WBA, workplace based assessments; PSC, patient safety champion; A&E, Accident and Emergency; EPIC, Emergency Physician In-house Challenge; IT, information technology; MEMC, Making Every Moment Count; QIPP, Quality, Innovation, Productivity and Prevention; LETB, Local Education and Training Board (LETBs); QI, quality improvement; LTMD, Learning to make a Difference.

Table 4.2 Stakeholder views on spread and adoption of the pilot projects

Pilot project	Quotes
Airedale and Western Sussex	**Bridget Fletcher, Chief Executive Officer of Airedale NHS Foundation Trust:** 'The Better Training Better Care project has provided us with some really valuable opportunities and we have learnt a tremendous amount from our participation with Western Sussex. We are pleased to have been able to help another Trust with no previous telemedicine experience to get "up and running" from scratch utilising the Airedale Digital Healthcare Hub; we have managed to condense our learning from the last 8 years of developing the use of telemedicine at Airedale into an e-learning package which we hope can be used effectively elsewhere in the NHS... '
East Kent	**Sir Richard Thompson, President of the Royal College of Physicians**: 'East Kent Hospitals University NHS Foundation Trust's pilot project has provided an excellent opportunity for clinical staff to advance their training and education in a thought-out and structured way. *[...]* As President of the Royal College of Physicians, I strongly believe that excellent training is imperative to the success of the NHS and ensures that it delivers the best possible patient care. I look forward to reviewing more findings from East Kent's Better Training Better Care pilot, and if the final evaluation proves successful, I hope to see the project adopted in appropriate trusts across the country'.
Leeds and York Partnership	**Speaking about his visit to the Becklin Centre to meet the BTBC team, Sir Keith Pearson, Health Education England chairman**, said: 'I am grateful for the opportunity to have been able to visit Leeds and York Partnership NHS Foundation Trust and to witness the hard work and ongoing commitment from everyone involved in implementing such a successful project. [...] The Trust's project team have worked very hard to ensure that by changing patterns of working, they are able to maximise the training opportunities available in daytime hours to deliver better quality training packages, thus providing better patient care. I look forward to seeing the development of this pilot, and potentially look forward to seeing it rolled out in appropriate trusts across the country'.
Mid Cheshire	**Chief Executive Officer, Mid Cheshire Hospitals NHS FT** 'Mid Cheshire has been privileged to be selected as a pilot site by HEE for our medical e-handover project and we are delighted with the results so far in supporting doctors to improve safety and reduce the potential for harm during what is well-known to be a period of high risk. [...] I am pleased with how the project has been embraced by our trainee medical teams and we are now looking forward to exploring future possibilities of use across the Trust and between differing healthcare professionals. ...'

Pilot project	Quotes
Tees, Esk and Wear Valley (TEWV)	**TEWV Trust Director of Medical Education, Dr Jim Boylan:** 'The Better Training Better Care pilot to support doctors new to psychiatry has been very useful in shaping our strategic plans to assess and accommodate their training needs in the vital first few weeks. [...] we have already made some important changes to our trust-wide and locality induction programmes. We have developed templates and structures for clinical skills assessment and now delivered clinical skills assessment training to almost 60 Consultant Trainers and Senior Registrars across our trust. We continue to review this process and have a further QI event on the induction programme in early November with the objective of rolling out the changes across our trust by February 2014'. **TEWV Trust Foundation and GP tutor (Teesside), Dr Baxi Sinha:** 'I do feel that BTBC initiative has been a worthwhile improvement and needs to be rolled out to the entire organisation and beyond'.

BTBC, Better Training Better Care; NHS, National Health Service; FT, Foundation Trust; HEE, Health Education England; QI, quality improvement; GP, general practitioner.

Some of the barriers to sustainability and local spread that were identified include the following:

- the design of the software or actual pilot project does not support cross-department spread without further development, e.g.:
    - the Pennine EPIC pilot project is limited to the Accident and Emergency (A&E) department by design and might not be effective in other departments, without further development costs
    - the exact model of the King's College pilot project might not apply to other Trusts, as the number of consultants involved would depend on the population profile
- the need for additional funding for resources and technical infrastructures:
    - for the Dudley Group pilot project, sustainability of the pilot project would depend on funding to appoint an additional pharmacist
    - the North Bristol pilot project would require additional costs to support clinical time to review the video consultations
    - the Airedale and Western Sussex pilot project would be adoptable throughout the Trust, pending further investment into equipment and infrastructure.

The following sections provide a summary of the critical factors necessary for spread and adoption, drawing on the findings from Chapter 3, which is followed by a summary of the lessons identified during the evaluation that are critical to the spread and adoption of the pilot project.

4.1 Critical success factors for adoption and spread

This section follows on from and draws on the findings presented in Chapter 3 to summarise those factors that have been critical to the success of the pilot projects; in areas where implementation has not worked so well, the lessons identified have been captured and translated into factors critical to successful spread and adoption and their key implications in implementation.

Throughout the evaluation process, there has been a variation in practice of how the individual pilot projects were designed and implemented, and how the stakeholders were engaged. The factors that have been critical to the success of the implementation of the pilot projects are factors that would need to be considered by organisations wanting to adopt the pilot projects or elements of it.

Table 4.3 presents a summary of critical enablers of success drawing on the findings from the evaluation, and how these factors play an important role and be used to enable success during implementation of the pilot project.

Table 4.3 Critical success factors for spread and adoption

Factor	Effect
Clarity of objectives and measures to be used to assess achievement	• To allow for robust implementation and design of outcome measures • To facilitate measurement of desired benefits to demonstrate the impact of the pilot project
Strong clinical champions and senior leadership	• To drive the process and create momentum around the pilot project • To promote engagement and buy-in from trainees and the wider MDT team • To make the case for change • To drive the inclusion of the pilot project on Trust board agendas
Commitment from the Trust board	• To offer wider Trust support from other departments like IT and Data • To facilitate service backfill and resource/capacity issues • To engage with relevant external stakeholders and champion the pilot project

Factor	Effect
	• To facilitate sustainability and local spread by supporting the pilot projects in areas like additional funding for roll-out • To provide enthusiastic support to the project team and resolve any issues escalated to the board • To make the pilot project mandatory so that there is better engagement • To support and drive the case for change • To demonstrate to all parties that a consultant-led service requires greater commitment to the process of training the future medical workforce
Changing the role of the trainee	• Allows trainees to champion the pilot project, using their own experiences • Allows trainees to influence the design of the pilot project • Facilitates trainee engagement and buy-in • Builds confidence and makes the trainee feel that they are valued as part of the team
Organisational preparedness	• To allow for ease of implementation of the pilot project • Delivers effective senior Trust support to make deliver change plans • Reduces the amount of challenges to sustainability of the pilot project
Communication and engagement	• To overcome barriers to success, and create enthusiasm and motivation for the pilot project • To create all-inclusive working environments that support change and training of doctors in training • To draw on the experiences of the MDT for support and leadership aspects and to facilitate ease of implementation • To have a flexible communication strategy that meets the requirements of the audience and the aim of the message or communication
The role of the project leader	• To form relationships with trainees that support and improve buy-in and engagement and helps to resolve issues • To remove doubts and scepticism around the pilot project and promote the pilot project as an innovative way of training

Factor	Effect
Demonstration of the benefits and impact of the pilot project	• To improve buy-in and senior support • To influence making the case for change based on evidence • To facilitate culture change and behaviours • To show how improved medical education of doctors in training has improved patient care
Flexible project design to allow adaptation to various departments, settings and local need	• Allows ease of implementation to a wider range of scenarios and departments, making the pilot project more value for money • To allow the pilot project to be adapted for maximum effect and benefit
Good governance structure linking with academic and patient representatives	• Creates good working relationships and embeds the patient agenda for improved care • Academic partners support the development of robust outcome measures • Helps plan for and manage risk and resolve issues in implementation • Ensures that the levels of project management control are realistic, proportionate to the risks and expected benefits of the pilot project, and appropriately resourced
Engaging and drawing on the wider MDT members	• Creates better working relationships and enthusiasm for the pilot project, and helps remove negativity • Provides additional support to the trainees

MDT, multidisciplinary team; IT, information technology.

4.2 Key implications

This section captures and presents some of the important lessons learnt during the implementation phase, in areas in which pilot projects have experienced challenges, which necessitated remedial action and impacted on the progress of implementation of the pilot projects.

The section also presents the implications of considering these elements in advance and how this can lead to a more successful implementation with improved engagement and better indicators of success.

Table 4.4 Summary of the lessons identified from the evaluation and their implications

Lesson	Key implications
Engaging early with academic partners	Allows development of suitable outcome measures and robust data collection to facilitate evaluations and demonstration of benefits
Involving patients in the design phase and governance	Includes patient care and perspective in the development of health initiatives
Engaging with members of the MDT team	Can reduce the resistance to change, build support and sustainability in the team
Developing effective communication strategies.	To promote enthusiasm and engagement, and allow communication to be received effectively
Drawing on IT and subject matter experts at early design phases	Can prevent delays to implementation and can result in continued timely support to resolve issues
Involving senior Trust members in governance plans	Can resolve issues with implementation, result in wider buy-in and support, and 'mandate' the pilot project
Designing pilot projects that work within service provision	Can prevent poor engagement due to service commitments
Considering the local environment and complexity of the pilot project	This would identify the ease with which the pilot project would be able to be implemented locally, any adaptations that would need to be made and any risks to successful implementation
Working closely with trainees to design and implement the pilot project, and create platforms for feedback	This sustains enthusiasm and motivation for the pilot project, empowers trainees, and allows them to take on a stronger leadership role
Performing robust risk assessments and stakeholder	Will allow mitigation of issues, resolve issues and avoid delays in implementation that can result in poor

mapping exercises at early stages of project development	engagement and buy-in
Developing systems to collect robust outcomes data	Will identify the impact of the pilot project to trainees, trainers and patients, and allow for meaningful analysis of the return of investment of the pilot project

MDT, multidisciplinary team; IT, information technology.

5.0 Recommendations for spread and adoption

The overall ambition of the Better Training Better Care programme is to drive spread and adoption of the pilot projects as best practice models to improve medical education of doctors in training. In turn, this is expected to have an impact on improving patient safety and care. As such, the programme aims to showcase the successes of the pilot projects, and innovative ways of addressing local and national health issues that can be achieved by improving the medical education of doctors in training.

From the evaluation it is clear that the pilot projects achieved significant success in demonstrating the benefits of innovative training initiatives to improve confidence, skills and knowledge of doctors in training. As such, they represent paradigms for training and education and collaborative working in a clinical setting. Furthermore, as a result of patient outcomes achieved by some pilot projects or indicated in other pilot projects by means of qualitative data, the programme has also presented innovative ways to improve quality of care and patient safety. The spread and adoption of these examples as best practice would help replicate some of the successes nationally, to improve care by improving medical education of doctors in training.

This chapter will consolidate the findings from the preceding chapters to present an approach for spread and adoption of the pilot projects as an innovative way to improve medical education for doctors in training linking to national agendas in health and medical education.

It will:

- present the differential approach for spread and adoption across the 16 pilot projects, using those that have already delivered significant outcomes, those with the potential to deliver outcomes based on early findings and those that need further testing and are yet to deliver any indication of benefit and outcomes to trainees, trainers, patients and services
- outline the local key enablers to take this work forward to ensure the continued success of the pilot project and will outline opportunities for other key stakeholder groups
- identify how the pilot projects align to national agendas and address issues in health, outlining opportunities for collaboration.

5.1 Differential approach for adoption of training initiatives

At the time of this evaluation, the pilot projects were at different stages of realising benefits as a result of varying degrees of progress in the implementation. Most pilot projects were successfully implemented and observed early benefits, while a few did not get the level of engagement necessary to see benefits, and so further testing was required.

Based on the success in implementation and the outcomes observed, the pilot projects have been grouped into 3 categories, and subdivided into those that were incorporated into service delivery and those that were designed around providing independent training sessions. The groups can be defined as follows.

- **Group 1:** pilot projects that had successful implementations and are ready to be adopted. For the pilot projects that were successfully implemented and saw benefits to patient care, maintaining the momentum is a strong requirement to ensure there isn't a sense of reduced motivation in taking it forward to national spread and adoption. Once rolled out to other Trusts, outcome data can be collected and reviewed to validate the findings and success that the pilot project achieved.
- **Group 2:** pilot projects that have not been as successful but initial findings show that they have potential to have significant impact on training and care, and so further work is required to develop them. These pilot projects have received positive trainee feedback and trainee satisfaction, and have the potential to deliver improvements to quality of care and patient safety. They will need to be further tested locally to enable them to realise the benefits to trainee education and how this relates to patient safety and care.
- **Group 3:** pilot projects that needed further testing, development and support to be able to demonstrate the impact on training and care. At the time of the evaluation, pilot projects in this group had not been fully implemented to allow sufficient engagement or to see the benefits or early indications of benefit. Extracting the learning from this group and supporting them to work around challenges and issues will enable delivery of the pilot project, and measurement of outcomes and impact on care. By sharing the lessons, flagging the risks and possible solutions there is potential for other Trusts to achieve more success with these pilot projects, for instance by countering some of the limitations experienced owing to cultural or implementation issues.

Table 5.1 Differential groupings of the pilot projects based on findings

	Group 1	Group 2	Group 3
Training as part of service provision	East Kent King's College Leeds and York Partnership Mid Cheshire Pennine EPIC Royal Berkshire South Manchester	Airedale and Western Sussex Guy's and St Thomas' Tees, Esk and Wear Valley North Bristol	Pennine handheld
Training outside of service provision	Dudley Group East London	Heart of England	Leeds Teaching

5.2 Key stakeholders to enable adoption and spread

Findings of the evaluation identified several stakeholder groups that took on a leadership role championing the pilot project, driving its successful implementation and identifying opportunities to spread the pilot project locally. Using these groups as agents for spread and adoption will benefit the programme by creating a high momentum, energised campaign to 'promote' the pilot projects nationally.

Agents for spread and adoption within the Trust

Within the Trust the following stakeholder groups are seen as integral to drive adoption and spread.

- **Trainees –** they have expressed strong enthusiasm for the pilot project when implemented correctly, and when they have been sufficiently engaged in the process. Trainees are able to draw on their own experiences, identify risks to improve the process, and offer first-hand validation of how this has benefited them.
- **Clinical leads –** the evaluation identified the impact that strong clinical leadership had in bringing about a change in motivation and engagement with the pilot project. Equally, it showed the effects of poor clinical leadership on the trainees and the wider multidisciplinary team. It is therefore imperative that the adoption strategy involves inclusion of clinical leads as champions of their pilot project.
- **Trust board/Chief Executive Officers –** senior members of the Trust are able to facilitate local spread by validating how the pilot project has been implemented in their own Trust; communicating some of the challenges they experienced, aspects that other Trusts need to put in place to gain operational readiness; and share learning and best practice in bringing about changes in commitment or changes in behaviour in the multidisciplinary team.

Wider stakeholder groups

There are other stakeholder groups that have the ability to influence the adoption of the pilot projects nationally, and further drive the national programme objectives. These include:

- Directors of Education Quality and Local Education and Training Boards (LETBs) will be key drivers in influencing the training and education curriculum of doctors in training, and monitoring trainee feedback and quality of training for trainees
- Royal Colleges to lead the education agenda for training doctors in training
- patient groups to drive the health agenda for improving patient care and safety
- national regulatory, quality and policy organisations to capitalise on these opportunities to improve care and safety by collaborating with the national programme, and 'endorsing' the pilot projects.

5.3 Opportunities for aligning to the national agenda

The pilot projects demonstrated the ability of innovative solutions in medical education to address national agenda issues like improving quality of care and patient safety. To that end, some pilot projects produced radical solutions that if adopted would allow Trusts to respond to national mandates. For instance, a few pilot projects, purely by design, address the need for Trusts to deliver not only 24/7 consultant-led services and/or consultant-delivered services, but also for Trusts to move away from paper-based systems – both key national mandates that Trusts are committed to deliver on. This provides opportunities to share this best practice nationally as a solution.

The ability of the pilot projects to derive benefits to the care of patients also presents opportunities for other regulatory and quality local and national groups. Table 5.2 summarises some of the key areas that are available for the national programme to capitalise on these opportunities and work collaboratively with wider stakeholder groups as part of their adoption strategy by aligning common interests and agendas.

Table 5 also provides a summary of opportunities for collaborative working with other national organisations.

Activities to support national spread and adoption strategy

Various activities form part of the strategy to drive the spread and adoption of the pilot projects. These include:

- a national campaign to showcase the pilot projects and their outcomes linking to national agendas. Matrix has worked with Better Training Better Care to identify a list of national stakeholders to further explore opportunities for collaborative working. Interviews are being conducted to explore national agendas and policy areas to identify how the pilot projects can align to these agendas. These stakeholders include:
    - NHS England,
    - Monitor,
    - Care Quality Commission,
    - NHS Trust Development Authority,
    - NHS Litigation Authority,
    - NHS Improvement Quality,
    - The Academy of Medical Royal Colleges
    - The Faculty Medical Leadership and Management,
- development of a set of tools to facilitate spread and adoption
- scaling up of the pilot projects to allow ease of adoption
- ongoing work with LETBs to deliver a programme of change.

Table 5.2 Summary of opportunities for collaborative working

Area	Description	Opportunity	Example
Trainees as change agents	Trainees demonstrated outstanding leadership skills championing their pilot projects during implementation and outside of the pilot project environment	For the BTBC programme team to work with this group of trainees to help them lead these initiatives and facilitate spread and adoption of good practice	Mid Cheshire: trainees moved to other Trusts and requested the pilot project to be implemented in their new roles. In addition, they have expressed this wish in the GMC survey East Kent: trainees displayed strong leadership and enthusiasm for the pilot projects and trainers reported strong leadership of Foundation Programme doctors and registrars in handovers Leeds and York Partnership: trainees championed the system and took on a strong leadership role at the outset
Improving workplace-based assessments (WBAs)	The pilot projects presented innovative ways to improve significantly WBAs and productivity by improving training and creating opportunities for WBAs to be conducted without impacting on commitments to clinical care. It also supported the role of the trainer by providing opportunities to improve the supervision of trainees and identifying areas for trainee development	For the Royal Colleges and National training programmes to utilise the methodologies developed by the pilot projects for training and best practice guidelines	Pennine EPIC: the reward system increased WBAs significantly and during 'double credit weeks' the system observed a 5-fold increase in the completion of WBAs North Bristol: used video feedback for consultations, which improved trainee consultation styles and increased the number of WBAs in an outpatient area East Kent: had a significant increase in opportunities for trainees to complete WBAs while on ward duty and on shift, i.e. 4% and 27%, respectively, by means of hot and cold rota systems

Area	Description	Opportunity	Example
Integration of training in care	The pilot project environment allowed the trainees to become more integrated in the delivery of care and in the wider multidisciplinary team. This has had a positive effect on patient care and improved communications and multidisciplinary team working. Evidence further shows that the pilot project was able to have a positive impact on members of the wider team, with other staff taking on leadership and supporting roles, stimulating delivery of care in a more integrated manner	For NHS Trusts to embrace these new ways of working to improve patient outcomes, reduce risk, and work towards more integrated care across professional disciplines	Mid Cheshire: had greater consultant input at handover meetings, with registrars taking on leadership roles in their absence King's College: increased consultancy support in the Emergency Department; improved patient time to treat; and presented opportunities for nurses to be developed as advanced nurse practitioners and take on a supportive /trainer /supervisory role Dudley Group: demonstrated better working relations and understanding between pharmacist and trainees, with improved knowledge by trainees in prescribing and in national guidelines
Impacting on culture, efficiency and effectiveness	Several of the pilot projects have had a positive impact on behaviours and commitment, efficiency and effectiveness in the implementation of their pilot projects, e.g changes to rotas provided greater training opportunities within the same resources and in some cases reduced cost	For the BTBC programme team to showcase the benefits and incentives to NHS Trusts to adopt organisational changes facilitated by these approaches	East Kent: hot and cold blocks maximised training opportunities and concentrated training, impacting successfully on trainees Mid Cheshire: a greater degree of efficiency in performing handovers with better quality information recorded, as well as an increase in the number of tasks/jobs completed Leeds and York Partnership: changing of rotas allowed more trainees to come on day duty and

Area	Description	Opportunity	Example
			have greater exposure to training and support, and improve productivity, communications and MDT working South Manchester: reconfiguring theatre lists exposed trainees to concentrated training in specific areas, allowing them to develop skills and confidence in performing simple procedures across all surgical specialities Royal Berkshire: empowered trainees and brought about a change in commitment where trainees were able to identify areas of quality improvement and drive initiatives to improve these

BTBC, Better Training Better Care; GMC, General Medical Council; EPIC, Emergency Physician In-house Challenge; MDT, multidisciplinary team.

6.0 Appendix 1: Better Training Better Care (BTBC) workstreams

Element	Workstream	Description
Local	1. Local Implementation and pilot project[17]	One of the largest workstreams within BTBC involves funding 16 NHS Trust sites to pilot projects aimed at improving education and training and therefore patient care. The type of pilot projects range from redesigning the working model within the emergency department and long term conditions, implementing a RAT+ model to increase senior decision making in A&E, clinical handover, communication skills in consultations, prescribing, improving confidence in psychiatric decision making, serious incidents, quality improvement projects, surgery and telemedicine.
National	2. Role of the trainee	This workstream is focused on the need to ensure that training is planned, every moment counts and that appropriate supervision is in place. The three initiatives that underpin this workstream are: • inspiring Improvement – funding was awarded for 9 trainee-led projects to implement a range of training innovations to improve patient care • learning to make a difference – embedding quality improvement methodology across Core Medical Trainees • working with key stakeholder groups to develop a consensus statement on the role of the trainee.
	3. Role of trainers	This workstream involves a number of organisations that are seeking to ensure trainers are recognised and rewarded, and to raise the profile of training. The main stakeholders involved are the GMC, AoME, NACT UK and the FMLM. The GMC has set the standards for training, the AoME has developed guidance on how to meet the standards, NACT UK has developed guidance on the role of faculty and the importance of the learning environment, and the FMLM's work will focus on the need to change the culture within organisations to ensure the principles of recognising and rewarding training are embedded.
	4. Workforce planning	This workstream is being taken forward within HEE.

[17] Please see Appendix 2 for a full list and a description of each of the pilot projects.

Element	Workstream	Description
	5. Improving careers guidance and availability	The BTBC team is working on developing a careers guidance portal to support trainees with their career choices. This project also seeks to address perceptions of particular careers, encouraging a more even distribution of trainee placements across disciplines.
	6. Integrated technology enhanced learning	Following the publication of the Framework for Technology Enhanced Learning, currently engaging with key partners to compile a casebook of good practice around simulation, e-learning and mobile apps.
	7. Broadening the Foundation Programme	This main aspect of this workstream addresses the recommendation to ensure that all Foundation Programme trainees complete at least 1 community placement, e.g. GP, psychiatry and other community placements. The final report of recommendations for implementation will be published later in the year
	8. Regulatory approach to supporting BTBC	The GMC was tasked with meeting specific Collins recommendations. The work is now complete as follows: • a definition of the outcomes required to complete Foundation Year Two (F2) • a review of the 2011–13 GMC Education Strategy • an updated GMC Good Medical Practice Guide • exploring opportunities to share data among partner organisations in an effective and appropriate way.
	9. Funding and education quality metrics	This workstream is being taken forward by HEE.

NHS, National Health Service; RAT, Rapid Assessment and Treatment; A&E, Accident and Emergency; GMC, General Medical Council; AoME, Academy of Medical Educators; NACT, National Association of Clinical Tutors; FMLM, Faculty of Medical Leadership and Management; HEE, Health Education England; GP, general practitioner.

7.0 Appendix 2: Evaluation methodology

The following section provides a more detailed account of the activities which were undertaken to deliver each phase of the evaluation

7.1 Activities to evaluate the implementation of the pilot projects

This section describes in detail the activities that Matrix undertook to answer the theory of change questions:

- **Should it work?**
- **Can it work?**

All the activities were agreed with Health Education England (HEE) and NHS Employers to ensure that they were fit for purpose in the evaluation of the Better Training Better Care (BTBC) programme. The evaluation was conducted in 2 phases.

- Phase 1 (February 2013–May 2013): review of the pilot project design and implementation activities by conducting document reviews and telephone and face-to-face interviews with the pilot projects and the relationship managers at HEE. The findings were presented in an interim report.
- Phase 2 (September 2013–November 2013): review any changes to the implementation, identify critical success factors for spread and adoption and isolate learnings from the process. This was achieved by a series of qualitative interview sessions.

7.1.1 Document review

Following the project scoping phase, a review was conducted from February to early March 2013 of project documents, such as application forms, project initiation documents and progress reports to gain better understanding of the pilot projects. Thematic analysis was conducted to identify and extract common factors across the pilot projects. This was translated into a framework to depict the logical relationships between the resources, activities, outputs and outcomes of the pilot projects the framework assumes that if the activities are implemented successfully then certain outputs and outcomes can be expected. We summarised information about the pilot projects in the following areas:

- aims and objectives of the pilot project
- drivers for change, locally and nationally
- resources such as the people involved, time spent, financing and equipment required for delivery of the pilot project
- activities undertaken to implement the pilot project
- outcomes (immediate, longer term) that the pilot project was expecting to achieve.

7.1.2 Telephone and face-to-face interviews (Phase 1)

In March 2013, interviews with the 4 pilot project relationship managers and 16 pilot project teams were undertaken. The aim of this exercise was to address any gaps in our understanding of the pilot projects. Prior to the interviews, pilot projects were contacted by Matrix and asked to validate the logic models that Matrix had prepared.

Interviews with relationship managers included discussions about the successes, challenges and progress made by pilot projects against planned milestones and objectives. Relationship managers were also asked to recommend the relevant points of contact for the individual pilot projects.

In order to ensure the right representation of stakeholder views, we asked that, as a minimum, for each pilot project a trainer/supervisor, trainee and the project lead would participate in the interview with Matrix.

The areas for further exploration that formed the lines of enquiry were identified based on:

- the objective of the evaluation and the areas that needed to be explored, i.e.:
  - to identify critical enablers of success and learning
  - to explore early thinking in the design and implementation phases around planned outcomes
  - to identify elements of spread and adoption
- general factors that are essential to the successful implementation of a programme or a pilot project, i.e. governance, project management, stakeholder engagement
- gaps in information identified in the document review.

7.1 Lines of enquiry

Rationale	Local and national drivers; problems that trusts are trying to solve; organisational needs
Governance and project management	Project leadership structure; accountability; number of trainees and trainers involved, academic involvement
Stakeholder engagement	How trainees, trainers and patients are engaged in the pilot project
Measurement	What data were being collected and what outcomes pilot projects were measuring
Challenges	The experiences of pilot projects at different stages of the project
Achievements to date	Critical success factors
Outcomes	The benefits that pilot projects expected to achieve by the end of the project (qualitative and quantitative)
Learning	Advice to other National Health Service Trusts that would wish to embark on a similar pilot project
Sustainability/adoptability	Consider the benefits and ways of spreading the pilot projects locally, regionally and nationally

7.1.3 Review of planning and implementation of the 16 pilot projects

The results of the document review and interviews enabled us to extract emerging findings, which were presented to the pilot projects and other BTBC programme stakeholders on 17 April 2013 at an engagement event. During the event, pilot project representatives were asked to work in mixed groups to further develop our understanding of the processes undertaken, challenges faced and lessons learnt in the following areas:

- rationale and drivers
- governance and project management
- stakeholder engagement
- measurement and outcomes.

Findings from the review and qualitative sessions were presented in an interim report.

7.1.4 Qualitative data collection (Phase 2)

Qualitative enquiries: telephone interviews were conducted in September 2013 with project leads, trainers or consultants, Director of Medical Education or an equivalent person with responsibility for the development of education and training within the Trust to further explore some of the key themes that came out in the earlier stages of the process evaluation. The aim of the qualitative enquiries was to:

- assess whether the pilot projects have achieved the objectives for which they obtained BTBC funding
- follow-up on any issues raised at the last interview and whether they have been resolved and if so how
- identify and explore the outcomes and impact achieved by the pilot projects
- identify the critical enablers for sustainability and adoptability
- identify the pilot project future plans beyond BTBC funding
- address any knowledge gaps raised in the interim report
- identify how governance has impacted pilot project management and how a top-down and bottom-up approach is being used, addressing resource constraints and in the development of a long-term education and training strategy
- communication and engagement: how relevant parties, patients and academic representatives have been engaged in the ongoing implementation of the pilot project and development of outcomes measures
- long-term strategy: understanding what strategies have been put in place for sustainability and adoptability; ascertaining what benefits were identified and what learning has been identified, instituted and disseminated.

Thematic analysis was conducted on the qualitative enquiries from October 2013 to November 2013 to identify common factors across the pilot projects.

Trainee workshop: A workshop was held with trainees from the pilot projects, with the aims of:

- exploring their experiences and learning from participation in the pilot project
- obtaining recommendations for further improvements of medical education for doctors in training to feed into sustainability and adoptability plans for the pilot project.

The trainees were divided into 2 groups with a mix of representatives from service-centred projects and training-focussed projects. The session covered the following areas:

- engagement and recruitment to the pilot projects
- involvement and support
- experience and learning gained.

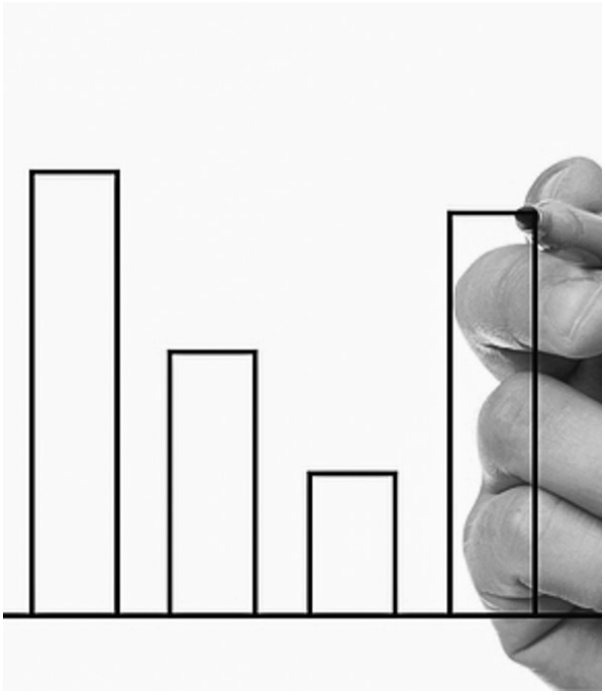
7.2 Activities to evaluate the impact of the pilot projects

This section describes in detail the activities that Matrix undertook to answer the theory of change questions:

- **Did it work?**

7.2.1 Data mapping and data collection

A data mapping template was developed to identify the qualitative and quantitative data being collected to evaluate their pilot projects against. This included trainee outcomes, trainer outcomes, patient outcomes, other outcomes and a value for money section, which would identify the costs required to implement the pilot project. A range of webinars was held to support the pilot projects in completing the data mapping template. The template was reviewed and specific analysed data were requested from the pilot projects, which would allow evaluation against the above outcomes and against the pilot project initial objectives.



The data 'outputs' (e.g. tables, graphs, write up of findings) collected from the pilot project's internal/local evaluations were reviewed and interpreted.

7.2. Triangulation of data

The analysed data were triangulated with the themes identified during the qualitative enquiries conducted with the pilot projects and trainees to allow for validation of findings.

In the process evaluation the data triangulation exercise used the findings from the trainee workshop event to validate themes and critical success factors identified during the qualitative enquiries undertaken with project leads, for instance trainee engagement, communication and clinical leadership, project management. For the impact evaluation, common themes that were validated across the analysed data, trainee workshop event and qualitative enquiries include impact to trainees in respect of skills, confidence and trainee satisfaction.

8.0 Appendix 3: Interim Report

http://hee.nhs.uk/2014/06/10/btbc-interim-report/

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