BSSH The British Society for Surgery of the Hand

Royal College of Surgeons of England
ADVANCING SURGICAL CARE

HandsFirst2 Learning Report

June 2025

This HandsFirst2 Quality Improvement Collaborative Learning Report is dedicated to the memory of Laura Huff. We are deeply indebted to Laura for her unwavering commitment to the patients in her care, the colleagues she supported and the many contributions she made to the HandsFirst collaboratives.

Laura Huff, our dear colleague and plastic surgery trauma sister, sadly passed away in October 2024. It is difficult to overstate how much she is missed by everyone in the unit at Cambridge University Hospitals NHS Foundation Trust.

Laura worked diligently, with empathy and passion in everyday practice, setting an example to others with her enthusiastic leadership approach. She was such a positive force, relished a challenge and thrived on learning.

Laura was instrumental in establishing our trauma pathways, designing and implementing improvements to the service. She was committed to patient-centred care and our involvement in HandsFirst, often putting in her own time to update the database and ensure its accuracy.

We are deeply grateful for all the ways she improved the plastic surgery trauma service. Although she is greatly missed, her impact remains with us every day.

Contents

List of abbreviations

BAHT – British Association of Hand Therapists

BOA – British Society for Surgery of the Hand

BSSH – British Society for Surgery of the Hand

GIRFT – Getting It Right First Time

NHS – National Health Service

PDSA – Plan, Do, Study, Act

PIFU – patient-initiated follow-up

QI – quality improvement

RCS England – Royal College of Surgeons of England

WALANT – wide-awake local anaesthesia with no tourniquet

Sites participating in HandsFirst2:

BWC – Birmingham Women's and Children's NHS Foundation Trust

CUH – Cambridge University Hospitals NHS Foundation Trust

ELH – East Lancashire Hospitals NHS Trust

LTH – Lancashire Teaching Hospitals NHS Foundation Trust

MFT – Manchester University NHS Foundation Trust

MSE – Mid and South Essex NHS Foundation Trust

OUH – Oxford University Hospitals NHS Foundation Trust

STH – Sheffield Teaching Hospitals NHS Foundation Trust

UHB – University Hospitals Birmingham NHS Foundation Trust

UHD – University Hospitals Dorset NHS Foundation Trust

UHNM – University Hospitals of North Midlands NHS Trust

UHS – University Hospital Southampton NHS Foundation Trust

Summary

The HandsFirst2 quality improvement (QI) collaborative is the second QI project of the Royal College of Surgeons of England (RCS England) to focus on hand trauma care. To date, RCS England has run seven QI collaboratives in total. The College recognised that significant changes had transpired over the past 25–30 years in the field of hand trauma care. Hands affect livelihoods. Good surgical outcomes have wide-ranging health and socioeconomic impacts. This evolving landscape, coupled with the recognition that hands play an important role in a person's level of independence, their standard of living and the ease by which they can realise their potential, were driving factors in establishing the first HandsFirst collaborative. Twenty-five NHS trusts and health boards joined the first round of the collaborative.

Successes from round 1 included:

- creating new capacity by refreshing and redesigning job plans, training and recruitment
- redesigning work
- introducing new models of care, for example:
    - implementing an algorithm to triage referrals and patient pathways
    - refreshing the virtual fracture clinic (including introducing a senior hand therapist in the clinic)
    - introducing a consultant-led trauma clinic
    - introducing a therapist-led hand fracture clinic
    - taking work out of main operating theatres and into minor operations procedure rooms
    - implementing a regional block service
- improving facilities and equipment
- introducing in-clinic x-ray facilities
- reducing unnecessary waste
- increasing efficiencies by relocating clinic and treatment spaces in closer proximity
- 'greening' the NHS and realising cost savings by reducing the use of drapes and single-use plastic in the operating theatre, and rationalising instrument sets
- improving the patient experience and staff experience
- engaging with patients to create better information
- engaging with colleagues to enable horizontal learning, raise awareness of management and treatment, implement new pathways, and introduce structures like regular meetings to build relationships, resolve issues and plan services proactively

The first round of the HandsFirst collaborative was facilitated jointly by RCS England and BSSH. It generated the largest national hand trauma database, capturing 9,028 hand trauma surgical cases. Hand therapists played a pivotal role in many of the round 1 achievements. It is for this reason that BAHT joined as a key partner for HandsFirst2. After all, BAHT and BSSH standards are united around a common goal: to improve the care for patients with traumatic hand injuries. With 61% of hand trauma patients falling in the 16–59 years age bracket (a proxy for working age), it is a sobering reminder of why this work is absolutely necessary.

The HandsFirst2 database is remarkable. For the second iteration of the collaborative, there were only 12 participating sites (fewer than half of the 25 sites in HandsFirst1). Despite this, these 12 acute NHS trusts recorded an impressive 7,056 surgically and non-surgically managed hand trauma cases, representing 78% of the number of cases collected by the 25 sites in the first round. This combines to 16,084 hand trauma cases across the two collaboratives. Over half (54%) of the patients recorded in HandsFirst2 were documented as having been referred for and received hand therapy. As not all sites recorded hand therapy involvement, this indicates an underestimation of demand. Almost all patients attended face-to-face therapy appointments and were seen primarily by senior hand therapists (band 6 or above). The primary source of delay for patients requiring a hand therapy appointment was inadequate therapist capacity.

HandsFirst2 gave us a glimpse of hand trauma services in the post-pandemic world replete with elective recovery pressures. Unsurprisingly, access to emergency operating theatres has deteriorated to eye-wateringly low levels. Trusts are working arduously through the elective backlog with a workforce who are themselves recovering from the pandemic.

During the HandsFirst2 collaborative, the goal of improving the care for patients with traumatic hand injuries was measured by ability to meet three of the BSSH standards,[1] two of the BOA standards (known as BOASts)[2] and those BAHT standards[3] most closely related to those surgical procedures or to conservative management of those injuries. In addition, the project sought to clarify the time to surgery for closed soft tissue injuries (for which there is no agreed standard), with a view to using this evidence to inform a professional standard in the future.

One of the top three questions sites ask before joining an RCS England collaborative is: “How much money will we save?” Broad answers to this and other questions are outlined in Appendix 1. The answers will always be specific to each NHS trust, each team and what they achieve. However, one trust estimated that by improving the throughput in hand trauma by moving it into a procedure room and thereby releasing theatre capacity, they improved their ability to manage hip fractures in line with the best practice tariff to a value of approximately £220,000. (See Case studies.) What makes this truly exciting, of course, is that this has happened at more than one site in the collaborative. The goal of improvement is ultimately about delivering high-quality care to as many people as possible. The spread and sustainability of best practice is therefore a duty of care shown towards each other.

This report outlines the key project findings.

Whole-collaborative photo taken at the HandsFirst2 QI collaborative celebration event, 13 December 2024

1. Background and context

RCS England vision and strategic aims

RCS England supports 28,000 members in the UK and internationally, enabling them to drive the profession forwards and achieve our vision of advancing surgical care. That vision is a commitment to "excellent surgical care for everyone".[4] The advancement of knowledge through research and the creation of standards are ways in which that commitment manifests. Another is through reducing the variability of patient outcomes, with a focus on improving practice through QI. For almost a decade now, RCS England has been bringing professionals together across a variety of surgical specialties to engage, challenge and grow their practice through its QI collaboratives.

What is quality improvement and what does it improve?

Quality improvement empowers members of the surgical care team to deliver positive changes for patients. It supports people to work in a structured way to identify a problem, explore the options for addressing it, to implement changes in a planned way, and use these changes to improve care.

www.rcseng.ac.uk/qi

QI resources

In order to support patients, improve patient outcomes and support our members to develop QI capability, RCS England researched best practice in QI, ultimately creating the free, high-quality QI resources in the QI hub on RCS England's website. See Appendix 2 for a list of all RCS England's QI resources and other relevant resources such as good practice guides. 2016 heralded the launch of the first of the QI collaboratives, Chole-QuIC, which focused on improving the quality of care for patients with acute gallstone disease. Our collaboratives are designed to bring surgical care teams together, providing a platform for teams interested in QI to advance patient outcomes through a process of mutual inquiry, learning and reflection.

QI collaboratives

RCS England QI collaboratives follow an adapted version of the Breakthrough Series collaborative approach from the Institute for Healthcare Improvement.[5] This is a short-term learning approach that brings together teams from many hospitals across the UK to seek improvement in a focused topic area. By concentrating on improving care in specific areas through collaboration, around a compelling case of need and towards a common purpose, and by investing in people to develop their leadership capabilities, a learning community forms. The RCS England approach to QI is closely aligned to NHS England's shared NHS improvement approach, NHS IMPACT (Improving Patient Care Together).[6]

HandsFirst2 is the second collaborative focused on improving hand trauma care and was the sixth RCS England QI collaborative to be launched. The seventh collaborative, SUPPORT (SUrgeon Peer-led POst-incident Response Teams), worked with sites to design, deliver, sustain and evaluate a peer-to-peer support system in order to support surgeons after adverse events. See Appendix 3 for a full list of all RCS England QI collaboratives.

Case of need

At the October 2023 launch of the HandsFirst2 collaborative, Andrew Reed, the chief executive of RCS England, called for greater equity. He made clear that equity in care and in services requires equity and parity of esteem in our professional relationships. That equity and inclusion must characterise how the many professional disciplines come together to share ideas, and to examine and challenge practice through a process of productive discourse and appreciative inquiry. In this way, members of the collaborative can make strides towards fulfilling that vision of "excellent surgical care for everyone".[4] Indeed, it is precisely this culture of collaboration that proved a key condition for success for the 13 hospitals participating in Chole-QuIC, the first of the RCS England QI collaboratives.

Reducing variation in patient outcomes was a strong driver for sites in Chole-QuIC. This aim is closely aligned to another NHS England programme, GIRFT.[7] RCS England Council member Mr John Abercrombie made the case in the context of acute gallstone disease, which had huge variability across the country, saying: "If you're in Nottingham and you turn left and have a case in one hospital, then you have an operation within a certain timeframe. If you go in a different direction, you have the operation within a different timeframe. The difficulty is that as a patient, you don't know what level of care or what type of response you're going to get when you have the emergency."

Staying with that patient perspective, time spent living with disease, trauma or pain can have an impact on short-, mid- and long-term outcomes, affecting the patient's ability to function, maintain independence and carry out activities of daily living. This is certainly the case with hand trauma care. It is not just the time from injury to surgery that is important. Time from injury/surgery to first hand therapy appointment also matters.

Let us consider the significance of hands and the role they play in our humanity. Good hand function is essential for many aspects of daily life and overall wellbeing. Below are some ways in which good hand function contributes to an individual's life:

Basic activities – Hands are crucial for performing everyday tasks such as eating, dressing and personal hygiene.

Work and productivity – Many jobs require fine motor skills and dexterity, from typing on a computer to operating machinery.

Communication – Hands are used for writing, typing and even non-verbal communication through gestures, touch and sign language.

Social interaction – Handshakes, a welcoming wave and other gestures are important for social interactions and building relationships.

Recreation and hobbies – Good hand function allows individuals to engage in hobbies such as playing musical instruments, painting, crafting and sports.

Independence – Being able to perform tasks independently without assistance is a significant aspect of personal autonomy and self-esteem.

Safety – Hands are used to protect yourself from harm, such as catching yourself during a fall or handling dangerous objects safely.

Health and fitness – Engaging in physical activities that require hand use (such as lifting weights, playing tennis or practising yoga) contributes to overall health and fitness.

Parenting and caregiving – Good hand function is essential for tasks like holding and feeding a baby or caring for family members.

Creativity and expression – Hands enable individuals to express themselves creatively through art, music and other forms of expression.

Learning and development – Hands are used in educational activities, from holding a pencil to conducting scientific experiments.

Cooking and nutrition – Preparing meals and handling kitchen tools require good hand function, contributing to a healthy diet and lifestyle.

Now let us consider work productivity over the span of a working life where hands function as vital tools. Simple modelling based on data from the Office for National Statistics suggests that the average annual salary for full-time workers in the UK in 2024 was £37,430.[8] Over a typical working life of 40 years, this amounts to total earnings of £1,497,200 without factoring in compound interest.

However, if an individual experiences the loss of function of a single hand in the first year of their working life, this person may then be faced with a 20% reduction in earning potential, resulting in total earnings of only £1,197,760. Additionally, the ongoing medical costs and adaptive equipment required for managing hand dysfunction (estimated at £1,000 per year for the purposes of this calculation) can amount to approximately £40,000 over a working life. Consequently, the total economic impact of losing the function of a single hand can be approximately £339,440. If one assumes a 4% rate of compound interest over a 40-year working life, then the total economic impact for the individual based on these assumptions rises to £806,386.53 (Appendix 4).

That is just one of many possible scenarios that illustrate how hand function influences a person's ability to work as well as the type and quality of the work a person can undertake. This in turn affects their standard of living and is therefore a key economic determinant of health inequalities.

What brings clinicians and the wider surgical care team to join an RCS England QI collaborative is rarely a thought experiment or abstract calculation. Instead, it is the everyday interactions between them and their patients. It is the daily frustrations they encounter working in a system that they believe can and should be better. It is the first-hand experiences of working with real patients, whose real lives are affected in ways that are visceral. That one patient they cannot get out of their mind.

Every surgeon carries with them the burden of memories of patients who have had a poor outcome. Unfortunately, confidentiality prevents us from discussing these cases in detail as they might be recognisable but it is often the memory of these cases that spurs on individuals and teams to push for improvements.

Delay in treatment for hand injuries can leads to stiffness that is hard to overcome or, worse still, infection that can destroy the workings of the hand. Many have sustained an injury resulting from a simple mistake that could happen to any of us, such as not noticing that there was a broken glass in the dishwasher or instinctively going to catch a knife that was falling from the kitchen work surface. Even without any complications, the surgery can be complex and the rehabilitation extensive. Nevertheless, in cases where treatment is delayed and patients get an infection, a potentially good outcome can deteriorate rapidly into a severe complication. Teams reported seeing complications that arose from delays that led to a trail of adverse consequences such as loss of the ability to be financially independent and failure of relationships, which have huge impacts on mental health and wellbeing.

> *"The enduring mission of the NHS is high quality care for all. That means tackling the relative disparities in access to services, patient experience and healthcare outcomes."*
>
> **NHS England**[9]

Patients who were once high net contributors to society, both financially and within their communities, can find themselves struggling with daily tasks and requiring assistance, all because the treatment of their hand injury was delayed. The burden to individuals (and on society) of hand injuries even when they are treated by the right people in a timely manner is high. When patients are not directed along the right pathway or when there is a delay to their surgery, that burden is magnified exponentially to a level that none of us would deem acceptable. Hands are the lives and livelihoods on which so many of the joys and necessities of living depend.

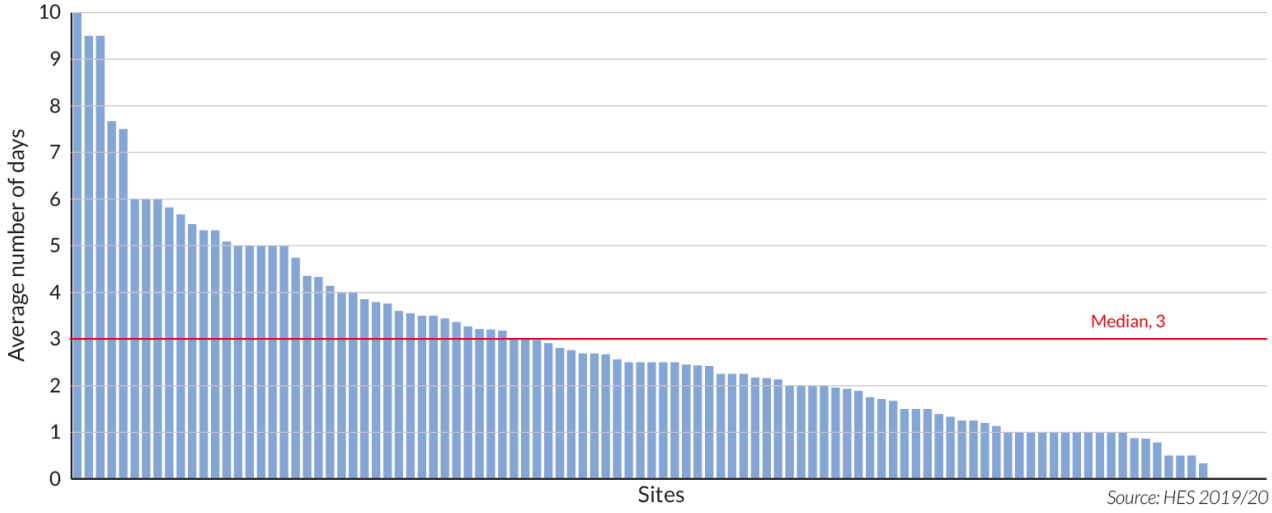
However, long elective waiting lists represent an important competing priority. They provide further evidence that variability and access to care remain deep-seated problems. Key performance indicators, measures and reporting systems have been set in relation to elective waiting lists. As a result, leadership and management attention is directed towards addressing the elective backlog but a theatre list, whether elective or unplanned, draws on the same bank of resources: theatre space, equipment and clinical expertise. Limited availability of resources adds to the challenge that all sites face in trying to reduce the time from injury to surgery for hand trauma injuries.

These competing priorities both matter as the longer a patient remains on an elective surgical waiting list, the more likely it is that their condition will deteriorate to the point of necessitating an unplanned and often more complex surgical procedure. In the absence of national key performance indicators, reporting systems and outcomes data for hand trauma, leaders and managers are prioritising elective care. BSSH, BOA and BAHT standards may have influence but they do not carry the same weight as nationally set targets or GIRFT reports. Yet the mission of the NHS remains unchanged.[9]

HandsFirst2: What has changed?

In his opening address launching the HandsFirst2 collaborative, RCS England chief executive Andrew Reed celebrated the gift of diversity to the collaborative. He framed it as a necessary condition of success. Alongside BSSH, BAHT joined as a partner and hand therapy aims were established, resulting in the creation of a national dataset capturing hand therapy delivery across multiple NHS trusts. HandsFirst2 welcomed greater involvement from the GIRFT team. Mr James Bedford, senior clinical advisor for GIRFT's plastic and hand surgery programme, highlighted the key themes and recommendations from their programme, which demonstrated huge variation in flexor tendon repair and fragmentation of services (**Figure 1**). This made the addition of BAHT into the collaborative even more powerful.

Figure 1: Average time in days to flexor tendon repair for patients attending the emergency department and then having a period of care in hospital by site



Having hand therapists in site project teams during the initial round of the HandsFirst collaborative compelled RCS England and BSSH to formally invite BAHT into the partnership. The discussions during HandsFirst1 made it abundantly clear that therapists have a big impact on the surgical pathway. There are points along the way where therapists can make a difference, whether that be in conservative management or postoperative therapy. Involving therapists in the surgical pathway benefits the whole hand trauma service. It adds capacity as therapists can manage some of the caseload. Right place, right time, right clinician – sometimes (often) that is going to be a hand therapist.

> *"Thank you to BSSH and RCS England for recognising the value of hand therapy, and for including us in the collaborative, giving us equal opportunity to develop and improve hand trauma pathways.*
>
> *"Having RCS England invite BAHT to join the collaborative has helped to improve hand therapy services at multiple sites across the UK."*
>
> **Leanne Topcuoglu**, BAHT Chair

Presentation by BAHT chair Leanne Topcuoglu at the HandsFirst2 QI collaborative celebration event, 13 December 2024

The partnership also benefits BAHT. The successful collaboration of RCS England, BSSH and BAHT in leading the HandsFirst2 project confirmed the value of this partnership. For the therapists in the collaborative, it demonstrated effective multidisciplinary teamwork, and highlighted the importance of therapy in the patient journey with regard to the contribution that occupational therapists and physiotherapists make to the patient experience and improving patient outcomes.

As a strategic partner, BAHT is well positioned to illustrate how reducing time to hand therapy appointments leads to better patient outcomes. BAHT highlighted the value of surgeons passing on relevant details from procedures to inform therapy treatment plans. This resulted in the expansion of data capture and a vastly more informative database across more of the treatment pathway. Of course, there was the added benefit of welcoming more hand therapists into the collaborative, supporting the profession and its contribution to hand trauma care in this more formalised and structural way, and enhancing the evidence base.

Overall, there was a greater diversity of professions and disciplines actively involved in HandsFirst2, and the collaborative was all the richer for it. There was a higher level of administrative and management representation as well as increased seniority of participants. There were also more trauma coordinators. Some sites continued to involve their QI team. Consultant anaesthetists and anaesthesia associates joined project teams, and even medical secretaries had a presence. There was greater representation of advanced clinical practitioners and theatre nurses, and in addition, BWC enjoyed the executive sponsorship of Daljit Athwal, the trust's chief nursing and midwifery officer, who took a particular interest in the HandsFirst team, actively unblocking barriers to initiatives.

From a practical perspective, HandsFirst2 widened the focus of the collaborative, expanding its goals and objectives. This extended to collecting data on closed soft tissue injuries, BOA standards for intra-articular and extra-articular distal radius fractures, and BAHT standards relating to the three BSSH standards that formed the focus of HandsFirst1.

Other changes included running the collaborative over a longer timeframe, providing a series of additional workshops to support site leads and data leads, and raising the expectations of QI output at meetings.

One of the lessons learnt from the first round of the collaborative was that although members had a wealth of clinical expertise, there was wide variation in experience of leading change. Three Leading Change workshops were designed to support site leads in gaining buy-in for their improvement initiatives and overcoming barriers. A workshop for site data leads preceded data collection to enable sites to finalise the dataset and ask questions.

During the HandsFirst1 project, all sites were asked to capture data against three BSSH standards: open fracture (including radius) or joint, open soft tissue wound and closed fracture other than the radius. In the HandsFirst2 collaborative, sites had greater choice in selecting their focus. Returning sites had a firm grounding in the basic principles of QI, experience of implementing tests of change, evidence of their local pathways and knowledge of their challenge areas from HandsFirst1, enabling informed focus for round 2.

> *"I think it was important that people can look at their individual problems because we are all very different. The way we're staffed and serviced is different in every unit so one problem for one person is not the same as the hospital down the road."*
>
> **Delegate feedback**

There was a greater expectation in terms of QI output and sharing of tests of change at events. Since all but one of the sites had the benefit of experience of collaborative participation previously, less time was needed to establish the learning community. It was more a matter of reconnecting as a collaborative and leveraging the learning from HandsFirst1. At the launch event in October 2023, sites were challenged to set their first aims and declare them publicly. They were then invited to connect with another team working on a similar issue.

Newcomers to the collaborative went through a process of onboarding and induction designed to quickly upskill them in QI methodology and facilitate cross-site collaboration. QI consultants held a series of short introductory meetings to get to know the newcomers' challenges and aspirations, and to familiarise them with key learning from the first round of the collaborative. This allowed the QI consultants to connect new members with returning sites who had faced (or were facing) similar challenges to encourage horizontal learning from day 1.

Although HandsFirst2 had only 12 participating sites compared with the 25 sites in HandsFirst1, attendance at events remained high (**Figure 2**).

Figure 2: Attendance at the HandsFirst1 and HandsFirst2 collaborative celebration events

HandsFirst1 celebration event

HandsFirst1 site delegates	33
Project team and RCS England staff	10
Total delegates	**43**

On average, one delegate per site attended.

HandsFirst2 celebration event

HandsFirst2 site delegates	47
Project team and RCS England staff	8
Total delegates	**55**

On average, four delegates per site attended.

The NHS operating environment

Every winter, the media is full of headlines about the NHS being faced with an unprecedented challenge but the winter of 2023–2024 seemed to be especially challenging. Following the pandemic, cases of influenza, respiratory syncytial virus, COVID-19 and norovirus put an early and continuing pressure on the acute bed base nationally such that many trusts had to reinstate the wearing of masks in patient-facing areas.

In a constantly changing world, it is crucial to consider the broader context when evaluating hand trauma care in the UK. A strategic approach requires a comprehensive understanding of the factors influencing this field to collectively enhance outcomes and population health. By adopting a wider perspective, we can reframe the issue and examine it from multiple angles when determining the best course of action. This broader view aids in decision making by balancing long-term investments in hand trauma care with the immediate need for results and the associated trade-offs.

There are four frameworks from management and leadership disciplines that can be useful in framing our understanding of the current NHS operational climate: VUCA, BANI, STEEPLED and SWOT analysis. Working through any or all of them will support strategic planning and add weight to any business case to improve service delivery.

VUCA (Volatility, Uncertainty, Complexity, Ambiguity) has its origins in military leadership.[10] On the surface, that may sound at odds with healthcare until you think how often we speak to patients as if we are on a war footing (e.g. this is an upwards battle, you can beat this, the war on cancer). During the COVID-19 pandemic, acute trusts adopted a more authoritarian 'command and control' model to decision making.

VUCA can be a useful framework for teams or organisations facing rapid but somewhat familiar change, such as organisational restructuring. Living in volatile, uncertain, complex and ambiguous times calls for visionary leadership. Leaders who can maintain calm and focus while surrounded by a sea of uncertainty can act as an anchor for those they lead.

In contrast, BANI (Brittle, Anxious, Non-linear, Incomprehensible) may be the more useful framework to deploy during highly chaotic and unexpected times such as the pandemic, when an unknown virus gripped the globe, bringing with it mass uncertainty that put extreme pressure on governments, healthcare and the whole of society. Following the pandemic, the brittleness of healthcare supply chains remains evident. High levels of anxiety and burnout are inherent in the workforce. We live in a globalised world, which adds opacity to cause and effect. This in turn makes our systems harder to understand and so choosing effective balancing measures when we undertake QI initiatives becomes more difficult. Positive and negative unintended consequences may manifest from surprising areas.

A STEEPLED (Social, Technological, Economic, Environmental, Political, Legal, Ethical, Demographic) analysis is a strategic planning tool that can help organisations understand external and internal factors affecting the organisation and its processes. This framework invites consideration of these factors with the potential to influence organisational aims. For individual sites, both STEEPLED and SWOT analyses are likely to prove useful undertakings.

Conducting a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis can provide actionable insights that help create an important sense of agency and control. Each site in the collaborative will have different internal factors of influence but all are affected by supply chain challenges, workforce challenges and mandates that put the focus on healthcare but not on hand trauma care. For this reason, a high-level SWOT analysis follows, beginning with weaknesses and threats to end on strengths and opportunities.

SWOT analysis

Weaknesses and threats

Following the COVID-19 pandemic, the NHS is grappling with several substantial workforce challenges. The pandemic took an already stretched workforce and put it under exceptional strain. This has led to high levels of burnout in the workforce as well as a shift in attitudes towards work and working conditions. The NHS faces staff recruitment and retention problems, and very public pressure.

The health and social care sectors are experiencing a particularly tight labour market. The economic stability of healthcare is suffering more than other sectors in the post-pandemic era. Productivity and growth are lagging. A report from the McKinsey Global Institute noted that the health sector has felt the crunch of higher job vacancies more than others. According to the report, healthcare had the highest number of job vacancies, with 16.9% of all vacancies in 2023.[11] Among the consequences of the pandemic are changing attitudes to work and how work gets done.

Recruitment and retention challenges coupled with the operational demand are resulting in the need to rethink how care is delivered. There is a national shift towards group working, where large NHS organisations like acute trusts are moving to a shared executive board. These wholesale changes are designed to facilitate greater partnership working and release efficiency gains through economies of scale. They affect the workforce in the same way any large restructuring of an organisation would. Some colleagues welcome changes while others find themselves feeling threatened. Wherever staff sit on the change continuum, change represents a significant disruption while it is being implemented. At present, these changes are happening at a national scale at a time when the workforce is already experiencing high levels of change fatigue, anxiety and burnout, and when the system itself is brittle, reeling from the aftereffects of the pandemic, economic stressors and global instability.

Then there is the far more familiar challenge that comes along every year: winter pressures. In the fiscal year 2024–2025, sites participating in the HandsFirst2 project had no immunity from the influx of seasonal viruses: influenza, respiratory syncytial virus, norovirus and the many permutations of COVID-19 that have now been accepted as part of the new norm. Familiar though they are, they nevertheless exert further pressure on resources.[12]

Moving from the general to the specific, while hand trauma standards are recognised by national professional bodies such as RCS England, BSSH and BAHT, they have yet to be endorsed politically and operationalised as key targets into NHS policy. Hand trauma care receives no mention in the multitude of concerns raised by Lord Ara Darzi in his September 2024 report on the state of the NHS to the Secretary of State for Health and Social Care.[13] This is a significant and problematic weakness.

Initiatives that have enjoyed a necessary airing in Parliament are included in national policy and NHS targets. Consequently, these demand leadership and management attention, and resources. Hand trauma care is conspicuous by its absence. This results in a lack of national NHS targets and perpetuates the false impression that these vital services, which have a considerable impact on the UK population and its capacity for productivity, are coping within acceptable thresholds. The data show otherwise. Patient care is falling well below existing standards. It is having an impact on patients as well as on those professionals who deliver care and know how important timely hand trauma care is for patients. This is a dangerous and untenable position given the high levels of burnout among healthcare workers, the recruitment challenges and continued industrial action by the clinical workforce.

Strengths and opportunities

The culture of RCS England collaboratives is characterised by a coaching approach where peers interact with genuine respect and equality, regardless of role, rank or experience. This fosters psychological safety, and helps maintain momentum and motivation, as reflected in feedback from events. Delegates often report that attending collaborative events is restorative or even regenerative. One possible explanation for this, inspired by the ideas of the psychotherapist Alfred Adler, is that as people begin to act and feel differently, they undergo personal transformation. Another term mentioned frequently in feedback is “empowered”.

Participation in the HandsFirst QI collaboratives helps organisations by supporting committed professionals with peer-to-peer connection, shared purpose, evidence of the national and local challenge, and proof of successes attained. These are important motivating factors and can aid staff retention.

Martin Luther King Jr defined power as “the ability to achieve purpose and effect change”.[14] At their heart, this is precisely what RCS England QI collaboratives deliver: a shared purpose, with support for the challenges faced so that teams are asking the right questions, always learning with a community of peers, and have a strong evidence base from which to effect change.

Perhaps the greatest strength for the 12 sites participating in the HandsFirst2 project was the collaborative’s ability to act as an adequate vessel, strengthened by shared purpose and fitted with a knowledgeable crew who are as committed to serving one another as they are their patients. The collaborative as a vehicle offers shape, form and fellowship – a kind of shelter from which to navigate these complex and uncertain waters. The increased diversity of professions and disciplines that made up HandsFirst2 created a richer discourse, opened new possibilities and brought pace to this second round of the collaborative. The presence of new people and a greater range of disciplines supported greater engagement. It invited a natural curiosity, new areas to engage with on the patient journey and new questions. Collaborative working provides hope.

CR Snyder’s research on hope defines it as “a cognitive emotional process consisting of three parts: goal, pathway and agency”.[15] QI methodology supports site project teams to agree specific, measurable, achievable, relevant and time-bound goals, and tools that enable them to agree hypotheses and tests of change or pathways towards realising them. Having access to experts, peers and regular site visits with QI consultants may not guarantee agency but it does support it.

Participation in a national collaborative offers a multitude of benefits that can significantly enhance outcomes and wellbeing for the clinical, managerial and administrative staff involved. Some key advantages include:

- **Improved problem solving and innovation:** By bringing together diverse perspectives and skills, teams in the collaborative can tackle problems more effectively, working across organisational boundaries to come up with innovative solutions and spread ideas that work.
- **Enhanced communication and mutual respect:** Collaboration fosters open communication and builds mutual respect among team members. For individual sites, this can improve morale, increase motivation, and lead to better relationships within teams and across teams – a more harmonious work environment. The collaborative is a learning community. Outputs may include:
    - **Increased efficiency and success:** Working together can streamline processes and lead to more successful outcomes as work is redesigned or completed more efficiently.
    - **Professional learning opportunities:** In addition to the QI methodology and leadership development support, collaboration provides opportunities for professional growth by giving team members the chance for horizontal learning. They can learn from each other, and understand better the strengths of each discipline and opportunities for enhancing care. It is a chance for informal peer-to-peer coaching and recognition.
- **Enhanced staff wellbeing:** Collaboratives help reduce unwarranted variation in care, improve patient safety and reduce inequality in healthcare. QI and leading change methods invite teams to consider environmental, physical, mental, emotional and social aspects. This in turn enhances staff wellbeing by creating a more inclusive, supportive and effective work environment, and through shared understanding, a sense of belonging.[16] There is strength in numbers. Coming together collectively provides visible evidence for small hand trauma teams, who can feel isolated and at times muted in their organisations in the absence of national drivers.

With 11 returning sites, familiarity increased the pace at which change ideas were tested and practices spread. Relationships had already been built. The new entrant, MSE, was interested in looking at PIFU to stem the tide of ever-increasing demand. Continuity of the RCS England project team made it easy to invite MSE to connect with Miriam Parkinson, an advanced occupational therapist at ELH who worked on PIFU pathways during the first round of the collaborative. By the close of the HandsFirst2 project, MSE had in place agreed conditions for PIFU and had developed six new pieces of patient information.

Following BWC's presentation of their 'no gowns' PDSA cycle in April 2024, several trusts considered adopting the initiative to spread the gains. Other surgical specialties at BWC also did so. It is therefore unsurprising that GIRFT included operating on patients in their own clothes in its 2022 *Guidelines for Operating Outside of Main Theatres*.[17]

The dedicated time (and the expectation of participation that comes with it) provides precious opportunities to think, plan and evaluate, both as a team and across teams off site. The peer-to-peer networking and coaching that is a natural consequence of events translates into service wins. Similarly, rejuvenating clinical colleagues translates into benefits for wider teams and, most importantly, for patients and their families.

The collective problem solving that comes from being part of a collaborative is powerful. Without nationally driven targets, hand trauma teams can feel like small fish in a big ocean and yet their collective voice is an important one, with the power to influence the national agenda.

> *"The NHS is a significant economic actor in its own right. The choices we make as an employer, a purchaser and a local 'anchor institution' can help moderate inequalities."*
>
> **NHS England**[9]

2. Design and delivery

Process followed

Proposed project aim: reduce variation and improve the quality of care for patients with hand trauma

Project goal: 80% of patients presenting within 24 hours of injury receive the recommended interventions within the timeframe given in the BSSH, BOA and BAHT standards.[1–3]

See Appendix 5 for a full list of the project goals.

Many returning sites kept their focus on one or more of the three surgical standards from HandsFirst1, namely:

- surgery within 24 hours for open fractures and joints
- surgery within 4 days for all other open hand injuries
- surgery within 7 days for closed hand fractures

Having already created a site-specific evidence base, sites were able to set their own local goals.

All NHS trusts/health boards across UK were invited to join the HandsFirst2 collaborative. Recruitment followed the subscription-based model used for RCS England's CholeQuIC-ER, Chole-QuIC3, Chole-QuIC4, HandsFirst and SUPPORT programmes. When registering to join the project, trusts/health boards agreed to pay a one-off subscription fee of £5,000. This fee is designed to cover RCS England's costs of running the project. Participating sites agreed to cover the costs of their travel to and expenses resulting from any in-person meetings. In addition, registration required the trust's management team to confirm that they supported the necessary changes to improve the pathway of care for these patient cohorts, and to identify and endorse a project lead and data lead for their site.

What did you find most useful from meeting your QI consultant?

"EVERYTHING! It is vital seeing your everyday life and work through other peoples' eyes. Being a very hands-on person, I never thought there would be space for QI in my job. I never realised that changing the journey is equally as important as changing the destination. Throughout this process, I have also matured myself as an individual and as a professional. The QI consultants have encouraged me to put on paper things I would have considered insignificant and then see the difference that they can make."

Site project lead, December 2024

Twelve NHS trusts registered and joined the HandsFirst2 project. Among these were 11 sites continuing their HandsFirst collaborative journey, including BWC, who were once again pivotal in raising the standards for paediatric hand trauma care. RCS England was delighted to welcome one newcomer: MSE. Despite late entry into the collaborative, MSE soon became a valued member of the HandsFirst2 community. See **Table 1** for a full list of the HandsFirst2 sites.

Table 1: Sites participating in the HandsFirst2 QI collaborative

1	Birmingham Women's and Children's NHS Foundation Trust (BWC)	Returning
2	Cambridge University Hospitals NHS Foundation Trust (CUH)	Returning
3	East Lancashire Hospitals NHS Trust (ELH)	Returning
4	Lancashire Teaching Hospitals NHS Foundation Trust (LTH)	Returning
5	Manchester University NHS Foundation Trust (MFT)	Returning
6	Mid and South Essex NHS Foundation Trust (MSE)	New
7	Oxford University Hospitals NHS Foundation Trust (OUH)	Returning
8	Sheffield Teaching Hospitals NHS Foundation Trust (STH)	Returning
9	University Hospital Southampton NHS Foundation Trust (UHS)	Returning
10	University Hospitals Birmingham NHS Foundation Trust (UHB)	Returning
11	University Hospitals Dorset NHS Foundation Trust (UHD)	Returning
12	University Hospitals of North Midlands NHS Trust (UHNM)	Returning

Project timeline

Recruitment for HandsFirst2 ran from November 2022 to June 2023 while the collaborative live phase ran from July 2023 to December 2024. The cohort met for the first time in August 2023 at the pre-launch webinar. The first in-person meeting was the launch meeting, which was held in October 2023 at RCS England in London. Teams collected data from 1 November 2023 to 31 October 2024. The celebration event was the final event and was held at RCS England on 13 December 2024. See **Figure 3** for the full project timeline.

Figure 3: Project timeline

The pre-launch meeting:

- summarised the learning from the HandsFirst1 collaborative with key reflections
- provided an overview of HandsFirst2
- updated key points from the GIRFT plastic and hand surgery programme
- gave an overview of hand therapy in the UK
- introduced the Leading Change workshops
- allowed teams time to plan, supported by QI tools
- closed with team declarations of broad aims and time to network

Sites were supplied with a ready-for-launch checklist to ensure that they could make the most of networking opportunities at the face-to-face launch on 20 October 2023.

Throughout the HandsFirst2 project, sites attended nine national meetings including the Leading Change workshops. Although originally designed for site leads, the Leading Change workshops were open to all to increase leadership capability, capacity and competence for all collaborative members. Additional topic meetings took place to agree hand therapy aims and standards for inclusion, finalise the database, and induct and onboard new sites. Sites joining for the first time also had two induction and onboarding meetings as well as two QI workshops. Events were designed to blend QI science and complementary practices to highlight the potential for practical application, share learning, and offer opportunities for formal and informal networking. For a full list of meetings that took place, see **Figure 4**.

Figure 4: Schedule of whole-collaborative events for HandsFirst2

19 April 2023	Recruitment Q&A webinar
22 August 2023	Pre-launch webinar
20 October 2023	Launch meeting at RCS England, London
30 October 2023	Data leads webinar
17 November 2023	Leading Change workshop 1: Building Effective Teams webinar
7 December 2023	Collaborative webinar 1
25 January 2024	Leading Change workshop 2: Motivating and Maintaining Teams webinar
13 March 2024	Leading Change workshop 3: Overcoming Natural Resistance webinar
19 April 2024	Collaborative meeting at RCS England, London
3 July 2024	Collaborative webinar 2
13 December 2024	Celebration event at RCS England, London

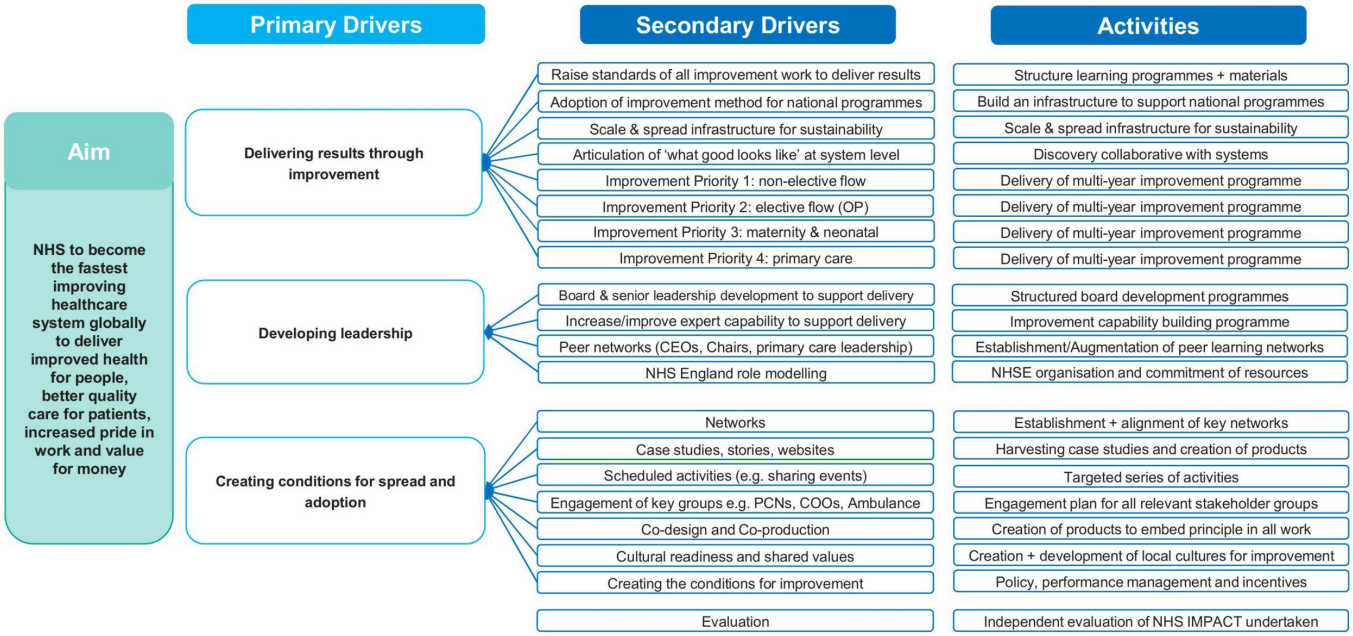
These meetings allowed teams to share successes and challenges associated with making changes to their hand trauma services. Each site received two site reports: an interim report and a final site report. Both reports gave an outline of the whole cohort's achievements, including a bespoke section detailing each site's progress and site-specific recommendations. Between collaborative events, sites had ongoing telephone and email support as well as coaching from the RCS England HandsFirst2 QI project team. The project team comprised clinical experts, QI specialists, the QI programme manager, and the director of research and QI from RCS England (Appendix 6).

The HandsFirst2 QI collaborative celebration event at RCS England on 13 December 2024

Approach

Sites followed a modified Breakthrough Series approach from the Institute for Healthcare Improvement, adopting the theory of change developed from RCS England's first gallstone collaborative, Chole-QuIC (Appendix 7). This theory of change aligns with the five components of NHS IMPACT and its drivers (**Figure 5**).[6] It also reflects the GIRFT programme's approach, which aims to improve patient treatment and care through an in-depth review of services, benchmarking and using a data-driven evidence base to support change.[7]

Figure 5: NHS IMPACT driver diagram[6]



Project benefits

Being part of a national collaborative is good for patients, their relatives and carers, and for the wellbeing of individuals and teams actively participating in the collaborative. Participant feedback from HandsFirst2 meetings and events tallies with that of the professionals working in the NHS Experience of Care improvement collaboratives, which reported improvements in teamworking, patient or carer experience of care and staff experience of delivery of care.[18]

The Chole-QuIC collaborative clearly demonstrated that following a particular set of effective clinical and improvement strategies in conjunction with a significant short-term commitment from surgical teams yields high-impact change. Being part of a collaborative provides sites with a structure and access to QI experts to support change. Successful improvement takes time and focus.

HandsFirst1 identified two key areas for improvement with the potential for high yields:

1. Improving theatre utilisation by identifying which cases can be managed in alternative facilities
2. Increasing patient flow by utilising more efficient and agreed pathways to ensure that patients are treated in the right place, by clinicians with the right skills and at the right time

> *"HandsFirst has been beneficial in identifying areas for improvement as well as providing opportunities for engagement with our general trauma service."*
>
> **Site project lead**, December 2024

These service changes are likely to reduce time to surgery, resulting in benefits such as:

- improved outcomes
- increased patient satisfaction
- fewer complications arising from delayed surgery
- fewer complaints

Equally, they are highly likely to result in:

- release of theatre capacity associated with:
  - more cases being managed in procedure rooms
  - fewer patients requiring surgical revision for preventable complications
- reduced pressure on emergency departments and assessment clinics
- cost savings associated with:
  - fewer patients occupying hospital beds while awaiting surgery
  - a lower risk of litigation due to preventable complications or hospital-acquired harm associated with prolonged service delays

All of these benefits add up to increased leadership and QI capability, capacity, confidence and competence. When you consider the costs of developing professional talent, continuing professional development workshops are typically charged on a per delegate basis with the costs frequently ranging anywhere from £180 to £460 per person for one-day workshop.[19] The three Leading Change workshops, QI workshops and online collaborative events were included in the single subscription cost. All were available to all members of the site team. Continuing professional development points were awarded for members who could attend live workshops. Those unable to attend did not need to miss out on development as all workshops and online collaborative events were recorded so team members, whatever their role or grade, could watch at any time. This represents incredible value for money for access to continuing professional development from a trusted provider.

Specific benefits for sites in HandsFirst2

- The opportunity to **improve outcomes for hand trauma patients**
- **Support from clinical and QI experts** through coaching sessions, email and telephone support, and virtual meetings
- Access to a **national data platform** that provides local and national data, increases understanding of systems, and offers evidence for change and benchmarking
- **Peer collaboration and support** with colleagues at participating sites
- Attendance at **webinars and collaborative events**
- A **specially designed programme** to meet each site's specific needs
- A series of **Leading Change workshops**, open to the whole team regardless of rank or role
- The opportunity to improve hand trauma care pathways, **relieve pressure on the system** and **save each service money**
- The invitation to **spread learning and improvements at scale** (within organisations and nationally)

Additional standards: Changes between HandsFirst1 and HandsFirst2

The introduction of hand therapy standards provided a more comprehensive view of the patient journey. For the first round of the collaborative, the emphasis was on reducing the time from injury to surgery for open fractures (including radius) or joints, open soft tissue wounds and closed fractures. During HandsFirst1, many sites were surprised at the length of delay between decision to treat and surgery for closed fractures other than the radius at a time when a pause to elective surgery was releasing theatre capacity. Teams had anticipated that meeting the 24-hour injury to treatment standard for open fractures (including radius) or joints would be challenging given that sites have no control over the time from injury to presentation.

Hand therapists involved in the first collaborative expressed concerns over delays between referral or surgery to the first hand therapy appointment. Therapists had concerns about hand therapy capacity and process but lacked an evidence base. The HandsFirst2 project sought to close that knowledge gap by introducing the hand therapy standards. Surgeons agreed that extending the dataset to encompass relevant hand therapy standards would provide a more comprehensive view of the state of hand trauma care in England.

Although new standards were added, sites were under no obligation to collect data around each category of injury. HandsFirst1 provided the national picture. Consequently, teams and departments participating in HandsFirst2 used their discretion when selecting which pathways and points merited their attention.

Goals and objectives

The HandsFirst collaborative aims to improve care for hand trauma patients by reducing variation and time to treatment, and by advancing professional standards. Another goal is to encourage more systematic collaboration among professionals aiding these patients. As this was the first time that data were being collected in relation to hand therapy, a primary goal of HandsFirst2 was to form a national picture of the state of hand therapy services and (where possible) improve time from injury or surgery to first hand therapy appointment.

For all standards, the goal was that 80% of patients presenting within 24 hours of injury received the recommended interventions in the applicable BSSH, BOA or BAHT standards (Appendix 5).[1–3]

Surgical standards (BSSH and BOA)

The HandsFirst2 project focused on the following surgical standards:

- BSSH
  - Open fracture (including radius) or joint
  - Open soft tissue wound
  - Closed fracture other than the radius*
- BOA
  - Intra-articular closed distal radius fracture*
  - Extra-articular closed distal radius fracture*

* including where a change in management plan was decided if conservative treatment was not successful

The collaborative also chose to gather evidence where no surgical standard exists for closed soft tissue injury.

What did you find most useful from meeting your QI consultant?

"Insights that wouldn't otherwise occur to me as a clinician – the human factors that prevent people from getting as involved as expected."

Site project lead, December 2024

Hand therapy standards (BAHT)

Time to first hand therapy appointment was a key measure for each of the types of injury outlined in the surgical standards, including those patients whose first line of treatment was non-surgical management. Some categories of injury had subsets depending on the physical structures involved. The applicable BAHT standards are:

- Open soft tissue wound
  - Flexor tendon
  - Extensor tendon zones 3–6
  - Extensor tendon zones 1–2
  - Peripheral nerve
  - Finger ligaments
  - Thumb ligaments
  - Soft tissue loss
  - Laceration without structural repair

Children's standards

Children's standards differ from adult standards for children aged <10 years for the following injury categories:

- Open soft tissue wound
  - Postoperative time to first hand therapy appointment for laceration without structural repair:
- Closed fracture other than the radius

The HandsFirst database

RCS England chose REDCap (Research Electronic Data Capture), a secure web-based application, to build and manage its secure HandsFirst QI collaborative databases.[20] REDCap is designed to support online and offline data capture for research studies by non-profit organisations. Proposed data fields were discussed and agreed over the course of the hand therapy meeting, the pre-launch and launch meetings, and the data leads meeting (Appendix 8).

Formal data collection was open from 1 November 2023 through to 31 October 2024 to allow sites to capture 12 months of data.

Age categories were:

- children aged <10 years
- children aged 10–15 years
- people aged 16–59 years
- older people aged ≥60 years

Members of the collaborative acknowledged that other age range categorisation exists in NHS datasets. However, in order to facilitate data collection, it was agreed that these age categories would adequately serve the collaborative for the purpose of data analysis. The age range of 16–60 years is used as a crude indicator for people of working age.

Sites were able to clean and validate data in the REDCap database. Each month, the HandsFirst project team exported data from REDCap into Microsoft Power BI to facilitate data analysis.

RCS England created monthly graphs showing the status of each category of injury where a minimum of ten records had been entered using Microsoft Power BI data visualisation. These graphs served as dashboards illustrating a wide range of factors that sites could use to design and monitor tests of change.

What did you find most useful from meeting your QI consultant?

"Ruth has been fabulous... most useful! She has managed to motivate me and endeavoured to refocus me to stay so positive."

Site project lead, December 2024

3. Key achievements

Project team members Ruth Colville, Sarah Tucker and Mark Fuller at the HandsFirst2 QI collaborative celebration event, 13 December 2024

It has to be acknowledged that creating the HandsFirst database in the first hand trauma collaborative was an achievement in itself. For the first time, the state of hand surgery had been captured by the NHS. This was done at a point when access to emergency theatres was more open owing to restrictions limiting elective surgery during the COVID-19 pandemic. Traumatic hand injuries are rarely life threatening. As such, other clinical priorities affect the time from injury to surgery. Nevertheless, traumatic hand injuries do threaten livelihoods. For this reason, the membership of the HandsFirst2 collaborative expanded the categories of injury and included the hand therapy standards.

Timely access to hand therapy is an important part of the patient journey. It can make the difference between adequate care and great outcomes. Now that we have a much more comprehensive view of hand trauma care in the UK, we can promote awareness of the long-term socioeconomic impacts of treatment delays. Most patients in the database are of working age. The clinicians who deliver hand trauma services live the impacts with their patients every day in their working lives. It is time to raise the profile of hand services in the UK, and ensure that our population has the tools to live fulfilling and productive lives.

Each site chose which standard or standards to focus on in this round. Consequently, many of the achievements are site specific. However, below are examples of some of the broad achievements experienced across the collaborative.

FACT FILE

The level of sites reporting good or very good understanding of patient flow in their site increased from 25% at the start of HandsFirst2 in October 2023 to 67% by the close of the collaborative in December 2024. Understanding of the patient pathway increased from 17% to 75% as a result of participation while sites' understanding of the key factors that need to change in order to realise service improvements more than doubled.

Source: end-of-project survey

Greater partnership working and spread

The HandsFirst2 project invited greater partnership working with internal teams and independent organisations. HandsFirst2 continued to work with the RCS England Marketing and Communications staff, and extended its collaboration working with the RCS England Business Intelligence Unit and clinical fellows. BAHT joined as a substantive partner and had a marked impact on shaping the collaborative's vision for HandsFirst2. The GIRFT team also had a greater presence. The GIRFT update at the launch meeting highlighted service fragmentation in hand surgery and variation in flexor tendon injury care, and reminded sites of the hand surgery guidelines for operating outside of main theatres, which were developed together with BSSH and endorsed by the British Association of Plastic, Reconstructive and Aesthetic Surgeons.[17]

One of the first tests of change that BWC implemented was their 'no gowns' PDSA cycle. (See Case studies) This was an adaptation of GIRFT's recommendation that hand surgery should be performed on patients in their own clothes as it is both safe and practical.[17] BWC provided updates on this PDSA cycle as it embedded. Their 'no gowns' initiative is now beginning to spread to the ear, nose and throat unit at BWC. On the back of BWC's success, OUH has begun planning to adopt the change.

> *"I presented all our information to Oxford University Hospitals, which was really good as they wanted to use some of our ideas. I was pleased with that – sharing is good."*
>
> **Jane Cooke**, Member of Site Project Team
> Birmingham Women's and Children's NHS Foundation Trust

The HandsFirst2 QI collaborative celebration event, 13 December 2024

GIRFT's net zero ambition, which calls for rationalising and reducing waste, informed activities during our collaborative events.[17] At the meeting on 19 April 2024, teams were challenged to identify opportunities to reduce or eliminate wastes using a variation of Ohno's 'eight wastes'.[21] Sites were asked to identify a type of waste in each category that they had seen in their care delivery. They then ascribed a currency (monetary or otherwise) to quantify the potential savings. Some alternative currencies were:

- better patient outcomes
- better patient experience
- improved patient flow (in their area or elsewhere due to releasing capacity)
- a more predictable system
- better experiences of work
- improved teamworking and morale
- evidence of 'greening' the NHS (net zero ambition)

UHS made progress towards a net zero ambition by reducing the number of hand trauma procedures performed under general anaesthesia. UHS opts to undertake most procedures below the wrist under local anaesthesia with a tourniquet. The choice for local anaesthesia with tourniquet offers additional advantages over WALANT, another alternative, as there is no requirement to wait 15–20 minutes to achieve haemostasis, meaning that the time from anaesthesia to incision is much quicker.[22]

> *"Doing procedures under local anaesthesia and tourniquet is definitely taking at least half an hour out of the overall surgical time and it's 'greener' too."*
>
> **Eleni Balabanidou**, Site Project Lead
> University Hospital Southampton NHS Foundation Trust

Both BWC and UHD reduced the size of their standardised kit for hand procedures as it was common for many items to be used and discarded. This built on work shared by Newcastle upon Tyne Hospitals NHS Foundation Trust during the HandsFirst1 collaborative (Appendix 9).

The PIFU work that ELH undertook garnered the interest of newcomer MSE, who worked to increase their use of PIFU, creating a suite of patient information leaflets that they shared with the collaborative (Appendix 10).

The surgical pathways at OUH were welcomed universally by HandsFirst2 sites, meriting Sara Atkins an Outstanding Leadership in QI award from RCS England (Appendix 11).

> **What did you find most useful from meeting your QI consultant?**
>
> *"The HandsFirst QI collaborative is one of the most positive and worthwhile things I have done in my career, particularly as a clinical service lead. I hope that through HandsFirst, my trust becomes consistently excellent in hand and wrist trauma management. I am proud that our service has made a significant contribution to the UK's first national database on hand trauma standards."*
>
> **Member of Site Project Team**, December 2024

New site welcomed

Members of the HandsFirst2 community gave a warm welcome to newcomer MSE, who joined in January 2024. By joining mid-way through, MSE gave the RCS England project team a chance to test our welcome and onboarding process. We were delighted with the results as a series of short induction meetings and two QI workshops coupled with the team's enthusiasm soon saw MSE contributing ideas, tests of change and all-important records to the REDCap database.

Greater executive involvement

There is a strong evidence base that indicates that support from senior management and colleagues is one of the differentiating factors for successful improvement initiatives. This is why it warrants first mention in the theory of change (Appendix 7). The more senior an individual is, the more influence they can exert to provide active support.

For the first time in the HandsFirst QI collaboratives, we welcomed a trust executive to an event. Daljit Athwal, the chief nursing and midwifery officer at BWC, came with her team for the April 2024 whole-collaborative meeting at RCS England. She actively reduced barriers by alleviating concerns expressed about the potential that operating in the patient's own clothes might introduce an infection control risk. With Daljit's backing, the team soon had evidence that the practice was safe and saving time as well as reducing anxiety as children were more comfortable remaining in their own clothes. Going to theatre was far less intimidating without the transition into an institutional and unfamiliar gown. It also cut down on the costs associated with linen and supported the 'green' agenda by reducing the environmental impact of laundering.

One of the aspects that made Daljit's executive support so powerful for the team and others at BWC was that she provided active support, speaking to teams to promote the HandsFirst2 project and BWC's improvement initiatives. She is even pictured alongside her nurses in their Ready, Steady, Go! campaign.

Poster for the Ready, Steady, Go! campaign at Birmingham Women's and Children's NHS Foundation Trust

The team at UHB also managed to engage an executive. Paul Malone, the HandsFirst2 project lead at UHB, met with chief executive Jonathan Brotherton on several occasions to discuss challenges faced by the team and seek support. Paul made several important gains, including formally ringfencing time in job plans to commit to HandsFirst2 and improvement work. This set a clear precedent that QI work deserves protected time.

Sites with research and development initiatives in their units used the networking opportunities at events to promote projects.

Broader diversity of roles represented

Although only 12 sites participated in the HandsFirst2 project (compared with 25 sites in HandsFirst1), the size of the site teams grew in numbers. A well-resourced team is the second factor listed in the theory of change mechanisms that increase the likelihood of success in improvement interventions (Appendix 7). A team that is truly well resourced comes replete with a data collection lead and representational support from a local improvement team. All sites had the former, and some sites also had the latter and brought their QI representatives to collaborative meetings. The roles and representation in the HandsFirst2 collaborative are shown in **Figure 6**.

The parity of esteem that characterises the culture of the collaborative led to advocacy for members whose roles are changing owing to national restructuring.

Figure 6: Roles and representation in the HandsFirst2 QI collaborative

Site representatives

- Surgical lead (e.g. head of surgery / clinical director)
- Plastic surgeons
- Orthopaedic surgeons
- Hand therapists
- Registrars / doctors in training
- Specialty and associate specialist surgeons
- Hand fellows
- Hand trauma coordinators
- Theatre managers
- Chief of nursing – **NEW for HandsFirst2**
- Nurse practitioners / ward nurses / theatre nurses
- Physician associates
- Anaesthetists
- Anaesthesia associates – **NEW for HandsFirst2**
- Management (e.g. specialty business managers, service managers)
- Local QI facilitators
- Administrators

Wider representation

- BSSH representatives
- BAHT chair
- GIRFT representative

Project team and wider expertise

- Clinical lead
- RCS England Vice-President
- QI consultants
- RCS England director of research and QI
- RCS England Business Intelligence Unit – **NEW for HandsFirst2**

Use of enabling technology

Professionals in the collaborative learning community embraced RCS England's enabling technology, making good use of the REDCap database and Microsoft Power BI dashboards, creating WhatsApp topic groups, and sharing resources via Microsoft SharePoint and Microsoft Teams. SharePoint served as a repository where larger files (such as webinar recordings, reports, patient pathways and PDSA cycles) were stored and accessible to all.

The hand therapy team at LTH updated their electronic management system with codes that reflect the trauma conditions and elective procedures that they commonly see (**Figure 7**). As a result, they now use their trust's business intelligence dashboard to work out current capability to meet the BAHT standards. Their trust's dashboard can filter each clinical condition code in real time, calculating the number of days between referral and first appointment, and recognising whether this meets the BAHT standard. This is precisely the type of evidence of demand and capacity that teams need to inform service design and business cases where services are falling short.

Figure 7: Hand therapy trauma and elective codes at Lancashire Teaching Hospitals NHS Foundation Trust

Code	Description
1	Occupational therapy – Hands – Amputation – Trauma
2	Occupational therapy – Hands – Arthritis – Conservative
3	Occupational therapy – Hands – Arthritis – Elective
4	Occupational therapy – Hands – Complex trauma
5	Occupational therapy – Hands – Dupuytren's – Elective
6	Occupational therapy – Hands – Fracture conservative – Trauma
7	Occupational therapy – Hands – Fracture surgical – Trauma
8	Occupational therapy – Hands – Distal radius fracture – Trauma
9	Occupational therapy – Hands – Mallet – Trauma
10	Occupational therapy – Hands – Nerve – Acquired
11	Occupational therapy – Hands – Nerve – Trauma
12	Occupational therapy – Hands – Other – Conservative
13	Occupational therapy – Hands – Other – Elective
14	Occupational therapy – Hands – Other – Trauma
15	Occupational therapy – Hands – Open laceration – Trauma
16	Occupational therapy – Hands – Ligament – Trauma
17	Occupational therapy – Hands – Flexor tendon – Trauma
18	Occupational therapy – Hands – Extensor tendon – Trauma
19	Occupational therapy – Hands – Tendon – Elective

FACT FILE

The level of support from non-clinical managers more than doubled from the start of HandsFirst2 in October 2023 to the end in December 2024, rising from 9% to 25%.

The level of support from specialty managers rose by 10% over the course of the collaborative.

Source: end-of-project survey

WhatsApp proved popular among sites wishing to connect with one another or with QI consultants for peer-to-peer coaching and collaboration between scheduled events.

These enabling technologies facilitate conversation, collaboration, analysis and resource sharing at pace. Members who make the most of them have ideas and resources at their fingertips with the swipe of a phone screen, and can send a message or voice memo over an encrypted channel to share their latest thinking, seek support or a benefit from a sounding board. The 'always on' nature of technology is often demonised for its drawbacks but the advantages are impressive. RCS England chose to use Microsoft SharePoint and Microsoft Teams as the primary HandsFirst2 sharing platforms because both have features that put the member in control so that they can access them when ready without feeling intrusion on their work–life balance.

Maintaining momentum

The creation of the largest hand trauma database was an exciting achievement in the HandsFirst1 project and starting to put it to work in HandsFirst2 was exhilarating. Sites were keen to maintain the momentum, with 11 of the 12 sites expressing an interest in the HandsFirst3 QI collaborative, which is likely to launch in December 2025. The 12th site commented that they would regrettably be unable to continue owing to financial constraints at their trust. Instead, this site plans to work independently to progress hand trauma care using the knowledge and network they have built from participating in the first two rounds of the collaborative.

During the lead-in time to HandsFirst3, sites are continuing to collaborate. At the time of writing, there are seven publications proposed, with independent working groups having held a number of meetings in early 2025. Teams have put in an incredible amount of time, effort and care to create this rich data source. Publication is one way to reap the rewards and spread best practice.

Sites have already begun to share learning by presenting the work from both HandsFirst collaboratives at professional conferences. When resources are limited and the operational climate is so challenging, it is more important than ever to publicise the broad range of positive changes that teams have achieved. Sites have presented findings stemming from the HandsFirst collaborative at national and international conferences:

- Quebec Congenital Hand Alpine Meeting, February 2024[23]
- British Association of Day Surgery, June 2024[24]
- Orthopaedic Trauma Society, June 2024[25]
- Federation of European Societies for Surgery of the Hand, June 2024[26]
- Scandinavian Society for Surgery of the Hand, August 2024[27]
- British Association of Hand Therapists, October 2024[28]
- International Federation of Societies for Surgery of the Hand and International Federation of Societies for Hand Therapy, March 2025[29]

4. Results analysis

In establishing a national database, the RCS England HandsFirst QI collaborative sought to drive improvement by informing ‘what good looks like’. The database is a platform for identifying positive outliers and sharing best practice.

How was the database useful?

Establishing the first national database for hand trauma is the first benefit that was realised by the original collaborative. With its 9,028 records, it provided a rich dataset and a view of hand trauma care that was desperately needed at a time when the UK was still very much actively delivering care during the COVID-19 pandemic. QI science requires a baseline to illuminate opportunities for change. HandsFirst1 offered some breadth and depth of insight as to the level of variation among hand trauma services across the nation.

HandsFirst2 clearly demonstrates how elective recovery is putting pressure on access to operating theatres for unplanned care. Both unplanned and planned care are necessary to deliver good patient outcomes. Half (49%) of all surgical delays documented between 1 November 2023 and 31 October 2024 record access to theatre as an issue. Perhaps that is to be expected. More concerning, however, is that 9% of surgical delays are due to the lack of an appropriately trained surgeon. Lack of available beds accounted for fewer than 1% of delays. A change in management plan (usually the result of an unsuccessful attempt at conservative management) accounted for 13% of surgical delays.

The dataset proved vital in supporting sites to understand their system, its capabilities and its variation. Many were disappointed, if not entirely surprised, by their findings. The 11 returning sites used this new evidence to raise the profile of their service within the trust and the role it plays in the lives of their patients, and they returned to the collaborative with expanded teams, both in number and disciplines.

In the HandsFirst2 collaborative, standards are measured from the time of injury to the time of treatment irrespective of whether the treatment is surgical or non-surgical. The exception is where there is initially a trial of conservative management. In this instance, the measure applies from the point at which a change in management is decided.

The evidence from the HandsFirst1 project informed where returning sites set their ambitious aims for HandsFirst2, with the burden of collection of baseline data complete for the three BSSH standards. Some teams chose to focus on a particular category of injury while others chose to set discreet aims for surgery and hand therapy. UHB and BWC elected to concentrate on maximising theatre utilisation to improve all surgical pathways.

The HandsFirst2 database is impressive. Despite the fact that there were only 12 sites participating in this round of the collaborative (i.e. fewer than half of the 25 sites in HandsFirst1), the HandsFirst2 cohort comprises 7,056 cases, which equates to 78% of the number patients included in the first iteration of the collaborative. This combines to 16,084 hand trauma cases across the two collaboratives. Over half (54%) of the patients in HandsFirst2 were recorded as having received treatment from hand therapy teams. Given that not all members of the collaborative collected this type of data, this is almost certainly an underestimation of demand for hand therapy.

> 49% of all surgical delays record access to theatre as an issue. More concerning is that 9% of delays are due to the lack of an appropriately trained surgeon. Lack of available beds accounted for fewer than 1% of delays.

HandsFirst2 Power BI dashboards

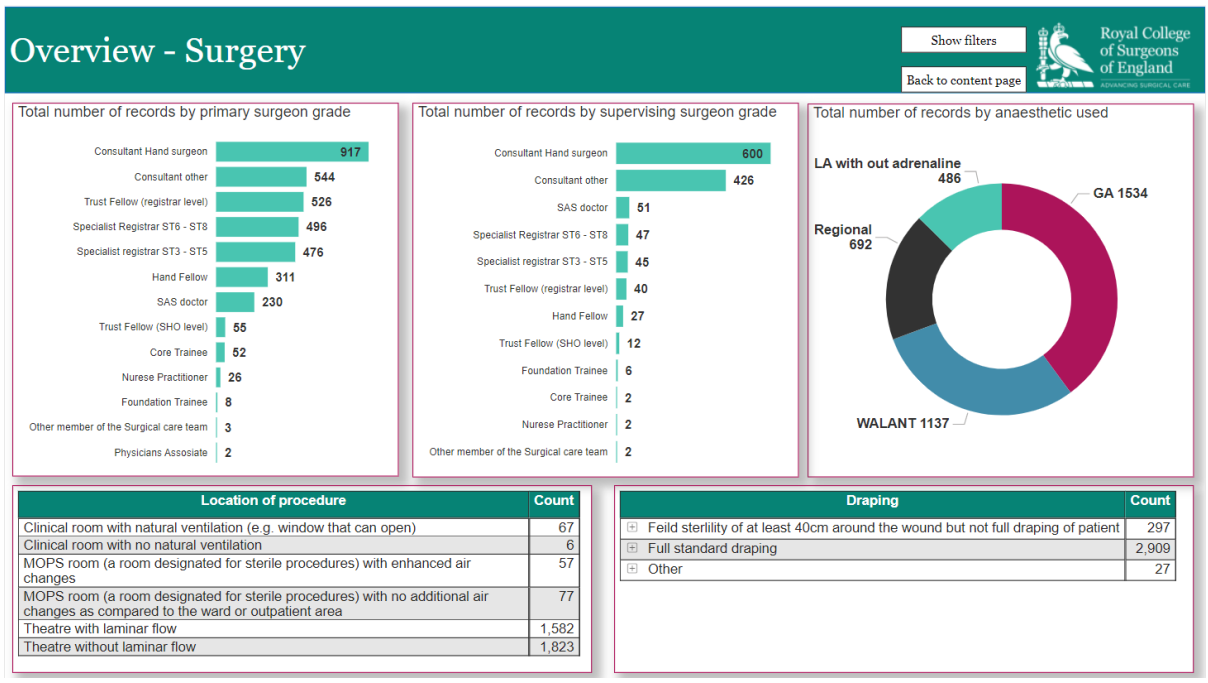
Updated monthly, the Microsoft Power BI dashboards provided a cumulative whole-collaborative view of performance across the various hand trauma standards as well as details for individual sites. Reports were designed to facilitate exploration of the dataset. Sites could export their data from the REDCap database for a deeper dive. The power of evidence is that it moves us from what we think is happening to what is actually happening. Invariably, sites find something that sits uncomfortably with them, a form of disconnect between the services they want to deliver, the services they might be capable of delivering and the services they are delivering. Sometimes that becomes a hard-to-reach itch that cannot be ignored. Sites join the collaborative because they want to scratch that itch.

> *"Want: it's an expression of desire, but it's also an expression of lack. To want something is to be in want: of time, of freedom, opportunity, environment, pleasure, routine."*
>
> **Pádraig Ó Tuama**
> Conflict Mediator[30]

Deciding where to concentrate improvement efforts can be challenging when you are constantly putting out fires and dealing with day-to-day issues. All too often, teams are consumed with daily operational tasks and delivering on existing plans with no time to stop and consider the bigger picture. The collaborative puts you amid strong, motivated and developed teams. Being able to access whole-cohort dashboards can fuel questions and connection. Time spent with teams at collaborative events offers opportunities for strategic planning. Strategic thinking is not about making quick decisions and addressing failures must not be avoided. Decisions need to be weighed up and failure is an opportunity to learn. Developing an improvement strategy is a shared enterprise.

The Microsoft Power BI dashboards provide a quick overview so that site leads and teams can see at a glance what matters most to their patients, and where the high impact areas are. An example page from the dashboard is shown in **Figure 8**. The dashboards required a minimum of ten patient records in an injury category in order to create a summary.

Figure 8: Microsoft Power BI dashboard showing an overview of surgery records in the HandsFirst2 database



Factors relating to surgical standards on the dashboard included a visual summary of:

- reason for delay
- type of anaesthesia used
- location of procedure
- grade of primary surgeon
- grade of supervising surgeon
- draping used
- age range of patients
- mechanism of injury
- records meeting standard by day of presentation
- cumulative mean in hours for:
  - time from injury to presentation
  - time from injury to decision to treat
  - time from decision to surgery
- run charts illustrating performance over time

For closed soft tissue injuries (where no professional standard has been agreed), the dashboard consisted of:

- count of records
- count by day of week of presentation
- cumulative mean in hours for:
  - time from injury to presentation
  - time from injury to decision to treat
  - time from decision to surgery
- run charts illustrating count of records over time (a proxy of activity)

Therapy standards dashboards included:

- comparative counts of face-to-face versus virtual appointments
- referral method
- reason for delay
- grade of hand therapist
- count of patients returning to work where applicable
- age range of patients
- records meeting standard by day of referral
- cumulative mean in hours for time from referral being made to referral being received
- hand therapy outcome
- adequacy of frequency and timeliness of follow-up hand therapy appointments
- run charts illustrating performance over time

Before data collection began, project leads and data leads could request additional site-specific fields. A number of set fields were created for sites where hand trauma operations may occur at several hospitals in their trust. Free text fields were added so that teams could capture additional pertinent information for site-specific analysis.

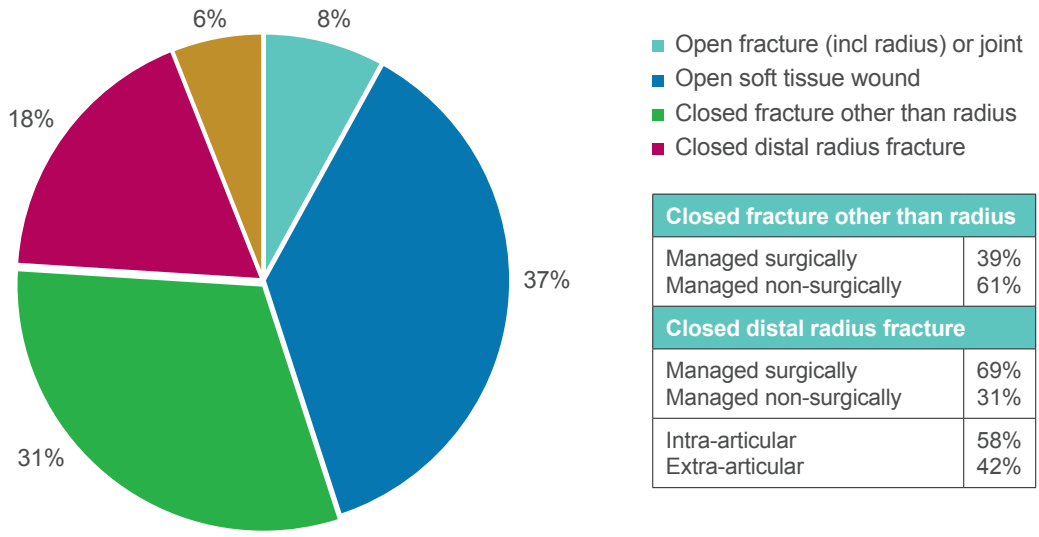
Surgical standards

Measures for surgical standards apply from the time of injury to the time of surgery. High-level data analysis helped teams decide where to expend their efforts. As with the HandsFirst1 project, Microsoft Power BI reports were shared monthly with sites. These provided a national picture as well as details of how individual sites were performing against standards to inform decision making.

Types of injury and types of anaesthesia used

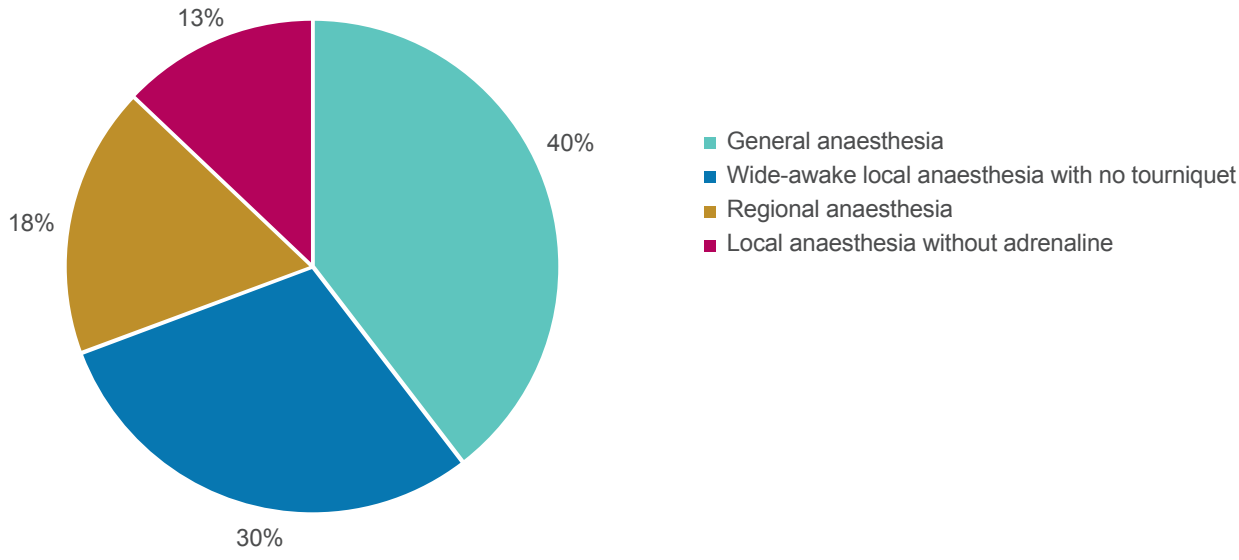
Figure 9 gives a breakdown of the cases in the HandsFirst2 database by category of injury. Information on the different types of anaesthesia used in the surgical procedures is presented in **Figure 10**.

Figure 9: Breakdown of records by category of injury



Closed fracture other than radius	
Managed surgically Managed non-surgically	39% 61%
Closed distal radius fracture	
Managed surgically Managed non-surgically	69% 31%
Intra-articular Extra-articular	58% 42%

Figure 10: Breakdown of records by type of anaesthesia used



Injury categories 1–3 (BSSH)

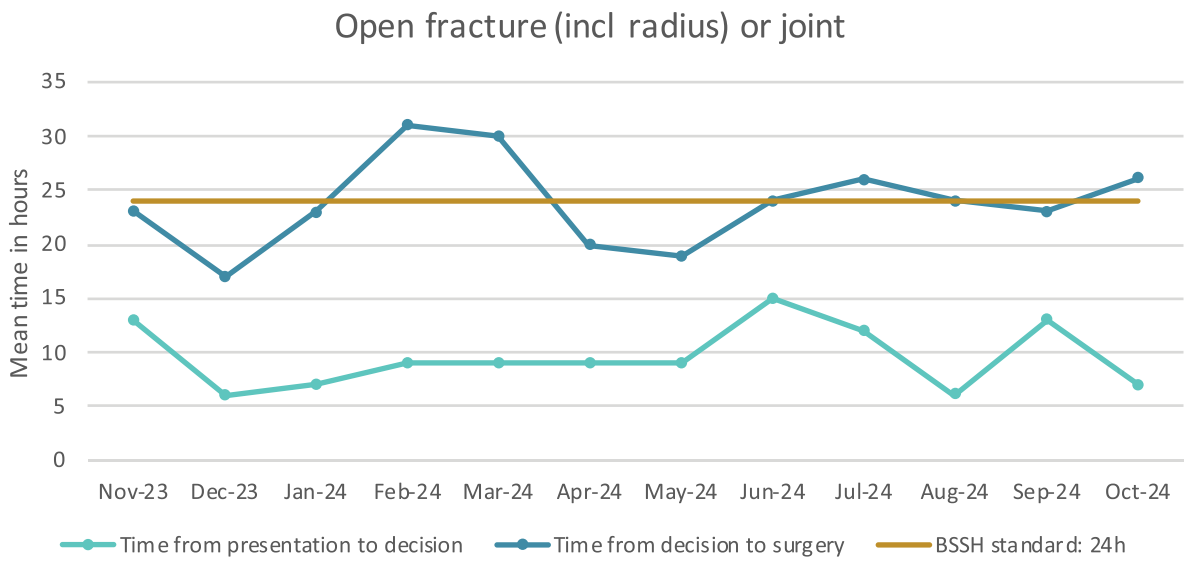
Open fractures (including radius) or joints (category 1)

Representing 8% of activity captured across the collaborative, the 24-hour BSSH standard for patients with an open fracture or open joint hand injury is a challenging target to meet. Trusts have no control over how soon after injury patients present.

Patients aged ≥10 years with an open fracture or joint

Cumulatively, 39% of patients aged ≥10 years were treated within the 24-hour standard across the entire data collection period (**Figure 11**). Although none of the trusts in the collaborative met the BSSH target to treat 80% of patients within 24 hours of injury, more than a quarter of sites saw an improvement. At UHS, a major trauma centre, 74% of patients met the 24-hour standard. This was an impressive 49% improvement on the trust's cumulative performance against the standard at the close of the HandsFirst1 project.[31]

Figure 11: Mean time from presentation to decision to treat and from decision to surgery for patients aged ≥10 years with an open fracture (including radius) or joint



On average, patients presented within 4 hours of injury. The cumulative mean time from injury to surgery across the collaborative for the duration of the HandsFirst2 project was 43 hours. There is scope to improve time from presentation to decision to treat as the mean was 14 hours within a 24-hour standard. The mean time for access to the operating theatre (as measured by the time from decision to surgery) was 26 hours; this alone already exceeded the 24-hour standard for the whole pathway.

Comparing whole-cohort performance between the two rounds of the collaborative, it would appear that the time from presentation to decision to treat reduced by 4 hours for patients aged ≥10 years in HandsFirst2. However, owing to the change in cohorts, direct comparison is problematic. For sites participating in both HandsFirst projects, there is still an improvement in time from presentation to decision but it is a more marginal gain of 17 minutes.

Unsurprisingly, as elective surgery and the pressure to reduce waiting times took hold, access to the operating theatre proved more challenging for sites, resulting in a 2-hour increase in the overall patient journey. The median time to surgery for patients with open fracture (including radius) or joint injuries across the whole collaborative was 27 hours. Two-fifths (39%) of patients met the 24-hour BSSH standard.

There were some trusts that participated in both rounds of the collaborative that realised impressive improvements. Taking a closer look at the 49% improvement at UHS shows that patients presented on average 2 hours after injury. Their time from presentation to decision to treat averaged an enviable 4 hours. Their time from decision to surgery was on average 12 hours faster than the whole-cohort average (14 hours).

OUH deserves a mention with a 14% gain in the number of patients aged ≥10 years meeting the 24-hour standard compared with their achievements in HandsFirst1. They improved their pathway by an average of 8 hours overall; 6 of these were due to an improvement in accessing theatres. Improvement is often incremental, with marginal gains that accumulate. Sara Atkins of OUH worked arduously to develop and refine patient pathways. Her presentation in April 2024 sharing her improvement journey was among the most valued by other members of the collaborative (Appendix 11).

At STH, 13% more patients aged ≥10 years were seen within the 24-hour standard than in HandsFirst1. The team reduced the length of their patient pathway by an impressive 22 hours, the bulk of which was a 15-hour reduction from presentation to decision to treat.

MFT improved their pathway for open fracture or joint injuries, reducing their time from presentation to decision to treat by an average of 7 hours and from decision to surgery by 6 hours. Overall, the patient journey through surgery was 11 hours quicker, which improved MFT's compliance with the 24-hour standard by 8%. The team at MFT contributed 1,515 records to the HandsFirst2 database, representing 21.5% of all records.

The achievements of these sites reflect considerable improvements to the populations they serve. Elsewhere, meeting the standard became more challenging with management focus on elective recovery plans. The most significantly affected trusts saw their compliance with the standard decline by 20% or more, with the largest impact being a deterioration of 48%. For that trust, access to theatre deteriorated to an average of 47 hours, which is nearly twice the BSSH recommended timeframe of 24 hours from injury to surgery. The 24-hour standard is tough to meet. Nevertheless, the greatest deterioration in access to theatre had a far more powerful impact on other injury categories.

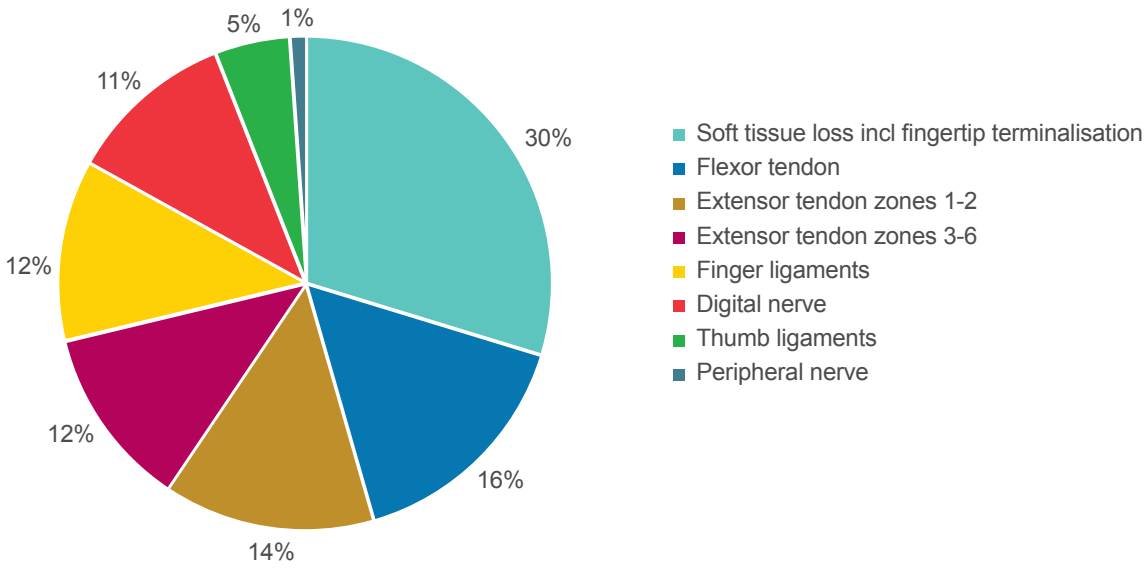
Children aged <10 years with an open fracture or joint

There were only 15 records in the HandsFirst2 database for young children in this injury category. Only a third of these children received their surgery within 24 hours of injury.

Structural repairs for open fractures or joints

Over half (58%) of all patients in the HandsFirst2 cohort with an open fracture or joint required structural repairs. A breakdown of these is presented in **Figure 12**.

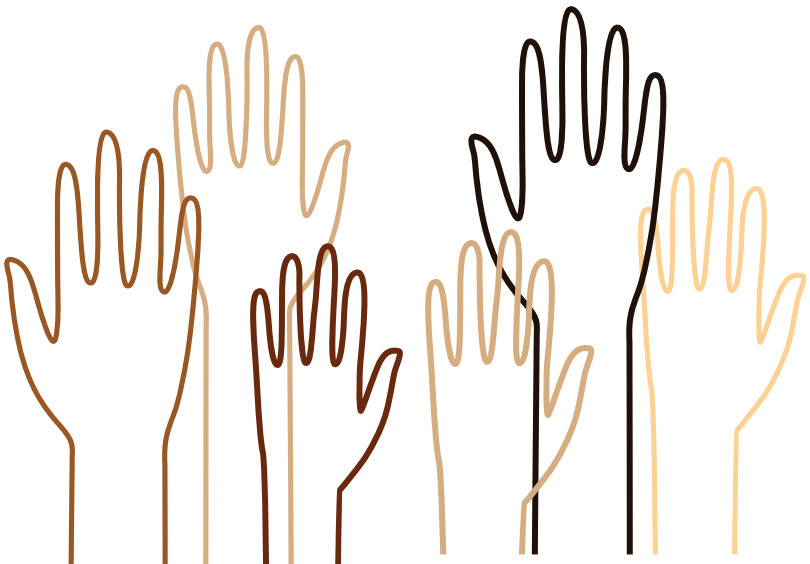
Figure 12: Breakdown of structural repairs for patients with an open fracture or joint



Open soft tissue wounds (category 2)

Patients presenting with an open soft tissue wound accounted for 37% of the records in the HandsFirst2 database, making this the largest category of documented hand trauma in the collaborative. The standards agreed by BSSH state that patients presenting within 24 hours of injury requiring surgery should have their surgery within:

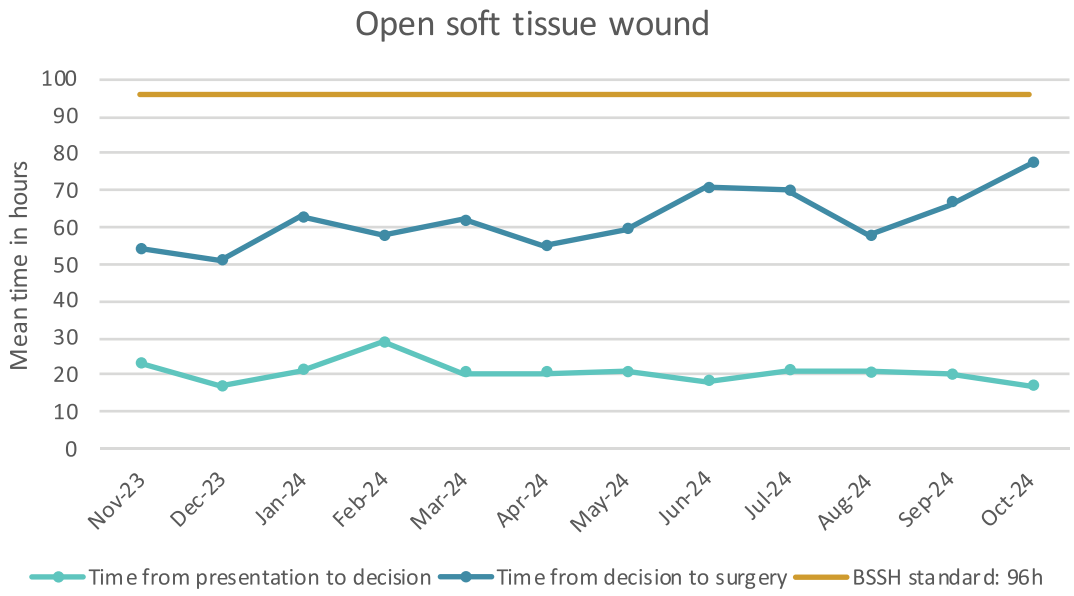
- 4 days (96 hours) of injury for patients aged ≥10 years
- 3 days (72 hours) of injury for children aged <10 years



Patients aged ≥10 years with an open soft tissue wound

Cumulatively, among patients aged ≥10 years, 62% across the entire data collection period met the 4-day (96-hour) BSSH standard (**Figure 13**). For sites returning to the collaborative, this represented a 7% deterioration in performance, with these returning sites waiting an average of 7 hours longer to access theatres. The median time from injury to surgery for patients with open soft tissue wounds across the whole collaborative was 73 hours.

Figure 13: Mean time from presentation to decision to treat and from decision to surgery for patients aged ≥10 years with an open soft tissue wound



Although the post-pandemic operational context is challenging, 4 of the 12 trusts participating in the HandsFirst2 project met the BSSH open soft tissue wound standard for 80% or more of their patients. These were BWC, ELH, OUH and UHS.

Among these, only BWC had met the 96-hour BSSH standard in the previous collaborative round. Once again, UHS made a stunning improvement. They increased compliance with the standard by 20% compared with their performance at the close of HandsFirst1. MFT made a 2% performance gain. Unfortunately, the challenge of operating in the post-pandemic climate saw seven sites deteriorate considerably in this category of hand trauma.[31]

The mean time from presentation to decision to treat for the whole cohort was 25 hours. For returning sites, their cumulative mean time from presentation to decision for the duration of the HandsFirst2 project was 22 hours, which was 2 hours faster than these sites achieved during the first iteration of the collaborative.

On average, these patients presented within 5 hours of injury. The cumulative mean time from injury to surgery across the collaborative was marginally over 96 hours. Fractional gains in time from presentation to decision to treat in order to bring the mean under 20 hours would make a big difference to overall compliance. This part of the patient pathway is more easily influenced by project teams as fewer contributory factors are reliant on finding, creating or repurposing of hospital estate, or involve the procurement of equipment. The collective mean time from decision to treat to surgery for all sites in the HandsFirst2 project across the entire data collection period was 67 hours.

Where it is possible to compare performance between the two rounds of the collaborative (i.e. for returning sites), the time from decision to treat to surgery (which is a proxy for access to theatres) increased by 7 hours, with a 4-hour increase in the overall patient journey for patients with open soft tissue wounds. Given that all trusts had had a full return to elective operating, the gains made by several sites during HandsFirst2 are even more impressive.

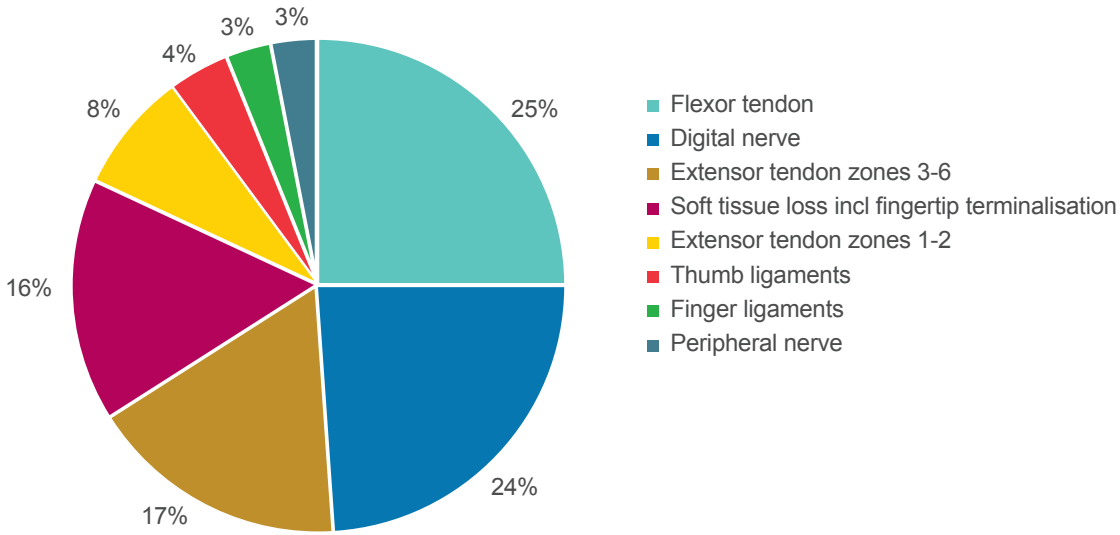
Children aged <10 years with an open soft tissue wound

The vast majority (94%) of children presenting with open soft tissue wounds had surgery within the recommended 3 days (72 hours) of injury. The mean time from injury to surgery was 33 hours, of which an average of 22 hours was taken from decision to treat to surgery.

Structural repairs for open soft tissue wounds

Almost three-quarters (71%) of all patients in the HandsFirst2 database with an open soft tissue wound required structural repairs. A breakdown of these is given in **Figure 14**.

Figure 14: Breakdown of structural repairs for patients with an open soft tissue wound



Closed fractures other than the radius (category 3)

Patients with a closed fracture other than the radius made up 31% of the HandsFirst2 cohort and therefore represented the second largest injury group in this collaborative. Almost two-thirds (61%) of these patients were managed non-surgically.

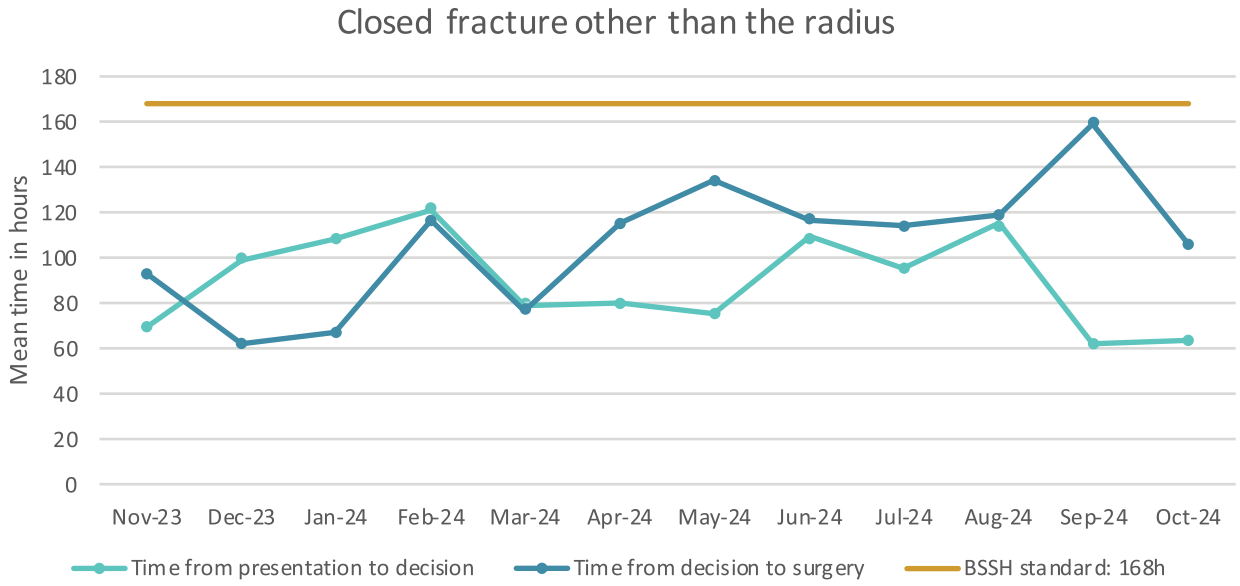
For those requiring surgery, the BSSH standards recommend that cases presenting within 24 hours of injury should undergo surgery within:

- 7 days (168 hours) of injury for patients aged ≥10 years
- 4 days (96 hours) of injury for children aged <10 years

Patients aged ≥10 years with a closed fracture other than the radius

For patients aged ≥10 years who were managed surgically, 51% met the 7-day (168-hour) BSSH standard (**Figure 15**). On average, patients presented 7 hours after injury. There was wide variability in time from presentation to decision to treat, with a median of 50 hours; the mean, however, was 105 hours. A quarter (28%) of all patients in this category of injury were waiting more than 100 hours for a decision and 8% of patients waited longer than 300 hours.

Figure 15: Mean time from presentation to decision to treat and from decision to surgery for patients aged ≥10 years with a closed fracture other than the radius



The mean time from injury to surgery was 234 hours (nearly 10 days). This represents a deterioration in access to theatres of 90 hours (nearly 4 days) from the mean at the close of the HandsFirst1 project.[31] It took a mean of 122 hours (over 5 days) from decision to treat to surgery. In contrast, the median time from decision to surgery was 93 hours and the median time from injury to surgery was 177 hours. This gives an indication of the variability in treatment.

BWC was the only trust in the collaborative to meet the 7-day BSSH standard. Nevertheless, three returning sites made noteworthy improvements on their results in the initial round of the collaborative:

- UHS improved from 16% to 47%
- ELH improved from 48% to 69%
- UHNM improved from 46% to 68%

Children aged <10 years with a closed fracture other than the radius

The BSSH standard for young children is treatment within 4 days (96 hours) of injury. Over half (58%) of these children met the standard.

Injury category 4 (BOA)

Closed distal radius fractures (category 4)

Patients with a closed distal radius fracture comprised 18% of the HandsFirst2 cohort. Of these patients, 11% had a change in management plan requiring subsequent surgery. Almost half (46%) went on to have their surgery within 3 days (72 hours) of that decision and therefore met the standard. **Table 2** compares the management of intra-articular and extra-articular closed distal radius fractures for patients in the HandsFirst2 database.

Table 2: Breakdown of types of closed distal radius fracture and management

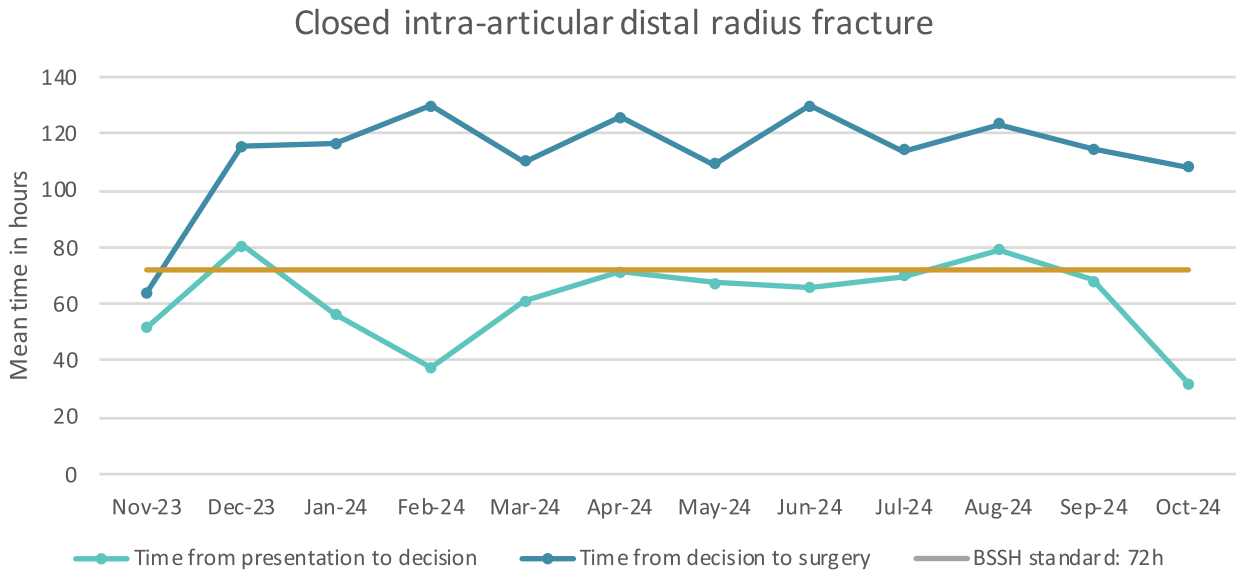
Closed distal radius fracture (category 4)	
Intra-articular	58%
Extra-articular	42%
Surgically managed	*69%*
Intra-articular	58%
Extra-articular	42%
Non-surgically managed	*31%*
Intra-articular	60%
Extra-articular	40%

Closed intra-articular distal radius fractures

The BOA standard recommending surgery within 3 days (72 hours) of sustaining a closed intra-articular distal radius fracture proved too challenging for sites to meet consistently. None of the trusts in the HandsFirst2 collaborative came close to achieving this standard. Performance ranged from 6% to 31% between the sites.

Only 21% of patients across all sites were treated within the necessary timeframe of 72 hours (**Figure 16**). This is hardly surprising as the mean time from presentation to decision to treat was 92 hours. However, 23% of patients in this cohort were waiting more than 7 days from presentation to decision. This suggests that access to clinic is challenging as well as having the usual issues with access to theatre. Nevertheless, the latter represents the more sizeable delay in this patient pathway, with waits from decision to surgery already approaching double the standard. The mean time for the whole pathway from injury to surgery was 206 hours (8.6 days).

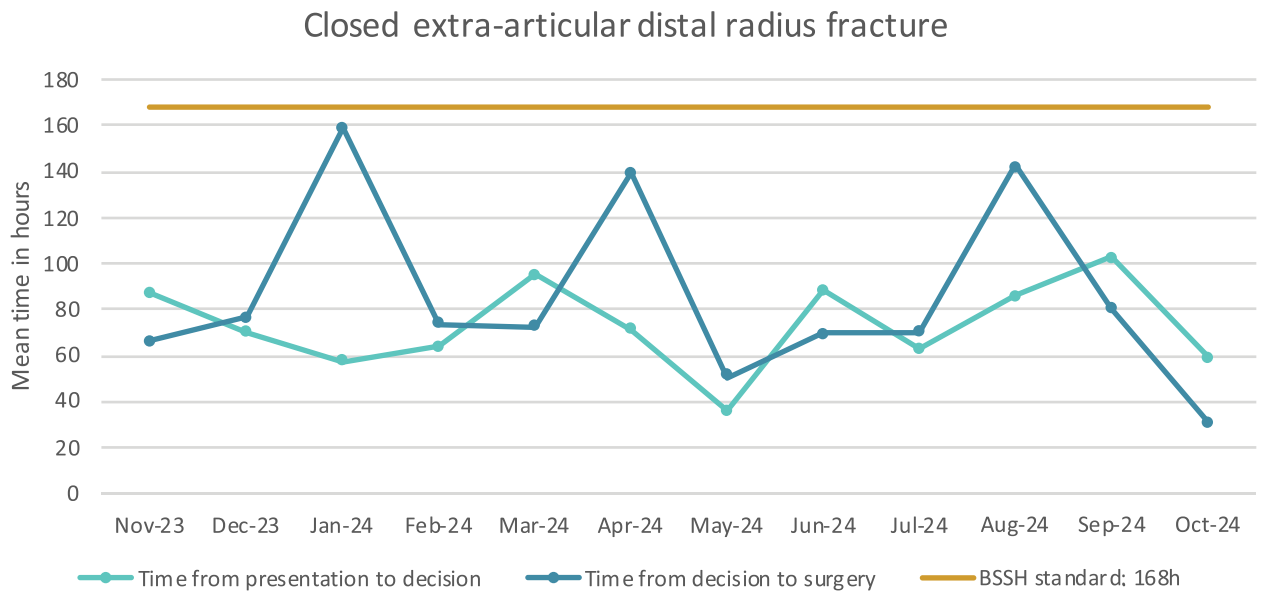
Figure 16: Mean time from presentation to decision to treat and from decision to surgery for patients aged ≥10 years with a closed intra-articular distal radius fracture



Closed extra-articular distal radius fractures

The BOA standard for closed extra-articular distal radius fractures recommends that surgery should take place within 7 days (168 hours) of injury. Cumulatively, the sites in the HandsFirst2 collaborative achieved this in 44% of cases (**Figure 17**). Both portions of the patient pathway were problematic: the mean time from presentation to decision to treat was 84 hours (already half the allotted time for the standard for the whole pathway) and the mean time from decision to surgery was 114 hours.

Figure 17: Mean time from presentation to decision to treat and from decision to surgery for patients aged ≥10 years with a closed extra-articular distal radius fracture



ELH was the only trust that met the BOA standard, with 86% of their patients receiving surgical treatment within the 7-day timeframe for patients aged ≥10 years. For children aged <10 years, ELH met the standard for all their patients.

It is not possible to compare round 1 and round 2 of the HandsFirst collaboratives in terms of distal radius fractures as no distinction was made between intra-articular and extra-articular fractures during HandsFirst1.

Injury category 5: Closed soft tissue injuries

There is no best practice standard set for the surgical treatment of closed soft tissue injuries. The advancement of professional standards is core to RCS England's vision. The HandsFirst1 project only recorded information on closed soft tissue injuries if they required surgical intervention. For the HandsFirst2 collaborative, data were also collected for these injuries if they were managed conservatively, which was the case for 74% of this category of injury in the HandsFirst2 database. A breakdown of the structural repairs required for patients with closed soft tissue injuries in HandsFirst2 is given in **Figures 18 and 19**.

Figure 18: Breakdown of structural repairs for patients with a closed soft tissue injury that was managed surgically

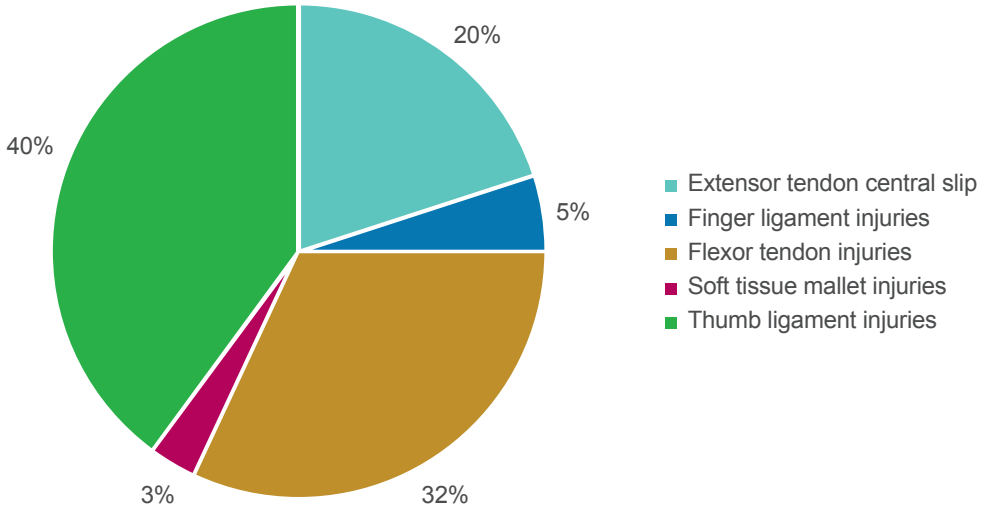
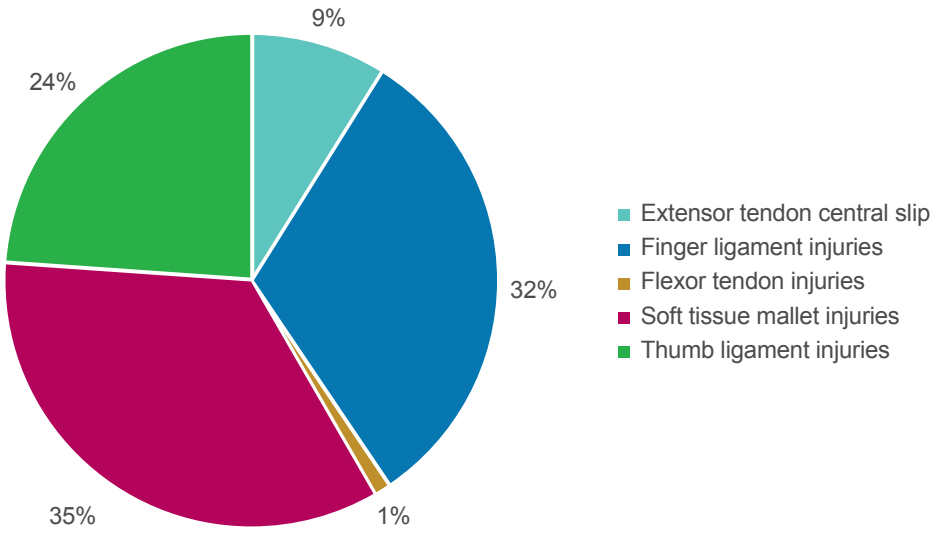


Figure 19: Breakdown of structural repairs for patients with a closed soft tissue injury that was managed non-surgically



In both HandsFirst collaboratives, looking at closed soft tissue injuries requiring surgical repair, the mean time from injury to surgery was 11 days. This is too long to wait and is certain to have a negative impact on patient outcomes. It is vital that a new professional standard is agreed urgently.

Summary of performance relating to surgical standards

Table 3 summarises the performance of the whole HandsFirst2 cohort for each of the surgical standards.

Table 3: Performance relating to surgical standards (BSSH and BOA)[1,2]

Category of injury	Standard (time from injury to surgery)	% meeting standard
Open fracture (incl radius) or joint (category 1)		
Open fracture (incl radius) or joint	24 hours	39%
Children aged <10 years	*24 hours*	*33%*
Open soft tissue wound (category 2)		
Open soft tissue wound	96 hours	62%
Children aged <10 years	*72 hours*	*94%*
Closed fracture other than the radius (category 3)		
Closed fracture other than the radius	168 hours	51%
Children aged <10 years	*96 hours*	*58%*
Change in management plan	72 hours	10%
Closed distal radius fracture (category 4)		
Closed intra-articular distal radius fracture	72 hours	21%
Children aged <10 years	*72 hours*	*<10 records collected*
Closed extra-articular distal radius fracture	168 hours	44%
Children aged <10 years	*168 hours*	*87%*
Change in management plan	72 hours	46%
Closed soft tissue injury (category 5)		
Closed soft tissue injury	Standard required	Mean wait: 11 days

BAHT hand therapy standards

Having BAHT as a partner in this second iteration of the HandsFirst QI collaborative has provided a richer picture of the state of hand trauma care in England. For the first time, we can analyse more of the patient journey, recognising how hand therapy supports patient outcomes for surgical and non-surgical treatment pathways. This is an incredibly important piece of work, particularly in terms of rationalising which injuries require surgical treatment given the pressure on theatre capacity, and the risks associated with surgery and anaesthesia for individual patients.

This was the first time that hand therapy data were collected at scale. Sites were able to choose where to expend their data collection efforts and not all sites had hand therapists in their project teams. It is therefore all the more remarkable that for 54% of patients in the HandsFirst2 database, there was a record of having been referred for hand therapy. It should be noted that return to work was an available metric but this was not a mandatory field. It is worth recognising the importance of early return to work for patients following hand trauma, and the impact that this may have on their availability for appointments and rehabilitation.

What difference has HandsFirst made for you as a hand therapist consultant?

"I think there was a definite shift between round 1 and round 2. It was a real opportunity. As hand therapists, one of the benefits was collecting data to understand our services better. I would have put money on us meeting the standards for tendon injury because I was convinced we were… But actually, we weren't. We were way off and that was a shock. It made me go back and then I looked at why."

Hand therapist, December 2024

Demand and delivery

More than half (54%) of the patients in the HandsFirst2 cohort had a record of receiving hand therapy. The vast majority (98%) of these appointments were delivered face to face. Although virtual appointments have been widely available since the COVID-19 pandemic, these appear to be rarely used for first appointments and may be used more frequently for patients attending a follow-up appointment. Three-quarters (72%) of patients were seen by an experienced hand therapist (band 7 or above).

Demand for hand therapy outstrips available capacity across many sites in the collaborative. Half of the delays that patients experienced were considered to be due to a lack of therapist availability (49%, n=543). Delay in receiving the hand therapy referral accounted for 163 delays, which suggests that either the referral process itself requires improvement or that delays may be associated with working patterns such as a 5-day service.

Very few hand therapy records were collected for children aged <10 years. Unless otherwise stated, the following analysis refers to patients aged ≥10 years.

Open soft tissue wounds (category 2)

Flexor tendon injuries

Flexor tendons were involved frequently in open soft tissue wounds. The BAHT standard is that patients should be seen by a hand therapist between 3 and 5 days after surgery. For the Microsoft Power BI dashboards, the standard was calculated in terms of hours (i.e. 72–120 hours). Across the collaborative, teams were only meeting this standard for a third of patients.

Leanne Topcuoglu investigated contributory factors for missing the standard at LTH. With regard to patients having to wait more than 120 hours for a hand therapy appointment, she found that if day 3 fell on a Friday and that clinic was full, then days 4 and 5 would be over the weekend (when there is no clinic), and the patient would therefore only be seen late on day 6 in the Monday clinic. There was simply not sufficient capacity in the therapist-led dressing clinics at the right time. Moreover, if a patient was booked for surgery on a morning theatre list and their first hand therapy appointment was scheduled for the afternoon of day 5, then this would be recorded as a delay because it was outside the 120-hour limit (even though it was within 5 days).

For patients having a hand therapy appointment in slightly under 72 hours after surgery, there may be a valid clinical reason for seeing patients so soon. Consequently, the decision was taken to update the Microsoft Power BI BAHT standard dashboards to provide sites with another view. This showed the number of patients meeting the standard within the maximum 120 hours rather than within the more specific range of 72–120 hours. This amendment was welcomed by the HandsFirst2 sites. Enough patients were seen by therapists in advance of the 72-hour boundary that compliance increased from 33% to 46% when seen through the 120-hour upper limit dashboard.

Extensor tendon injuries zones 3–6

The BAHT standard for an extensor tendon injury in zones 3–6 is that the patient should have their first hand therapy appointment within 7 days of surgery. The additional 2 days (compared with the standard for flexor tendon injuries) appeared to assist teams in meeting the standard for these types of referral. Over half (56%) of patients referred met the BAHT standard.

Lacerations without structural repair

The BAHT standard for patients with an open laceration with no structural repair recommends that they should have their first hand therapy appointment within 3 weeks of the referral being made. With this longer timeframe, sites consistently met this standard, meaning that patients with less complex or non-urgent injuries are seen on time.

In her presentation on the BAHT standards update on 13 December 2024, Leanne Topcuoglu recommended that therapy teams consider the capacity of postoperative clinics, with a view to designing systems that offer greater flexibility and agility to respond to patients with the most urgent conditions. This includes those patients with structural injury/repair, where even a short delay can have a more significant impact on patient outcomes.

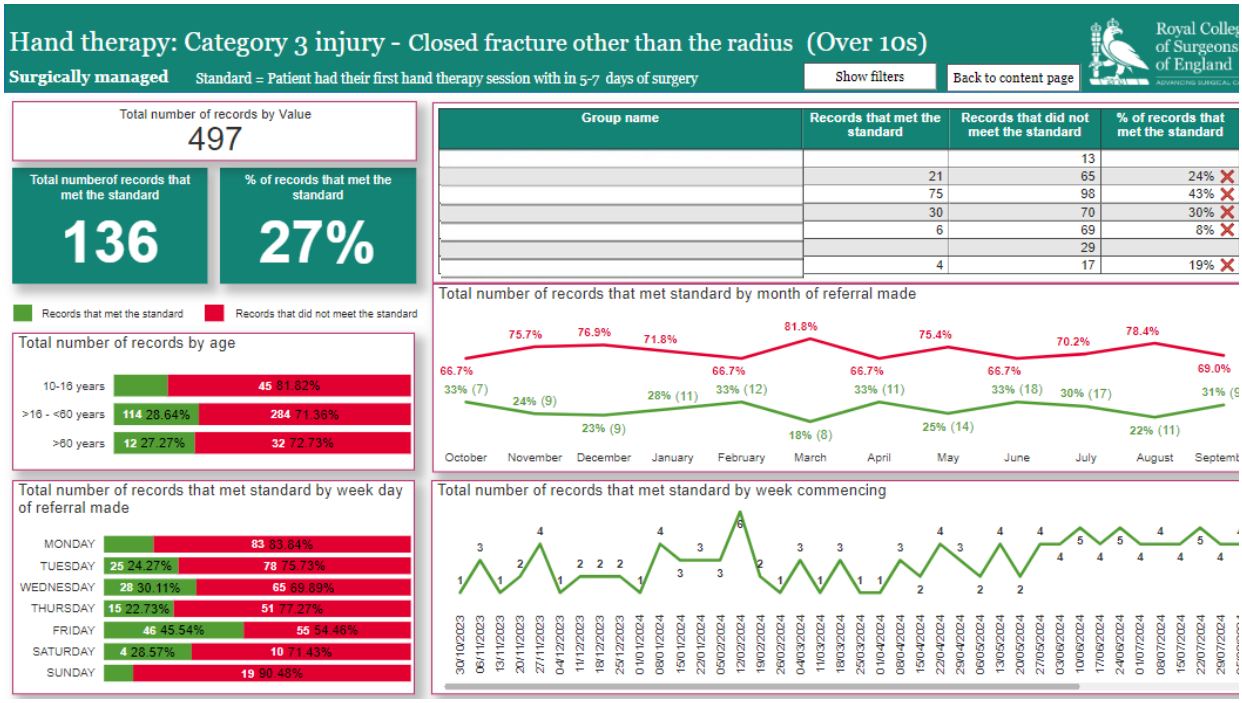
Closed fractures other than the radius (category 3)

Surgically managed fractures

The BAHT standard for the first hand therapy appointment for patients with a surgically managed closed fracture other than the radius is for them to attend 5–7 days postoperatively. Overall, 27% of patients in the HandsFirst2 cohort met this standard (**Figure 20**). However, this increased appreciably to 44% when only the 7-day outer limit is considered. This was true for individual sites as well:

- LTH: 24% for the 5–7-day range; 49% for the 7-day outer limit
- MFT: 43% for the 5–7-day range; 60% for the 7-day outer limit

Figure 20: Microsoft Power BI dashboard showing whole-collaborative performance for surgically managed closed fractures other than the radius



Nevertheless, the inner limit of 5 days is still an important consideration. This delay to therapy facilitates the reduction of oedema as well as healing to prevent further trauma. It is designed so that exercises are manageable and so that any splint required has a greater chance of fitting better for longer. For this reason, the 5–7-day range remains ideal.

Non-surgically managed fractures

The BAHT standard for patients with a non-surgically managed closed fracture other than the radius is that they should be seen by a hand therapist within 7 days of the referral being made. Most referrals came via a virtual fracture clinic or a consultant clinic. The standard was met for 62% of all patients, including children aged <10 years.

MFT achieved the BAHT standard for 78% of patients aged ≥10 years while LTH met the standard for 87% of this cohort at their trust. At LTH, most closed hand fracture patients are seen on the day of referral as ‘walk-ins’ from hand consultant clinics. There is fixed clinic capacity. Once this is reached, patients are booked in for the next available therapy appointment, which is usually within a few days.

Closed distal radius fractures (category 4)

Intra-articular fractures

The standard agreed by BAHT for patients with a closed intra-articular radius fracture is that they should have an appointment with the hand therapy team within 2 weeks of the referral being made. UHNM was the only member in the collaborative meeting the standard, achieving this for an impressive 96% of patients.

Possible reasons for why this standard is being missed may include the scheduling of post-surgery follow-up appointments, such as wound reviews and stitch removal, which typically occur up to 2 weeks after surgery. Additionally, limited availability of hand therapy appointments may cause further delays, pushing the start of therapy beyond the recommended 2-week period.

> *"The learning across the collaborative was invaluable."*
>
> **Delegate feedback**

Summary of performance relating to BAHT standards

Table 4 summarises the performance of the whole HandsFirst2 cohort for each of the hand therapy standards.

Table 4: Performance relating to BAHT standards (first appointment for hand therapy).[3]

For each injury type, data were collected by patient age group (≥10 years and <10 years). However, the only standard that had data for 10 or more records of children aged <10 years was for non-surgically managed closed fracture other than the radius. These data are included below. The data for all other rows relate only to patients aged ≥10 years.

Category of injury	BAHT standard (time to hand therapy)	% meeting standard	Adequate follow-up? (subjective measure)*			Returned to work? (at time of data entry)*		
			Yes	No	?	Yes	No	?
Open fracture (incl radius) or joint (category 1)								
Open fracture (incl radius) or joint	7 days from surgery	48%	85%	9%	6%	39%	22%	39%
Open soft tissue wound (category 2)								
Flexor tendon	3–5 days from surgery	33%	73%	22%	6%	26%	37%	38%
	<5 days from surgery	46%						
Extensor tendon zones 3–6	7 days from surgery	56%	89%	8%	3%	25%	36%	39%
Extensor tendon zones 1–2	7 days from surgery	61%	91%	0%	9%	25%	28%	47%
Peripheral nerve	7 days from surgery	73%	40%	0%	60%	100%	0%	0%
Finger ligaments	7 days from surgery	74%	100%	0%	0%	10%	50%	40%
Thumb ligaments	4 weeks from surgery	95%	93%	0%	7%	23%	50%	27%
Soft tissue loss	3 weeks from referral	85%	100%	0%	0%	<10 records collected		
Laceration with no structural repair	3 weeks from referral	88%	100%	0%	0%	41%	4%	56%
Closed fracture other than the radius (category 3)								
Surgically managed	5–7 days from surgery	27%	91%	6%	3%	50%	25%	25%
	<7 days from surgery	44%						
Non-surgically managed	7 days from referral	62%	94%	4%	3%	37%	13%	50%
Children aged <10 years	*7 days from referral*	*62%*	*100%*	*0%*	*0%*	*N/A*	*N/A*	*N/A*
Closed distal radius fracture (category 4)								
Intra-articular	2 weeks from referral	61%	70%	25%	5%	34%	7%	59%
Extra-articular	2 weeks from referral	52%	73%	23%	3%	19%	7%	74%
Closed soft tissue injury (category 5)								
Finger and thumb ligaments	7 days from referral	57%	88%	7%	5%	41%	16%	43%
Soft tissue mallet injury	7 days from referral	50%	98%	0%	2%	50%	10%	40%
Extensor tendon central slip	7 days from referral	<10 records collected						
*optional field								

5. New processes tested and reviewed

Project team members Mark Fuller and Maureen McGeorge at the HandsFirst2 QI collaborative celebration event, 13 December 2024

Gathering to give

The RCS England project team believe that it is important to practise ourselves what we ask of others. At the end of every workshop, event and collaborative, we gather detailed feedback and use it to inform our next steps. At the end of HandsFirst1, delegates told us that they were confident in trying out the QI techniques but leading project teams was new territory for many.

In planning the HandsFirst2 collaborative, we were keen for sites to get straight into tests of change. For this reason, we decided to build activities for the October launch meeting that would give sites time to identify potential tests of change at the meeting and to have them declare publicly to colleagues in the collaborative one test that they wanted to implement.

It was crucial to show members that they had been heard so we designed three Leading Change workshops to complement the grounding members were given in QI. The most common challenges for people leading change are related to engaging and influencing busy colleagues, communicating the case for change and overcoming natural resistance to change. Introducing anything new carries the risk of failure.

When it comes to QI, we like to think of the word ‘fail’ as an acronym for ‘first attempt – I’m learning’. After all, that is exactly what is happening when you test a new process, even if it has worked at another site in the collaborative. Every site is different. The team is different. The skill mix is different. Policies, culture and equipment are different. Context matters and it is vital to promote that attitude of continuous learning. Every effort is worth it if the team learns and values learning. Leaders need to engender a ‘safe to try, safe to fail’ space where the focus is on: “What have we learnt and what might we possibly do next?”

The feedback we received reminded us that there was a wide range of leadership experience in the room. Every surgeon and therapist in the collaborative had clinical competence if not clinical excellence. Leadership and management are different. With a solid foundation of evidence from HandsFirst1 to build on, it was important to frontload the Leading Change workshops early in the collaborative timeline, in advance of the face-to-face April 2024 collaborative meeting.

> *""Your leadership workshops were great. The workshops helped me to deal with the people resistant to change. That's what I've been dealing with a lot.""*
>
> **Delegate feedback**

As a project team, we also challenged ourselves. Why were we offering the workshops only to project leads? We realised that if we truly believe in increasing capacity, capability and competence, then the Leading Change workshops should be open to the whole of the collaborative regardless of role. We also decided that by recording the workshops, teams could share them with all their trainees, student nurses, therapists etc. Consequently, the first change was our own process change, and it paid dividends.

The Leading Change workshops helped BWC realise that it was worth giving the 'golden patient' idea another go – but to rebrand it as 'Ready, Steady, Go!' so that the new trial would not be associated with past (now abandoned) attempts. By the April 2024 meeting, sites were already presenting active PDSA cycles and deciding on their next round. They did this at every subsequent collaborative meeting. At the final celebration event, all sites presented one PDSA cycle they would recommend as well as one they felt might best be avoided.

At the time of writing, members of the collaborative have plans to publish at least seven papers so the best way to find out about successful tests of change is to join HandsFirst3. Recruitment opened in January 2025. We hope that the case studies whet your appetite. (See Case studies.) In the meantime, we offer a snapshot of some of the changes made during the HandsFirst2 project below.

Improved multidisciplinary working

Having BAHT as a formal partner was a game changer for all. By working much more closely with hand therapists, many sites have been able to improve the quality of postoperative referrals. At UHD, for example, the fellow and registrar have started to spend a morning with hand therapy staff to better understand what the hand therapy team does. Now, when they write an operation note, they think about what the hand therapists might want to know about. This means that the therapists can create better treatment plans because they understand the extent of the hand trauma and the structures involved, the quality of the surgical repair and how much therapy may be needed. Other sites have put training packages in place. All approaches have resulted in horizontal learning, and have added depth and mutual appreciation to the professional relationships.

> **What has HandsFirst meant to you?**
>
> *"The biggest thing for me is having the data to understand the service. Being able to look at all the nitty gritty and take that apart. Looking at the why. So:*
>
> *What is it?*
> *Where are the barriers?*
> *What can we do about it?*
> *How do we measure that change over time?*
>
> *"Doing those PDSA cycles, almost being given permission to test change […] is a big deal. It is very, very difficult for us as therapists to make these changes without the backing. Having the surgeons,* ***being part of a collaborative, gives you that reason and a safety net.****"*
>
> **Hand therapist**, December 2024

Why go for gold? Going platinum

UHS wanted to take the notion of a 'golden patient' (the first patient on an elective theatre list, selected and optimised for surgery in advance) into the realm of unplanned care. The first PDSA cycle for the 'platinum patient' was with a surgeon whose job plan presented a real opportunity. It was a case of good timing. Every Friday, this consultant had a trauma list and every Thursday, they had a clinic. This enabled the consultant to almost always consent a patient for an operation under local anaesthesia, putting that patient first on the Friday trauma list. This was the proof-of-concept PDSA cycle.

The 'platinum patient' PDSA cycle

Aim: Increase surgery capacity by adding an extra case per day.

How: Add a patient for a procedure under local anaesthesia at the beginning of the trauma list.

Plan: Commencing in February 2024, every Friday trauma list increased its capacity by adding just one extra case per day.

Do: One simple trauma case suitable for doing under local anaesthesia was booked at the beginning of the morning list.

Study: The number of cases performed per session was higher than for sessions without a local anaesthesia case. The local anaesthesia case did NOT lead to increased cancellations in the day.

Recovery staff helped to discharge patients, avoiding the need for patients to return to the day-surgery ward. There was no evidence of delay in preparing the morning patients for the operating theatre from the day-surgery ward.

Act: People were involved and informed on time. The 'platinum patient' is now a standard and a local anaesthesia case always begins lists.

Learning points as the 'platinum patient' has embedded

- Consent the patient the previous day. At UHS, there are usually two hand clinics on Thursdays.
- The patient will attend first thing in the morning, appropriately dressed, without jewellery and not having starved.
- While the consultant hand surgeon operates on the 'platinum patient', the registrar reviews and consents the next patient.
- As the anaesthesia team is not required for the 'platinum patient', the team brief is carried out separately. No delays were caused.
- The anaesthesia team reviews the next patients on the list while the theatre is being utilised for the 'platinum patient'.
- The discharge letter is done immediately after the operation note. The patient is sent home from the recovery area, which is usually empty first thing in the morning.

The 'platinum patient' was one of several successful PDSA cycles where members of the collaborative found better ways to flex existing capacity, with no additional resources required.

Other process or system changes

Other than ‘golden’ and ‘platinum’ patients, sites reported introducing the following changes during the HandsFirst2 collaborative:

- Improved organisation of hand trauma cases with trauma coordinator attending board rounds
- Better ward care for hand trauma patients with teams working with ward doctors to assist with dressings and progress discharges
- Improvements to repatriation pathways to avoid delays accessing hand therapy and consultant-led follow-up
- Update to perioperative antibiotic policy now includes trauma cases
- Better triage to hand therapy
- Introduction of ‘direct to emergency department’ pathways
- Improved data collection and coding
- Introduction of traction splinting in hand therapy for non-surgical fracture management
- Increased flexibility to make better use of existing capacity
- Increased number of clinics where hand therapists work alongside surgeons
- Changes to referral pathway from external hospitals
- Introduction of group hand therapy sessions to improve access
- Increased number of procedures under local anaesthesia and tourniquet, reducing procedures under general anaesthesia
- Reduced number of nailbed operations
- Introduction of online referral to hand centre
- Rationalisation and reduction of instruments in hand trauma sets
- Stopped putting patients in gowns unnecessarily
- Engaged senior management and teams more formally
- Implementation of regular multidisciplinary meetings with representatives from supporting teams

> *“Learning new ways of working (and changing our ways of working) led to better patient care.”*
>
> **Site project lead**, December 2024

6. Case studies

Gowns? No thanks, no way

In May 2022, GIRFT and BSSH published *Hand Surgery: Guidelines for Operating Outside of Main Theatres.*[17] Guideline 5 suggests that patients can and should remain in their own clothes for hand surgery rather than changing into a gown, citing studies in both the US and Canada. The HandsFirst2 project team at BWC decided to go one step further and get rid of gowns even for surgical procedures undertaken in main theatres.

The team at BWC wanted to improve theatre utilisation, starting with ward activities to prepare patients for theatre. In the process, they were equally intent on improving patient, relative and carer experiences. Instead of children being changed into a theatre gown, patients went in their own short-sleeved, loose-fitting clothing. Importantly, patients walked to the operating theatre without a theatre trolley. The trolley was already in place in the anaesthetic room.

The BWC team observed that putting all patients in theatre gowns causes delays. Being in hospital is an unsettling experience for children and their carers alike. Children are already vulnerable and they pick up on non-verbal anxieties of others, including their relatives and carers. Children do not want to sit around waiting for their surgery in a theatre gown that, being open at the back, is exposing, which older children are very aware of. Hospital gowns bear little resemblance to pyjamas or everyday familiar clothing. As such, they create a psychological break from what is comfortable and normal. Hospital gowns are thin, often revealing, both in fabric quality and design as they are designed to suit the system. They provide ease of access rather meeting the needs of the patient.

The associated stress that the child already carries when entering the anaesthetic room, can make the anaesthetic process more difficult. The team noticed that gowns were not being put on until the child was called to go to the anaesthetic room in order to delay the child's anxiety. This led to a delay in getting to theatre. For some children with learning disabilities, the gown and gowning process provokes so much anxiety and stress before they even reach the anaesthetic room that the anaesthetic process becomes more difficult and takes longer. As a result, hospital staff tried to alleviate this issue by waiting until the last minute, when children were called for theatre, to change them into gowns. This added time to the patient journey from the ward to the operating theatre, having an adverse impact on theatre turnaround time throughout the day.

Despite this new guideline for patients to attend in their own suitable clothing, some colleagues at BWC resisted the idea. This may have been because of their status as a children's hospital and that their test of change involved operations in main theatres. Colleagues who were not in the HandsFirst2 project team were concerned about introducing an infection control risk.

Having the chief nursing and midwifery officer, Daljit Athwal, as an executive sponsor proved instrumental in getting concerned colleagues to go ahead with the trial. Daljit personally championed the project, speaking with nursing teams. She showed her support on and off site, attending the April 2024 HandsFirst2 collaborative meeting. Her visible presence and active engagement made all the difference for the BWC team.

BWC's project sought to recognise and safely reduce or eliminate practices that institutionalise the patient experience, add unnecessarily to anxiety and introduce delays.

Aims: To implement a small-scale practice change that would improve children's experience of hospital treatment and time to surgery, specifically:

- preserving patients' dignity by eliminating unnecessary use of hospital gowns
- eliminating avoidable anxiety-inducing triggers
- improving the timeliness of the child's journey to theatre

Who: Children requiring surgical treatment of their hands in theatre including those with traumatic hand injuries (i.e. a mix of elective and unplanned care)

Where: Surgical day-care theatres 8 and 9

How: Two key changes of practice:

- Eliminate wherever possible the practice of changing children into hospital gowns. Provide advice and guidance to parents, relatives and carers that children should wear their own short-sleeved, loose-fitting clothing with the understanding that the operation will take place in the patient's own clothes.
- Eliminate the use of hospital trolleys for the journey from the ward to operating theatre. Where possible, patients walk to theatre and transfer to a trolley, in situ, in the anaesthetic room.

The study showed that keeping children in their own clothes resulted in an average time saving of 11 minutes per patient. The efficiency gain has enabled the BWC team to put an additional patient from the trauma list on the elective list. Of course, there are also other savings:

- Reduced risk of lost clothing and time associated with activities to find the clothing or compensate for loss
- Savings associated with linen costs and storage
- Advancing the 'green' agenda by minimising the environmental impact of laundering
- Increased availability of gowns for other patients

By far the real win was the positive psychological benefit for children: reduced anxiety and greater dignity. The act of physically changing into a hospital gown had sent a message to children that their care was moving into a more serious and frightening stage whereas being in their own clothes offered familiarity and comfort. That is value you cannot ascribe a price to.

Patients, relatives and carers are happy, and children are more relaxed. This has all led to improved team morale, increased understandings between teams and better relationships. This has supported this simple (yet highly effective) approach to spread.

BWC presented their 'no gowns' PDSA cycle at several in-person and online events. At BWC, the ear, nose and throat department has adopted the practice. Several trusts in the collaborative are hoping to follow suit. No gowns? No nonsense. Just great care.

The only way is up

Coming out of the HandsFirst1 project, the team at UHS were disappointed but unsurprised by their results. Operational pressures and a lack of capacity put the site in exceptionally challenging situations. It was not unusual for surgeons to have to re-break and revise maluniting fractures at a later date because of the length of time that had passed before patients could access the operating theatre after their injury.

Trauma coordinators were having to explain to patients that their prolonged wait for surgery was often a case of life or death for another patient, a road traffic incident or a patient with a fractured neck of femur. Talk about a hard sell! But sometimes, being the bottom of the league table is a motivating factor that serves to engage top leadership.

Eleni Balabanidou, the UHS trauma and orthopaedic care group clinical lead, and HandsFirst project lead at UHS, has talked about how the pressure they were under during the first round of the collaborative left them no time to meet as a team. Eleni describes how the team struggled, without space to meet, problem solve and plan. Morale was low.

"We had a malfunctioning team. It was not only the hand team that was suffering but the whole department. It was extra work. It was extra effort. It was stressful. I had that feeling sometimes that we were cutting corners. I had a patient, and we thought: 'We can go conservatively. If it fails, then we can re-break it.' Because I knew I would have no capacity for operating on hand patients. Every day it was action and reaction, no planning. Unpredictable."

In order to make the changes to the service that the team members were desperate to realise, Eleni knew that they needed an evidence base. They needed data. But there was no time.

"Looking back at the first round of the collaborative, I was a victim of myself because I single-handedly uploaded all the cases during HandsFirst1. I remember coming here on Saturdays, coming here on Sundays. It was not the best. I had a health scare from the effort. That was the turning point. Once you have reached bottom, the only way is up. I found myself being myself.

"We are a major trauma centre and I had a very reliable registrar. I taught her. It's not rocket science. I knew by now that you don't need to get all the numbers; you just need to get the picture of it. […] *Improvement is about 'just enough'.*

"Once the numbers came out, it was very obvious where we were. The data gave us the voice to say: 'Look, this is how bad we are.' It woke everyone up to the scale of the problem. It took away the argument. We had to act so we put our foot down. We started making ourselves loud.

What difference has HandsFirst made for you?

"The data gave us the voice to say: 'Look, this is how bad we are.' ***It woke everyone up to the scale of the problem. It took away the argument****. We had to act so we put our foot down. We started making ourselves loud."*

Eleni Balabanidou
Site Project Lead, University Hospital Southampton NHS Foundation Trust

"Jonathan Watson became our care group manager. He came to the first HandsFirst collaborative launch meeting. Jon is very good with numbers, and I became clinical lead. We engaged senior management. Jon helped a lot, asking for that extra theatre, asking for that extra session. The numbers skyrocketed because I was doing more operations."

Have there been any other consequences, either positive or negative?

"We have had an 18% improvement in fractured neck of femurs, meeting the best practice tariff. I made the year's report for the fractured neck of femurs, and I said: 'Wait until the hands because the hands are going to show a big difference as well.' I could see it. I had the overview. Having that theatre actually allowed me to do hands and not to be doing hips – even though the numbers of hips I've done actually rocketed this summer.

"Still, I'm not as fast as the hip surgeons doing hips and having their own operating theatre. Me being given my own theatre and doing my hands means I'm doing seven to eight cases where others would do four or five. And because I'm doing my hand cases sooner, I've noticed that significantly fewer patients need follow-ups. Because I've not had to break a bone that was healing in the third or fourth week. I've not had to interfere with the healing process, with that lovely blood clot that a patient's body has made in order to heal. I've not had to interfere with those primary cells that have the capacity to become anything you like. Because I'm seeing hand trauma patients sooner and not having to reinjure to align structures properly, I'm no longer taking those primary cells back to nil. So patients are healing faster and better."

Is the trainee experience improving?

"We are definitely more attractive to trainees now."

How have the HandsFirst collaboratives helped you on this journey?

"It gave me a voice. I was the nagging, complaining person in the corridor asking for hand capacity, asking to operate on my patients and being told: 'No. We have to do this now. We have to do that.' It was demoralising, affecting stress levels. It left me feeling incompetent and that I'm not there for my patients, because of things I could not control.

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"Yes, I'm happy to do the hips if I need to do the hips. That's exactly what I did last weekend. I was on call. I booked six cases on Saturday. We did all seven cases on the list. I used the morning on Sunday to just do a nail and then we did five fractured neck of femurs. It was excellent organisation! It was the first time in my life (and I'll have been here for 15 years on Monday) that I had no 'leftovers'. So that is the knock-on effect.

"I now see a lot of patients with their first [postoperative] *x-ray. The difference is that at that first follow-up appointment, things have healed and I'm saying: 'OK, you know what? Go home.' I have now discharged scaphoid fractures in six weeks on first x-ray. I usually discharge radii anyway in the sixth week but now it's becoming a standard."*

What have you noticed about how the team is now?

"Oh yeah, it's different. It's a team. It's a team. It's a team.

"That is the easiest answer I can give you. We have our multidisciplinary team meeting every fourth Tuesday or every third Tuesday really just depending on whether I have a difficult case. 'Guys, can we just meet this afternoon?' 'Fine, brilliant.' There is that communication. There is no blaming. There are no pointing fingers.

"We deal with really difficult cases. I practically saved an 18-year-old's hand the other day because somebody decided to cut it off with a machete.

"We never had these kind of injuries before but now we have them and we have them in numbers. And it's not our choice. We deal with unbelievable things. It takes a team to deal with that and get the best outcome. We are a team. We have better communication now with other centres."

What have you noticed about your patient outcomes?

"Well, when I'm telling you that there's no need for follow-ups, that's it. Because sometimes you feel that 'Oh, I need to keep an eye on this. Oh, I need to keep an eye on that.' And we have patients on board immediately. This is how it is. This is what we're going to do. This is your job. I usually say to my patients: 'My job is two hours, three hours maximum. Your job is months because you are going to be living 24/7 with that.'

"HandsFirst works well with us. 'Patients first' is one of our principles at UHS. I like the fact that we use HandsFirst. I like the fact that I managed to get my voice through to the medical director and I like the fact that Jon [the care group manager] *said to me: 'You know, for the beginning of the new year, we need to get this on board.' Being in the first five improved trusts throughout the year and actually having the best improvement overall – that is a big thing to shout out about."*

> *"Being in the first five improved trusts throughout the year and actually having the best improvement overall – that is a big thing to shout out about."*
>
> **Eleni Balabanidou**
> Site Project Lead, University Hospital Southampton NHS Foundation Trust

Giving hips a helping hand

It is March 2023, the celebration event for the first round of the HandsFirst collaborative. Joanna Higgins, the project lead at UHD, is the sole representative for her site. She is surrounded by representatives from the other participating NHS trusts and health boards, most of whom have at least one other colleague accompanying them. Some sites have sent as many as four representatives.

The celebration event is characterised by summaries of learning across the three BSSH standards. Then, perhaps unexpectedly, comes the awards ceremony, and Jo has a look of utter shock on her face as her name is called out to receive her Unstoppable Hero award. It has not been an easy year. Without exception, the virtual site visits and telephone calls have been just between Jo and her QI consultant.

Jo had started the year as a locum consultant surgeon. Having spent a good portion of her training at the Pulvertaft Hand Centre, she was astounded at the amount of hand trauma cases that were being done under general anaesthesia in a laminar flow operating theatre. It did not sit well with her experience from Pulvertaft.

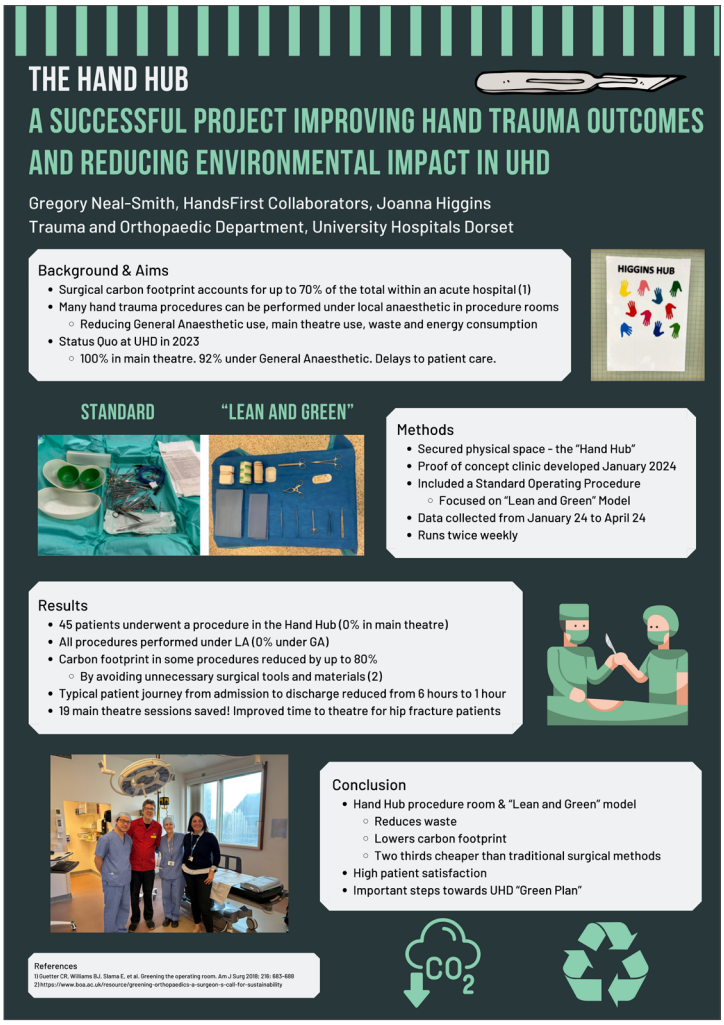
Jo approached the general manager, saying: “Can we join the HandsFirst collaborative because I think it’s going to give us an insight about our practice?” She knew that without data, you cannot accomplish anything. Once you have evidence, you can work on what that is telling you. No more mystery. Just facts. The results will sit somewhere on that spectrum of tolerable, tenable or intolerable.

So UHD joined the HandsFirst project, but it was frustrating. Every time Jo came to a meeting, she felt like she had not made adequate progress. On the other hand, she found being with others in a similar boat (and trying to navigate those same seas) invigorating.

“The beauty of HandsFirst1 was the collaborative approach, where I’d come and I’d see everybody else. They’re all like: ‘Yeah, this is absolutely the right thing that we should be doing.’ They were all starting to chip away at it and get somewhere, and so I would go home from each of those events, quite buoyed up.”

The collaborative gave Jo a sense of fellowship, of belonging. That is important. But Jo was still having to spend a lot of effort on data collection, when she actually wanted to be affecting change. Every time she met with her QI consultant, she spoke about the frustration of getting others to see that there was a problem and the challenge of convincing already very busy registrars to collect data.

Poster for the Hand Hub at University Hospitals Dorset NHS Foundation Trust



How she had to remind them, reward them and (at times) cajole them. Jo needed facts. She knew from experience that there was a better way and she wanted to focus on local anaesthesia. This was the itch that Jo needed to scratch. She kept talking about her vision for a Hand Hub as an alternative to main theatres. She was frustrated but she just kept going. Jo describes what happened next as a bit of luck.

"I was about to give up, and then you guys* [RCS England] *gave me the Unstoppable Hero award and I went 'Oh, no, now I can't stop', so I carried on… and now we have the Hand Hub."

When Jo signed up for the HandsFirst2 collaborative, she had a team. Four colleagues attended the October 2023 launch meeting; among them were two hand therapists, and a hand and wrist fellow. Big changes were taking place at UHD. The trust was moving to a barn theatres model, with four operating theatres connected in an open-plan surgical space with screens for separate equipment and privacy. Jo could see the advantages in the model but was concerned about what that would mean for hand trauma patients.

"I was thinking: 'How I am going to do a local anaesthesia hand case when next door a hip is being put in? Or some sort of surgical fixation is taking place? There are drills. All that noise. What kind of patient experience is that?' That was the catalyst for me. Thinking about our patients, their experience. I said: 'OK. Enough.' I set about looking for another space. I was poking around the hospital estate hoping to find a small treatment room but there was nothing."

Then came the luck: UHD's day theatres closed with the opening of the barn theatres. As with any inactive hospital estate, staff started using the space for equipment storage. The day theatre happened to be next door to the trauma and orthopaedic ambulatory care unit so Jo asked if she could use it. She was told that another specialty might have beaten her to it and that she would have to make a case to the trust's space allocation group. That is when HandsFirst2 came around. Jo signed up again.

The HandsFirst1 results had given Jo some useful data that she was now leveraging. When she attended the space allocation group meetings, both times, she was able to point to an evidence base that demonstrated that UHD were doing too many procedures under general anaesthesia, too many procedures in a laminar flow operating theatre that could be (and in fact were being) done under local anaesthesia elsewhere. She was able to show that UHD were not keeping up with the times. By the time she presented to the second space allocation group meeting, Jo had been appointed as a substantive consultant at UHD.

The vast majority (92%) of UHD's hand trauma cases were performed in main theatres under general anaesthesia. A scant 22% of patients with open fractures or joints were hitting the 24-hour injury to surgery BSSH standard. Other injury types were also missing BSSH and BOA targets. An initial audit found that 40 patients per month on average were eligible for surgery under local anaesthesia in the procedure room. This represented a sizeable opportunity at UHD to improve patient care and outcomes through service transformation – and not just for patients with hand trauma injuries. Releasing capacity in main theatres by taking appropriate hand trauma cases out makes room for other surgery.

Letting go of the past can be uncomfortable for some. People have different reactions to change. Some may find it disagreeable or disorientating, even when there is a strong case for change that they can accept on paper. Although the day theatres had already closed, Jo had to bring people along with her even once the change had been approved and the space allocated. Initially, she created a proof-of-concept clinic with a standard operating procedure. This ran from January 2024. It demonstrated that the clinic reduced the time from injury to surgery and delivered a more positive patient experience on the day of surgery. Previously, the best-case scenario for patients treated in main theatres was six hours from admission to discharge. This reduced to one hour in the procedure room.

HAND HUB PROOF-OF-CONCEPT RESULTS

45 patients underwent a procedure in the Hand Hub over a 4-month period.

All procedures were performed under local anaesthesia.

A total of 19 main theatre sessions were reallocated to main trauma, improving our time to theatre for more complex trauma and hip fracture patients.

Patient outcomes: All patients who had their procedure in the Hand Hub had their surgery within 4 days of injury (100% met BSSH standards).

Most common follow-up modality used: Nurse-led clinic appointment

Average duration between operation and first follow-up appointment: 1 week

Most common follow-up outcome for patient treated in Hand Hub: No development of postoperative infection

Positive feedback was received from all patients.

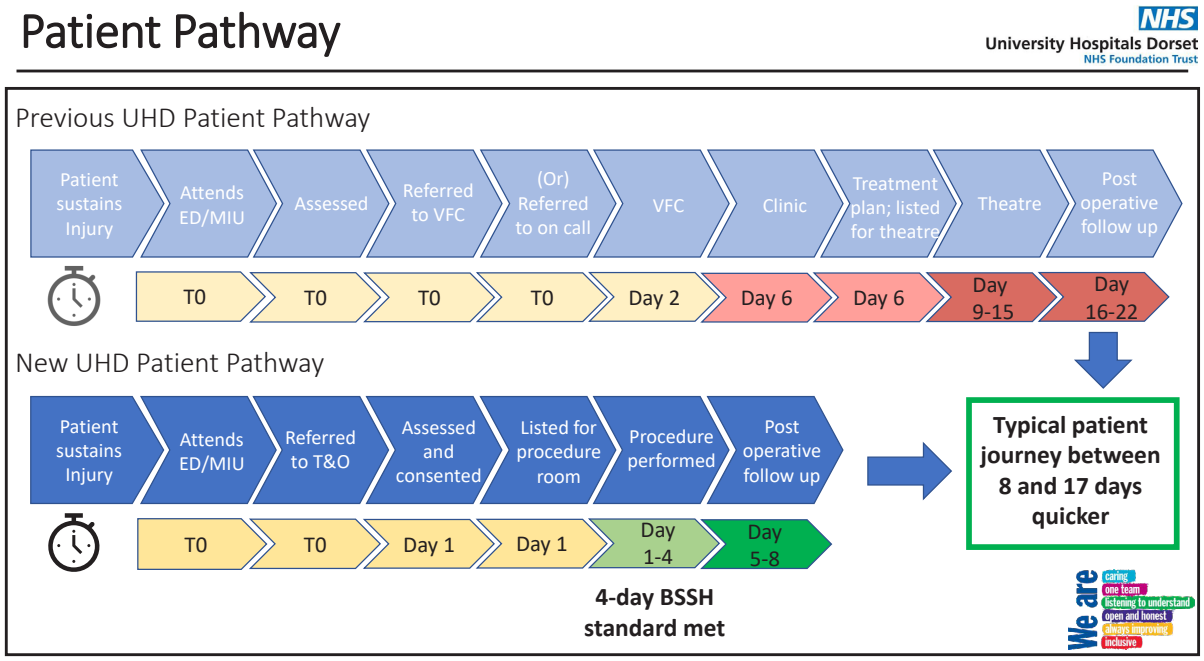
The big win for our trust: Taking these hand trauma cases out of main theatres frees up capacity for 85 extra fractured neck of femur operations per year. This is estimated to save the trust almost a quarter of a million pounds a year.

At first, there were sceptics who actively put barriers in the way. They tended to activate non-clinical managers who were easier to convince that some element or other in this change posed a risk. One by one, Jo and the team addressed their concerns. Jo spent a lot of energy myth busting and actively problem solving, and a lot of time taking people into the space so that they could see it with their own eyes. Jo's tenacity paid off.

The data collected from the initial HandsFirst collaborative produced evidence for the change required. This formed the basis of the business case that secured the physical space: the procedure room, now known as the Hand Hub. Jo says: "When we made the case, we presented it so clearly. The committee just looked at us. Like it was weird that we had not done it before. They agreed the space."

The Hand Hub runs twice per week. The new process has streamlined the patient pathway at UHD. A typical patient journey is now 8–17 days quicker (**Figure 21**). For patients with open soft tissue wounds, UHD is currently meeting the 96-hour injury to surgery BSSH standard. UHD has also achieved a 5% improvement in the 24-hour standard agreed by BSSH for patients presenting with an open fracture (including radius) or joint.

Figure 21: The patient pathway at University Hospitals Dorset NHS Foundation Trust



What are the service impacts?

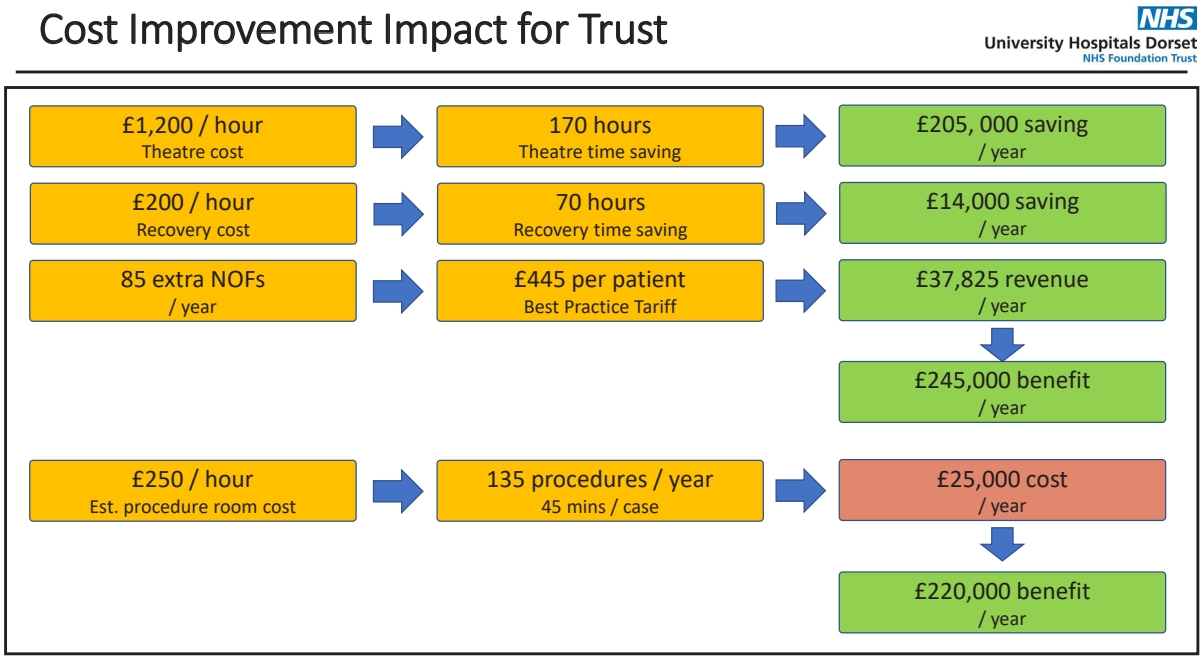
"When we estimated the service improvement impact for our department, we extrapolated from our 45 patients over a 4-month period spanning winter and early spring. A total of 19 main theatre sessions were reallocated to main trauma, improving time to theatre for more complex trauma and hip fracture patients. We expect this to increase in summer. Across the year, we estimate that at least 170 hours of main trauma theatre time is being saved.

"Hip fractures are now meeting best practice tariffs. They are getting to theatre. The Trauma Assessment and Coordination team has said in a number of our clinical governance meetings: 'The only real difference is the Hand Hub, because it's the same numbers coming in each month. It's the same anaesthesia staff. The same kind of frailty grades. The Hand Hub is the only difference – that must have freed up however much time.'

"In our trust, we admit approximately 1,000 neck of femur fracture patients a year. Allowing 2 hours for each fractured neck of femur operation, taking these hand trauma cases out of main theatres frees up capacity for 85 extra fractured neck of femur operations per year. The total cost benefit is estimated to be almost a quarter of a million pounds a year. You can see on the National Hip Fracture Database that we are starting to meet our targets again."

Figure 22 illustrates how the cost savings for UHD were calculated.

Figure 22: Cost savings at University Hospitals Dorset NHS Foundation Trust associated with releasing theatre capacity for fractured neck of femur (NoF) operations



Estimates are great but what do the numbers show?

Emma Rogers, the lead for UHD's Trauma Assessment and Coordination team, describes the impact:

"Jo [Higgins] *has done an amazing job in getting the Hand Hub up and running, and the impact has not just been on our fractured neck of femurs but on general trauma too, a reduction of patients going through our day-case beds. The service is run through our same-day emergency care service, known as the trauma and orthopaedic ambulatory care unit.*

"Our Hand Hub has helped massively with our fractured neck of femur patients. Figures had improved in 2023, when an average of 44.75% of these patients were undergoing surgery within 36 hours of admission, up from 21.5% in 2021. COVID was still having a huge impact at the beginning of 2021. Following the opening of the Hand Hub in January 2024, 60.75% of fractured neck of femur cases received surgery within 36 hours of admission. Summer months are always a struggle owing to our location as a holiday destination. We see an increase in trauma admissions.

"Approximately 20% of our patients with a fractured neck of femur are not fit for surgery on admission so we will never get to 100%. The Hand Hub has made a huge difference in taking the smaller injuries (e.g. lacerations, tendon, nailbed repairs and terminalisations) out of our main theatres to allow us to treat our patients in the most appropriate area. Although it's known as the Hand Hub, we have also done the occasional foot."

The difference that the Hand Hub has made is strikingly clear from the graphs in **Figures 23–25**.

Figure 23: Proportion of patients at University Hospitals Dorset NHS Foundation Trust achieving the 36-hour fractured neck of femur (NoF) surgical access best practice tariff from December 2021 to December 2022

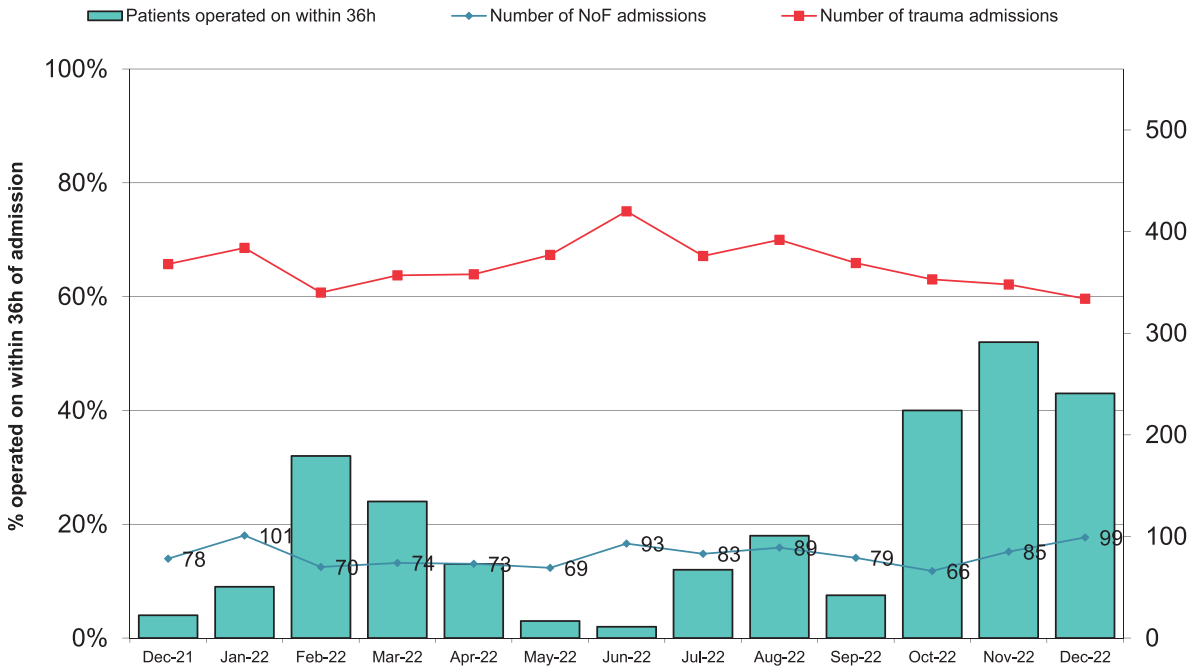


Figure 24: Proportion of patients at University Hospitals Dorset NHS Foundation Trust achieving the 36-hour fractured neck of femur (NoF) surgical access best practice tariff from December 2022 to December 2023

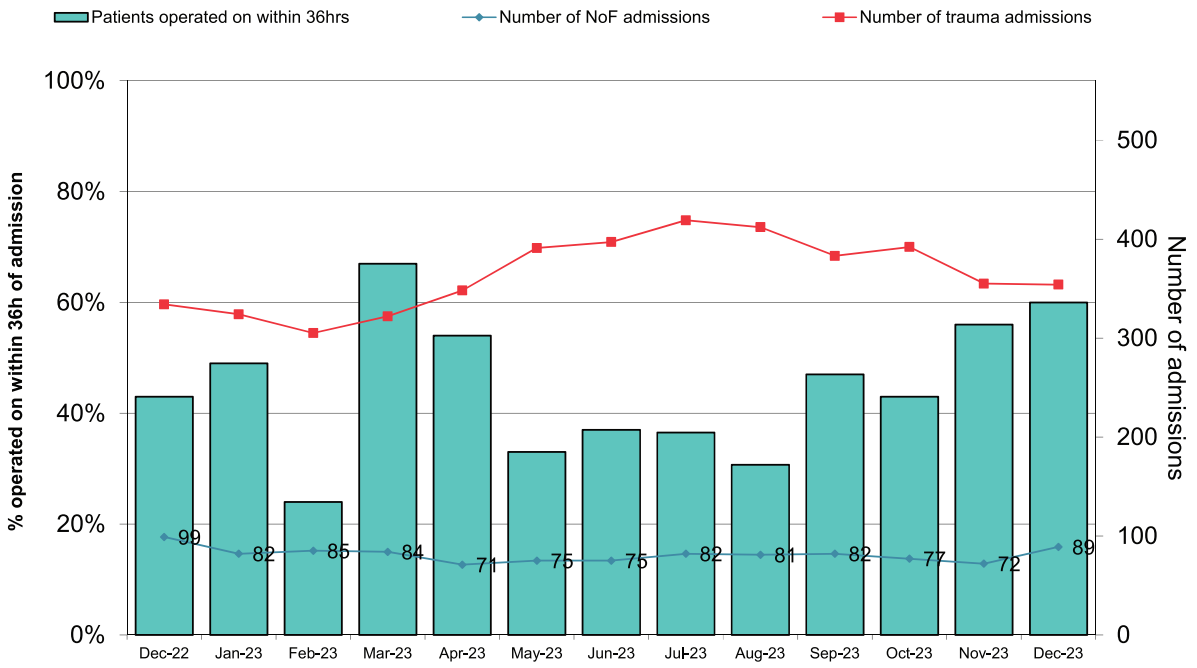
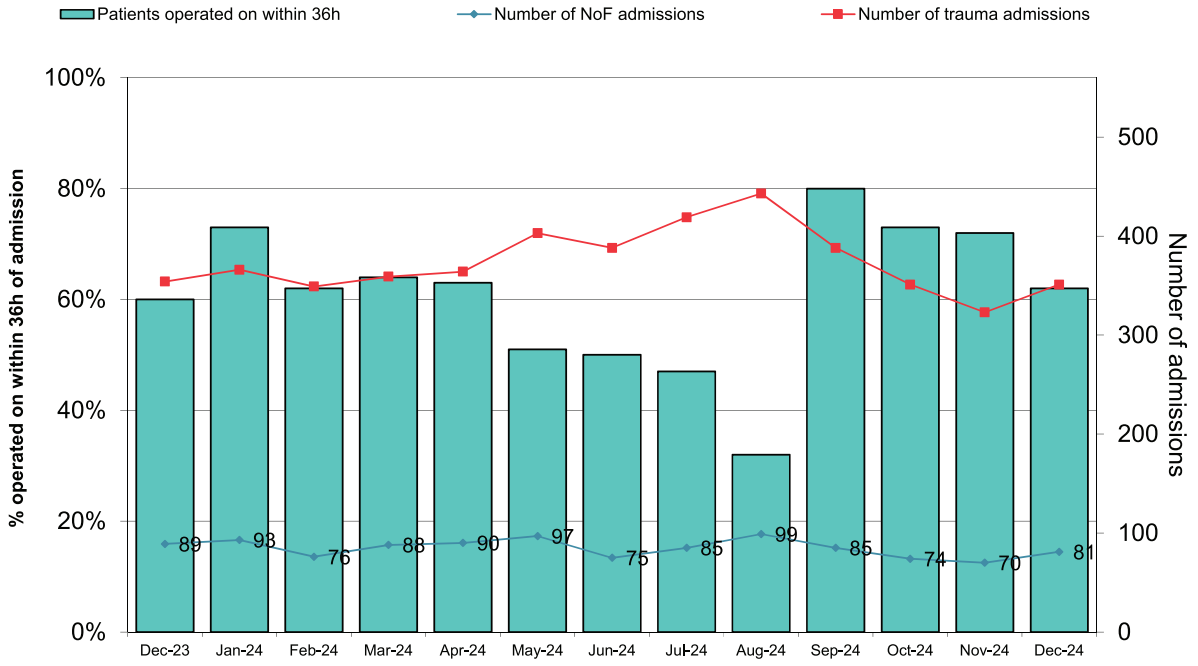


Figure 25: Proportion of patients at University Hospitals Dorset NHS Foundation Trust achieving the 36-hour fractured neck of femur (NoF) surgical access best practice tariff from December 2023 to December 2024



What's next for you at UHD?

"I would really like a mini C-arm in the Hand Hub because then we'll be able to do so much more. We're currently working through that business case. We think the cost saving will be massive."

What other impacts have you noticed?

"The morale of the team has improved. I have had a whole load of juniors get involved in collecting data. They created a HandsFirst WhatsApp group. Then there is Greg Neal-Smith, the registrar who is leading. Although he has now left the trust and rotated somewhere else, he's still quite involved. Still part of the team. I said to him: 'Why don't we present this at the British Association of Day Surgery? You should present it – you have been so involved.' He got second prize for it. It was an excellent presentation."

What part did HandsFirst play beyond the evidence?

"HandsFirst was instrumental in keeping my enthusiasm. If it hadn't been for me seeing all the other trusts when there were 25 in HandsFirst1 – it made a massive difference. Without HandsFirst, I probably would have given up. HandsFirst2 has been amazing as well because I am not on my own in this. I've got all my hand therapy team on board. They have been brilliant. It has been really good. It's also brought our team together.

"Without HandsFirst, I probably would have given up. HandsFirst2 has been amazing as well because I am not on my own in this. I've got all my hand therapy team on board. They have been brilliant. It has been really good. It's also brought our team together."

Joanna Higgins
Site Project Lead, University Hospitals Dorset NHS Foundation Trust

Zhibin Zhu, Chris Haskell, Joanna Higgins and Lindsey Sturman from the HandsFirst2 team at University Hospitals Dorset NHS Foundation Trust

"Before, the hand therapy team was quite separate to the surgeons when I arrived. Because I come from Pulvertaft in Derby, where it's all one big unit, I found that slightly weird… Now I am thinking about the whole patient journey, the best outcome possible right from the start, and getting our fellows and registrars to go down and spend a morning finding out what the hand therapy team does… Now, because people are working a bit more closely together, the hand therapists are getting a lot more useful information and it's making a difference to patient outcomes.

"HandsFirst definitely enabled me to just keep pushing. I knew that it was the right thing to do. I knew that getting collaboration, getting the therapy team working with us was right. But HandsFirst has been a vehicle to get to get us there, which has been amazing."

7. Lessons learnt

Recommendations for spread

Rationalise which procedures require main theatres

Sites that were able to release capacity in the main operating theatres made considerable improvements in achieving hand trauma standards and patient outcomes. They also improved patient flow elsewhere. As the case studies demonstrate, patients with a fractured neck of femur benefitted from this change. It is well documented that time to surgery for hip fractures affects mortality and morbidity. Timeliness of surgery for patients with hand trauma frees up valuable clinic capacity owing to fewer procedures being needed to restore a fracture or dislocation to the correct alignment in cases where malaligned bones have begun to fuse.

Where surgery has been delayed and more complex surgery is required for correction, more hand therapy is also often needed to achieve good patient outcomes. Consequently, better access to surgery tends to reduce the number of hand therapy follow-up appointments required, in turn improving access to hand therapy for all patients – a truly beneficial cycle.BWC's project sought to recognise and safely reduce or eliminate practices that institutionalise the patient experience, add unnecessarily to anxiety and introduce delays.

Improve the quality of referrals to hand therapy

Referrals to hand therapy should include sufficient detail for the therapist to devise an optimal treatment plan. "Flexor tendon repair" is insufficient information. Therapists need to know the zone of injury, and the type and strength of repair in order to determine the rehabilitation regime. Surgical teams should engage with hand therapy teams on an equal footing and establish professional standards or protocols for referral. These need not be complex but they do need to be complete.

Review use of anaesthesia for procedures

The shortage of anaesthetists has precipitated a review of how pain is controlled and who controls the pain for surgical procedures. Challenges in accessing theatres exacerbates delays for surgical procedures. Where a procedure can happen without general anaesthesia and outside of main theatres safely and appropriately, there is the opportunity to release theatre capacity.

WALANT is used widely at MFT owing to its effectiveness and necessity in certain cases. However, it is not the only viable alternative. WALANT requires time for the local anaesthesia plus adrenaline to take effect. Procedures are performed under local anaesthesia with tourniquet where practicable at UHS in favour of WALANT, reducing patient preparation time and improving turnaround time between procedures.

Regional blocks provide another option. The staff at UHB are keen to implement some of the non-general anaesthesia patient pathways that are active in the wider collaborative. The team there are reliant on their anaesthesia associates to deliver their existing service and believe that even greater opportunities are out there. Currently, anaesthesia associates support UHB to deliver approximately 50 non-general anaesthesia procedures per week using regional blocks. The surgeons at UHB hope to work closely with the Royal College of Anaesthetists, not only to recognise the depth of the contribution that anaesthesia associates make to hand trauma care but also to build their competences further to release additional theatre capacity in the NHS.

Review clinic booking rules

MFT and MSE reviewed clinic processes, creating a more agile and responsive system. Each did this in a way that was suited to their trust. Leanne Topcuoglu, the BAHT chair, suggested that therapy teams adopt a similar approach. She called for them to consider the urgency of demand and push back against booking systems that require immediate capacity to be filled first. Leanne identified the need for teams to respond with more flexibility so that they can meet the standards for the most urgent conditions where a short delay may have a significant impact on patient outcomes. She also suggested considering which appointments can flex outside the standards by a day or two without detrimental effect.

Look at internal referral pathways to the hand therapy service. Pay particular attention to the timing between theatre lists and available appointments or clinics. (You can map out pathways taking into account the patient journey on day 1, day 2 etc.)

Review the quality of referrals with your therapy team. Develop criteria for inclusion, and a standard form or operating procedure ensuring that referrals include operation details and any other factors that therapy teams require to inform patient treatment plans. This will increase the likelihood of achieving the best outcome for patients.

Recommendations for sites

Each participating site receives interim and final reports during the course of an RCS England collaborative. The interim report is generally issued soon after the mid-point of the collaborative. By this time, even sites joining for the first time have had a chance to analyse their local data, extrapolating those elements that are most pertinent to them. They have met with their QI consultant, put QI techniques into practice, engaged and expanded their project teams, and instigated tests of change.

The interim report and final report are tailored to each site. They contain specific recommendations based on a combination of site-specific data, tests of change and the potential opportunities arising from the wider collaborative. These reports may reference local, regional, national or global events, policies or other factors that are influencing the health and social care sector. They are designed to support teams in establishing a longer-term strategic approach to improvement and service development that extends beyond the life of the collaborative.

General recommendations

Increase the provision of hand therapists

Demand for hand therapy outstrips available capacity. When a new consultant is appointed, consideration is given to clinic capacity and administrative support in formulating the number of programmed activities so as to allow sufficient administrative time to capture the system outputs from providing direct clinical care.[32] This includes support from clinical administration teams.

Over half (54%) of patients with a traumatic hand injury were referred to the hand therapy team. Some of these referrals were postoperative while some were direct to hand therapy for non-surgical treatment or a trial of conservative management. It follows that the ratio of hand therapists to hand surgeons should form an integral part of service planning.

BSSH recommends that there should be 6 whole-time equivalent hand therapists per 500,000 population, excluding time in extended roles.[33] There is no recommended ratio for the number of hand therapists per surgeon although this is being considered by BSSH and BAHT as a necessity for efficient and effective service planning.

Where data are painting a disappointing picture

As the adage goes, there is no such thing as bad publicity. It is always disappointing to be at the bottom of a benchmark against a standard or target but it is rarely surprising and often useful. Where there are data and where the data disappoint, there is a case for change – one that will usually catch the attention of a chief executive, chief medical officer or chief nurse, especially when the data are part an external review such as this national collaborative. All national reviews (including the interim and final site reports) should be reported in an organisation's quality account.[34] An RCS England QI collaborative is a type of national audit assessing to what extent standards are being met.

Where the time from presentation to decision is excessive

Look closely at referral pathways, booking rules and the directory of service along with clinic capacity. Poor outdated processes create a lot of waste in the system. Use of a virtual fracture clinic does not equate to a patient pathway. If hand trauma cases are consistently being pushed down the line in a virtual fracture clinic, as with any other clinic, the clinic rules need to be revisited.

Demand may indeed outstrip clinic capacity, as it does at MSE. However, MSE found that a simple change to clinic protocol slips helped lead to better use of existing resources. Sometimes the best improvement initiatives are the ones where teams have kept it simple. It can be worth asking a coaching question of yourself and your team: "What could we do to make this easier for colleagues/patients/ourselves?" Tweaking the question by adding "today", "in the next ten minutes" or "from this exact moment onwards" can release a surprising amount of creativity because they are designed to open new thinking.

Common sense is too often rare

Everyone is busy being busy and when that happens, taking a step back is usually the first casualty. Colleagues cling to the familiar while holding on to the belief that there must be a better way. No one will find the better way or even remember the better way while they are stuck in the normalised hectic work shift that they know. Common sense (if it ever was there in the first place) is often sacrificed. With it goes precious time and opportunity, and so the daily drudge is victorious.

Why not follow Eleni Balabanidou's lead and bring a little Beyoncé into the workplace? She created several versions of posters featuring Beyoncé in seconds, each one targeting a different audience. The message: "Take a ring off it – and the nail polish too." Eleni's posters save valuable time to get through a busy trauma list – all without the need for a communications campaign, requisition slip or anything else. Common sense just got a lot more fun!

Overproduction is one of Ohno's 'eight wastes' in healthcare.[21] The Beyoncé posters did not need a graphic designer to help them spread. MFT and BWC both adopted this change. A simple good idea is instantly recognisable. This one gave the members of the collaborative a smile too. It is not that staff do not know that rings and nail polish need to be removed but sometimes, staff do not always remember what they are supposed to do and colleagues are frequently interrupted. These little things can add up and make a big difference. The fact that they are fun is simply a kindness.

Make the most of special teams

What have you gained from connecting with others in the collaborative?

"Moral support. Empathy. Great ideas and blue-sky thinking and other perspectives on similar problems. Also, an understanding that we are not alone in our moments of despair and many of us face the same dire problems."

Site project lead, December 2024

Engaging with colleagues in other roles yields tangible benefits. Be curious. Get the views of senior managers who have a wider perspective. Listen to the challenges of referring units and look for mutually beneficial opportunities. Engage the expertise of local QI, service improvement or transformation teams, or of your local information services teams. They will likely be delighted to help. Do not forget the experience that your communications team can lend in helping you craft messages specifically aimed at those you want to influence or inform.

Your job is to deliver great patient care and to be the best advocate for your patients that you can be. The NHS is composed of many professional disciplines; you do not need to develop skills across all of them but it is your responsibility to engage with them. Ideally, no clinician should have to take the time to write a business case. Instead, they should be briefing a service/business manager or planner who has that expertise so that the case of need reflects the clinical urgency of the situation, and the options proposed reflect palatable solutions as a minimum and gold standards wherever possible.

What have you gained from connecting with others in the collaborative?

"It made us feel like a group, or like a class, where we were all teaching, learning and progressing at the same time. It's nice to know you're not alone when you struggle, and also nice to be given the opportunity to celebrate and be celebrated for the successes."

Site project lead, December 2024

Tips for existing and aspiring leaders

There are many ways to lead. Whatever the leadership style or philosophy that the HandsFirst2 site lead adopts (if they are even aware of it), there is one thing that all must share: followers. Even a committed, tenacious individual operating from a sense of what is right, what has meaning or integrity will eventually run out of steam without a team.

Be confident
Show confidence in your team. Find ways to create opportunities for those whose careers or wellbeing would benefit. Model compassionate leadership consistently. Inspire your team to be the best version of themselves.

Build resilience
Resilience is the capacity to recover quickly. Show your team that taking time to rest and regenerate is necessary work. Failure is an integral part of testing new ideas. Teach them that learning from failure is valuable learning so that they become skilled in remaining resilient when change does not yield the anticipated impact.

Be empathetic
Change affects colleagues differently, and is dependent on both internal and external factors. Leaders need to adapt their responses to individuals. Get curious. Notice behaviours with fascination and ask meaningful questions with kindness to show that you care. This will help you understand their perspective, what concerns them, what excites them and what motivates them.

Adopt a growth mindset
This is a mindset that believes that talents can be developed through hard work, good strategies and guidance. The focus is more on continuous learning than on reaching a specific result.

Demonstrate integrity
Show your team that you are with them, especially in those times where you are experiencing situations that no one has been through before. Encourage others to share ideas, and remain honest with yourself and the team.

Be democratic and engaging
Engage your team in meaningful conversations. Lead but do not manage. Discuss challenges openly and respectfully. Be open to being wrong. Encourage feedback. Joint decision making results in a joint sense of purpose; people rarely destroy what they create.

8. Conclusions

Participating in a QI project takes courage. It takes a belief and inner knowledge that surely there is a better way. It takes leaders who hold on to those beliefs and take responsibility for realising change. Even the burning of a familiar form, a small piece of the process, can create wholesale discontent. As social creatures, QI can feel to us more like rule breaking than innovation. For many who are resistant to change, resistance might stem from something quite simple.

“We are busy already.”

“If it isn’t broken, why fix it?”

“Another change? I don’t have the time. I’m tired. It’s not my priority. It’s too much.”

Leading QI takes vision and energy. The other side of the leadership coin is followership. Taking the time to pause and think about the root language of the words that mark our roles in healthcare is a worthwhile endeavour. Residents. Fellows. Fellowship. Professors. Profess. Clinical leads. Therapists. Nurses. Nursing. All words that imply nurture and growth, words that expect change. Some require vision and a separation from the status quo (e.g. professor). Even the UK government uses words that remind us of this purpose. We must be ‘good stewards’ of the public purse in our national health ‘service’, in our ‘trusts’. We have a ‘duty of care’. We need no other driver and yet other drivers are useful. In their absence, collaboratives are most helpful.

The collaborative methodology focuses on strengthening capabilities, competence and capacity in complementary disciplines of the quality continuum: QI, leadership and strategic planning. Time to think together as a team is one of the benefits of participation that is cited most often. In an institution as large and complex as the NHS, and in organisations where leadership and management teams are often driven to bring a laser-like focus to existing short- and mid-term targets, hand trauma services can feel like a forgotten drop in a vast ocean. Site teams coming together at national events can help remind us all that every drop in that ocean collectively creates it, influences its tides and currents, and contributes to the sea change.

Value for money

Being part of a collaborative initiative brings a multitude of benefits, both tangible and intangible. It fosters a culture of shared enterprise and collective ownership, enhancing the overall strategic thinking, which in turn raises the professional bar and the professional profile. This collaborative environment allows participants to focus on long-term goals and step out of the seemingly endless daily drudgery of operational tasks such as negotiating for greater theatre access. The collaborative initiative frees teams to engage in meaningful strategic planning and development at local, regional and national levels.

Additionally, the psychological benefits of such collaboration are immense. Working in other motivated and supportive teams who understand, appreciate and often share similar challenges enhances individual wellbeing and job satisfaction. It allows time and space for team members to feel valued and recognised for their contributions, reducing feelings of isolation and burnout. The shared sense of purpose and the opportunity to learn from failures collectively can lead to personal growth and increased resilience. This camaraderie and mutual support creates a positive environment where individuals are more likely to thrive and innovate. In the end, we are here for our patients. Having the evidence that our efforts translate into tangible results and better patient outcomes is our greatest reward.

Scalability: broader impacts

Duty of care and service drive most of the NHS workforce. Scalability and spread of positive change are our responsibility in our duty of care to one another. Most tests of change have the potential for spread at scale, offering trusts a high return on their investment. There is a much higher likelihood of achieving this where teams have secured sponsorship from senior management.

Work to improve operating theatre efficiency and utilisation can spread to other specialties. Most specialties have in their gift the ability to set criteria for identifying a 'golden' or 'platinum' patient (or even whole cohorts of patients) who can be brought into an existing list with more agility. Changes to processes for ensuring that patients arrive without delay are not specialty specific, nor are advances that improve theatre turnaround time. Likewise, very few specialties are truly exempt from the challenge of rationalising which procedures should take place in theatre and which might be suitably performed in a properly equipped minor operations procedure room to create additional theatre capacity. The process of rationalising what is necessary for theatre sets or reducing draping to cut down on waste is hardly limited to hand trauma.

Moreover, every specialty can create, review and revise patient pathways. Every clinic (surgical or non-surgical) can consider under what conditions PIFU may be a safe, appropriate or preferred option to release capacity. Similarly, how clinics are organised, where and in what format is unrestricted by specialty or department.

Most emergency departments serve as a first port of call to all other specialties. It is the very nature of unplanned care. Consequently, developing clear inclusion and exclusion criteria along with working with emergency departments and other referrers are ways to improve services and build stronger partnerships. Sites that have introduced a direct referral to the hand therapy team (rather than to a fracture clinic or musculoskeletal clinic) should be thinking about other services where this model may help to manage demand.

BWC's hand trauma team stopped using gowns in order to reduce delays in getting patients to the operating theatre, and to save linen and associated consumable costs without a detrimental impact to surgical site infection rates. Their 'no gowns' PDSA cycle accomplished that and delivered a far better patient experience, reducing children's anxiety around their surgery. This initiative has already spread to BWC's ear, nose and throat department. Equally, there is merit in adopting it across oral and maxillofacial surgery, ophthalmology and podiatric surgery (to name just a few specialties).

Advantages of continued participation

RCS England applies the same theory of change used by the collaborative to how we plan, resource and run our QI initiatives. This means that every effort is made to put research into practice and increase the likelihood of success for sites that make the commitment. We advocate for continuous learning, and we take the opportunity to live it through the events we run and with each evaluation. In their end-of-project feedback, members of the collaborative have said that being part of this programme has enhanced their service, kept them motivated and supported their wellbeing. We adopt a growth mindset, learning each and every time we meet. Delegate feedback informs each successive collaborative. We hope that you will consider joining us for the next stage of the journey in HandsFirst3.

FOR MORE INFORMATION

Please scan this QR code or email:

handsfirst@rcseng.ac.uk

9. Next steps

Advancing professional standards

> *"We come to a really interesting point now where we can start to think about the data over and above all the individual improvements that units are making. One question is whether in the light of the information we now have, do we need to recommend a change in the actual standards? The original standards were derived from expert opinion. Now that we have facts, it may be time to challenge the timelines to make them shorter."*
>
> **Professor Vivien Lees**
> RCS England Council Lead for HandsFirst

Closed soft tissue injuries

It is unacceptable for patients on an emergency pathway to have to wait 11 days for surgical treatment after a traumatic hand injury. It diminishes the likelihood of a patient achieving the best possible clinical outcome following injury. Such a prolonged wait reflects a system under pressure that has normalised this situation. Patient advocacy is what clinicians do best but patients trust the system even though it does not always serve them well.

Continue to advance therapy standards

Improve training and horizontal learning

Both hand therapists and surgeons require a greater understanding of the BAHT standards so that they can develop better local pathways to achieve the best possible outcomes for patients. The HandsFirst2 project highlighted that insufficient detail on postoperative instructions and referrals can contribute to delay in treatment as therapists have to chase the required information to inform best practice. Therapists and surgeons alike need a shared and improved understanding of when patients should be seen within the timeframe recommended by BAHT and when there may be some room for manoeuvre without compromising the patient outcome.

Develop professional standards for hand therapy follow-up

There are no condition-specific new-to-follow-up ratio guidelines. The optimal frequency and number of follow-up appointments is usually a subjective clinical opinion based on individual patient presentation, which allows wide variation to exist in service provision. BSSH recommends a new-to-follow-up ratio of 1:4 to maintain safe service provision.[33] However, in the current NHS climate where follow-up activity is under scrutiny, this is frequently challenged.

Further exploration of outcome measures for hand trauma

There was inconsistent data capture relating to outcome measures during this round of the HandsFirst collaborative. The HandsFirst2 database was vastly expanded compared with HandsFirst1 and as this field was not mandatory, sites used it for local data collection. In order to explore outcome measures more fully, the next iteration of the collaborative should give greater consideration to how we measure outcomes across all age ranges. Understanding patient outcomes would further support the importance of timely hand surgery and hand therapy in returning to activities of daily living and productive working lives.

The HandsFirst2 QI collaborative celebration event, 13 December 2024

Update and develop new trauma standards (including paediatric standards)

The HandsFirst collaborative partners have a wonderful opportunity to work together to develop consistent terminology across standards. Alongside creating an updated core set of shared standards across all categories, there is the opportunity to develop additional condition-specific standards to reduce variation in service delivery.

Plans for publication

Teams across the collaborative plan to publish at least seven papers because of findings from HandsFirst2. This will add significantly to the body of information available and raise the profile of hand trauma care.

Presentation at international conference

The HandsFirst2 project will be presented at the Federation of European Societies for Surgery of the Hand Congress in Helsinki in June 2025.

HandsFirst3

RCS England, BSSH and BAHT feel it is vital to continue to raise the profile of hand trauma care. As partners, we all work with patients and see the impacts on real lives daily. The NHS was designed to reduce mortality; it was not designed to deliver preventive care or measure the impact of health over a lifetime. It is therefore our intention to consider more deeply the economics of care and undertake modelling to more fully understand the population impacts of our work. We will continue to develop QI (and the capabilities, capacity and competences to lead change), to work with integrity and to create an inclusive, psychologically safe space for members of our collaboratives.

The NHS is on the precipice of major changes, part political and part technological with the advent of artificial intelligence (AI). The latter is likely to have even greater impact than the internet on how we deliver care, and how we connect and develop.

The HandsFirst project team is excited about the appropriate and ethical adoption of AI. Some sites have begun to explore AI through NHS England's pilot of Microsoft's Copilot chatbot, sharing their initial thoughts and experiences. RCS England anticipates that ethical and considered use of AI and generative AI will alter many aspects of how work is designed at breakneck speed. We believe that early adoption is the only way to remain on the cutting edge of health innovation. Below, we offer a few actual and possible applications.

Magnificent meeting management

Automated agenda creation and distribution: AI can generate meeting agendas based on the topics and priorities set by the organisers. It can also distribute these agendas to all participants ahead of time, ensuring everyone is prepared and on the same page.

Real-time transcription and note taking: During virtual meetings, AI can transcribe conversations in real time, capturing all important points and discussions. This eliminates the need for manual note taking and ensures that accurate records are kept.

Action tracking and follow-up: AI can track action items assigned during virtual meetings and send reminders to responsible parties. It can also follow up on the progress of these tasks.

Meeting summaries and reports: After the meeting, AI can generate concise summaries and detailed reports, highlighting key decisions, action items and next steps. These reports can be shared automatically with all participants, enhancing communication and accountability.

All the above are in current use.

Streamlining administrative processes

Optimisation of staff scheduling: AI can analyse patient load, staff availability and hospital requirements to create optimised schedules. This ensures that resources are allocated effectively during peak hours, reducing the risk of understaffing or overstaffing.

Data integration and reporting: AI can pull data from disparate systems like electronic health records, lab reports and patient feedback forms to create a unified view. This allows real-time insights and better decision making by hospital administrators. AI can also analyse big data at breathtaking speeds, which has implications for facilitating research as well as QI.

Automating patient registration: AI can streamline the patient check-in process, reducing wait times and enhancing the overall patient experience. It can also verify and update patient information, minimising errors in records.

Analysis of patient and staff surveys: AI can collect and analyse surveys, providing actionable insights for improving service quality or staff experience. This helps hospitals respond proactively to enhance patient satisfaction and employee retention.[35]

Building a bespoke app: Microsoft Teams is used widely by NHS organisations. It is now possible to build a bespoke app using Teams. The Power Apps template allows team members to create an app without needing to learn a programming language or write a single line of code.[36]

Clinical applications

Prevention – identification of high-risk patients and predictive modelling: AI can analyse vast amounts of patient data to identify high-risk patients and predict outcomes through modelling. This allows surgeons to prioritise cases that need urgent attention, plan clinical work more effectively, manage resources better and improve overall patient care by mining the clinical evidence base taking into consideration local factors.[37]

Diagnosis – AI-assisted diagnostics: AI algorithms can analyse medical images and patient data to assist in diagnosing conditions more quickly and accurately. For example, AI can help in interpreting radiology images, identifying anomalies and suggesting potential diagnoses, thereby freeing up surgeons to concentrate on surgical procedures.[38]

Treatment – next-generation robotic surgery: AI-driven robotic surgical systems can assist surgeons in performing precise and minimally invasive procedures, enhancing a surgeon's capabilities, reducing the risk of complications and shortening recovery times, all of which has the potential to release capacity.[39]

Appendix 1: Three questions sites ask about RCS England QI collaboratives

How much time will I need to dedicate to working on the collaborative?

The time commitment can vary depending on the specific goals and activities of the collaborative as well as the level of support and commitment that sites get from their leadership and management teams. Generally, participants can expect to dedicate a few hours each week to attend meetings, participate in training sessions and work on improvement projects. It is important to note that the time invested in these activities is often offset by the efficiencies gained through improved processes and outcomes.

What does being part of the collaborative involve?

Being part of the collaborative involves several activities:

Training and education: Participants will receive training on QI methodologies and tools as well as workshops on leading change and important updates on NHS strategies or topics such as how artificial intelligence (AI) and generative AI might affect how care is delivered.

Data collection and analysis: Collecting and analysing data to identify areas for improvement and measure progress

Collaborative and local team meetings: RCS England organises a number of whole-collaborative events where teams from participating sites can meet up in person or virtually. Sites are apportioned time with an RCS England QI consultant and are offered support through scheduled virtual site visits, email or telephone calls. We recommend that local teams set up their own regular internal structures (e.g. multidisciplinary/multiprofessional team meetings), and consider allocating some time to collaborate with other sites in order to share experiences, discuss challenges and develop solutions.

Time to test changes: As with any project, you will need to set aside time for planning and implementation as well as time to study the impact of any changes you introduce. QI is a cycle of continuous learning and adaptation. You will need time to collect, analyse and learn from your data and more qualitative experiences. You will also need to meet with your team to plan and decide how to adapt or refine your strategies.

See also:
NHS England. Co-production and quality improvement – a resource guide.
www.england.nhs.uk/long-read/co-production-and-quality-improvement-a-resource-guide
(cited April 2025)

How much money will we save?

The financial benefits of participating in an RCS England QI collaborative can be significant.[40] By improving processes and reducing inefficiencies, organisations can achieve cost savings in several areas, such as reduced hospital readmissions, shorter lengths of stay and fewer complications. Some studies have shown that QI initiatives can lead to savings of around £160 per patient, which can add up to substantial savings for larger organisations.[41]

Appendix 2: QI resources

Resources from RCS England

QI guides

RCS England's QI guides build on evidence of what has worked (or not) in implementing QI in healthcare settings over the past few decades. They provide practical recommendations on how surgeons can facilitate change through QI methodologies, including identifying common barriers and how they can be overcome.

Quality Improvement in Surgery – Basic Principles (March 2021)
A Trainee's Guide to a Quality Improvement Project (March 2021)

Available at: www.rcseng.ac.uk/standards-and-research/standards-and-guidance/good-practice-guides/quality-improvement

QI resources

Various QI resources are available on the RCS England website:

www.rcseng.ac.uk/qi

www.rcseng.ac.uk/standards-and-research/support-for-surgeons-and-services/quality-improvement-in-surgery/resources

Good practice guides

Managing Disruptive Behaviours in Surgery (April 2021)

Available at: www.rcseng.ac.uk/standards-and-research/standards-and-guidance/good-practice-guides/managing-disruptive-behaviours

Managing disruptive behaviours can be a challenging area, involving difficult conversations that are often about sensitive matters, sometimes with testing individuals. However, failure to confront and actively manage disruptive behaviours allows them to continue, with implications for patient care and staff wellbeing.

Intimidating and disruptive behaviours can foster medical errors, and cause significant and unnecessary distress to colleagues. They undermine the trust of both patients and the public. This guidance from RCS England aims to provide advice and support to surgeons on how to identify such behaviours, how to prevent them and how to address them through a series of graduated interventions.

Sustainability in the Operating Theatre (May 2022)

Available at: www.rcseng.ac.uk/standards-and-research/standards-and-guidance/good-practice-guides/sustainability-in-operating-theatre

Climate change has been recognised by the *Lancet* Climate Change Commission as "the biggest global health threat of the 21st century".[42] In the UK, the healthcare sector is one of the biggest contributors of greenhouse gas emissions, with operating theatres having a disproportionate environmental impact because of their energy-intensive processes as well as their high consumption of resources and production of waste.

In this guidance document from RCS England, you will find practical recommendations for members of the surgical team in the areas of:

- solid waste reduction
- green purchasing
- water conservation
- care pathways
- cultural change and surgical leadership

The NHS has pledged to meet a net zero carbon target by 2045 through its Greener NHS campaign.[43] Individual surgeons and surgical teams are in a unique position to lead efforts to improve the environmental sustainability of the operating theatre.

Wellbeing support and resources

It really is okay not to be okay. Now more than ever, it is important that you take time to check in with yourself, and prioritise your own mental health and wellbeing, recognising that it is more difficult to provide outstanding care for others when you are not adequately cared for yourself. The best surgical brains protect their own minds. You can find resources to help you protect yours at: www.rcseng.ac.uk/careers-in-surgery/wellbeing

Other recommended reading and resources

Leading QI teams

Supportive leadership is essential for any successful QI activity. As a leader, you should:

- prioritise the QI projects in your organisation and keep the number of initiatives being worked on at any one time manageable
- create a safe space for people to talk freely about the successes and failures of their work
- support appropriate resources and allocate time in in job plans
- communicate regularly with the QI project team and support the project to drive it forwards
- unblock barriers for your team that are preventing further improvement
- help your team to celebrate successes and learn lessons from mistakes

Further reading

- King's Fund. Making the case for quality improvement: lessons for NHS boards and leaders. https://www.kingsfund.org.uk/insight-and-analysis/long-reads/making-case-quality-improvement (cited April 2025).

Appendix 3: List of RCS England QI collaboratives

Cholecystectomy Quality Improvement Collaborative

- Chole-QuIC
  October 2016 – January 2018
- CholeQuIC-ER
  July 2019 – June 2020
- Chole-QuIC3
  April 2021 – July 2022
- Chole-QuIC4
  June 2023 – February 2025

For more information visit: www.rcseng.ac.uk/cholequic

HandsFirst Quality Improvement Collaborative

- HandsFirst1
  October 2021 – March 2023
- HandsFirst2
  July 2023 – March 2025

For more information visit: www.rcseng.ac.uk/handsfirst

SUrgeon Peer-led POst-incident Response Teams Improvement Collaborative

- SUPPORT
  October 2023 – March 2025

For more information visit: www.rcseng.ac.uk/supportimprovement

RCS England is also recruiting into future QI collaboratives:

www.rcseng.ac.uk/qicollaboratives

Appendix 4: The impact of a hand trauma injury over a working life

In order to calculate the costs of a hand trauma injury over a working life, we compared an individual with fully functional hands to one who has lost the function of a single hand. **Figure 26** shows the calculations without accounting for compound interest while **Figure 27** shows the workings with compound interest included. The average annual salary of £37,430 for full-time workers in the UK is provided by the Office for National Statistics.[8]

Figure 26: Simple calculation of comparative earnings of an individual with fully functional hands and an individual with a single dysfunctional hand, without compound interest

Fully functional hands assumptions (without compound interest)

- **Average annual salary:** £37,430
- **Working life:** 40 years
- **Total earnings:** £37,430 x 40 = £1,497,200

Dysfunctional hand assumptions (without compound interest)

20% reduction in earning potential due to hand dysfunction:

- **Reduced annual salary:** £37,430 x 0.80 = £29,944
- **Working life:** 40 years
- **Total earnings:** £29,944 x 40 = £1,197,760

Additional costs:

- **Medical and adaptive equipment costs:** estimated at £1,000 per year
- **Total medical costs over 40 years:** £1,000 x 40 = £40,000

Total economic impact

- **Total earnings loss:** £1,497,200 − £1,197,760 = £299,440
- **Total additional costs:** £40,000
- **Total economic impact:** £299,440 + £40,000 = **£339,440**

Figure 27: Calculation of comparative earnings of an individual with fully functional hands and an individual with a single dysfunctional hand, factoring in a 4% rate of compound interest

Fully functional hands assumptions (with compound interest)

- **Average annual salary:** £37,430 • **Working life:** 40 years

Let S be the salary in a certain year, S_1 the salary in year 1, t the years worked and r the inflation rate.

$$S = S_1 (1 + r)^t$$

$$S = £37{,}430 (1 + 0.04)^t$$

(cont...)

Sum of salaries over 40 years: (cont...)

$$T_f = £37{,}430\ (1 + (1 + 0.04) + (1 + 0.04)^2 + \ldots)$$

$$£37{,}430\ \frac{(1 + 0.04)^{40} - 1}{0.04}$$

$$T_f = £3{,}556{,}805.05$$

Dysfunctional hand assumptions (with compound interest)

20% reduction in earning potential due to hand dysfunction:

• **Reduced annual salary:** £37,430 x 0.80 = £29,944 • **Working life:** 40 years

Let *S* be the salary in a certain year, S_1 the salary in year 1, *t* the years worked and *r* the inflation rate.

$$S = S_1\ (1 + r)^t$$
$$S = £29{,}944\ (1 + 0.04)^t$$

Sum of salaries over 40 years:

$$T_d = £29{,}944\ (1 + (1 + 0.04) + (1 + 0.04)^2 + \ldots)$$

$$£29{,}944\ \frac{(1 + 0.04)^{40} - 1}{0.04}$$

$$T_d = £2{,}845{,}444.04$$

Additional costs:

• **Medical and adaptive equipment costs:** estimated at £1,000 per year
• **Total medical costs over 40 years:** £1,000 x 40 = £40,000

Let *C* be the costs in a certain year, C_1 the costs in year 1, *t* the years worked and *r* the inflation rate.

$$C = C_1\ (1 + r)^t$$
$$S = £29{,}944\ (1 + 0.04)^t$$

Sum of costs over 40 years:

$$T_c = £1{,}000\ (1 + (1 + 0.04) + (1 + 0.04)^2 + \ldots)$$

$$£1{,}000\ \frac{(1 + 0.04)^{40} - 1}{0.04}$$

$$T_c = £95{,}025.52$$

Total economic impact

Total earnings loss: The difference between total earnings with fully functional hands and with one dysfunctional hand

$$= T_f - T_d$$
$$= £3{,}556{,}805.05 - £2{,}845{,}444.04$$
$$= £711{,}361.01$$

Total additional costs $T_c = £95{,}025.52$

Total economic impact: Total earnings lost and total additional costs

$$= £711{,}361.01 + £95{,}025.52$$
$$\mathbf{= £806{,}386.53}$$

Appendix 5: HandsFirst2 project goals

For all standards, the goal was that 80% of patients presenting within 24 hours of injury received the recommended interventions in the applicable BSSH, BOA or BAHT standards.[1–3]

Category of injury	Surgery		Hand therapy	
	Aged ≥10 years	Aged ≥10 years	Aged ≥10 years	Aged ≥10 years
1 Open fracture (incl radius) or joint	Within 1 day (24h) of injury	Same as ≥10 years	1st hand therapy appointment within 7 days (168h) of surgery	Same as ≥10 years
2 Open soft tissue wound	Within 4 days (96h) of injury	Within 3 days (72 hours) of injury	Flexor tendon: 1st hand therapy appointment within 3–5 days (72–120h) of surgery	Same as ≥10 years
			Extensor tendon zones 3–6: 1st hand therapy appointment within 7 days (168h) of surgery	Same as ≥10 years
			Extensor tendon zones 1–2: 1st hand therapy appointment within 7 days (168h) of surgery	Same as ≥10 years
			Peripheral nerve: 1st hand therapy appointment within 7 days (168h) of surgery	Same as ≥10 years
			Finger ligaments: 1st hand therapy appointment within 7 days (168h) of surgery	Same as ≥10 years
			Thumb ligaments: 1st hand therapy appointment within 4 weeks (672h) of surgery	Same as ≥10 years
			Soft tissue loss (incl fingertip terminalisation): 1st hand therapy appointment within 3 weeks (504h) of referral being made	Same as ≥10 years
			Laceration with no structural repair: 1st hand therapy appointment within 3 weeks (504h) of referral being made	Within 2 weeks (336h) of referral
3 Closed fracture other than the radius	Within 7 days (168 hours) of injury (if need for surgery was evident from the start)	Within 4 days (96 hours) of injury (if need for surgery was evident from the start)	Managed surgically: 1st hand therapy appointment within 5–7 days (120–168h) of surgery	Same as ≥10 years
	Change in management plan: If conservative treatment was not successful within 3 days (72h) of decision being made	Same as ≥10 years	Managed non-surgically (incl bony mallet injury): 1st hand therapy appointment within 7 days (168h) of referral being made	Same as ≥10 years
4 Closed distal radius fracture	Intra-articular: Within 3 days (72h) of injury	Same as ≥10 years	Intra-articular: 1st hand therapy appointment within 2 weeks (336h) of referral being made	Same as ≥10 years
	Extra-articular: Within 7 days (168h) of injury	Same as ≥10 years	Extra-articular: 1st hand therapy appointment within 2 weeks (336h) of referral being made	Same as ≥10 years
	As a subset, for intra-articular and extra-articular distal radius where “Change in management plan” is selected as a delay reason, we also analyse whether they meet the standard that surgery should take place within 3 days (72h) of decision being made	Same as ≥10 years		
5 Closed soft tissue injury	N/A	N/A	Finger and thumb ligaments: 1st hand therapy appointment within 7 days (168h) of referral being made	Same as ≥10 years
			Soft tissue mallet injury: 1st hand therapy appointment within 7 days (168h) of referral being made	Same as ≥10 years
			Extensor tendon central slip: 1st hand therapy appointment within 7 days (168h) of referral being made	Same as ≥10 years

Appendix 6: RCS England HandsFirst2 project team and key stakeholders

HandsFirst2 project team

Mrs Sarah Tucker, Clinical Lead

Mrs Sarah Tucker is the clinical lead for the project and a BSSH council member. She developed an interest in hand trauma early in her training, and is keen to facilitate improvements in service through collaborative learning and strategic change.

Having graduated in medicine from the University of Bristol in 1992, she did her early surgical training in South Wales. Her interest in hand trauma developed initially as a junior surgeon in orthopaedic hand surgery. She then moved on to plastic surgery in order to receive more training on soft tissue injuries of the hand. She went on to train fully in plastic surgery in the South West. This was followed by a hand fellowship at Oxford University Hospitals NHS Trust, where she subsequently took a consultant post with a specific focus on developing the trauma service.

She completed a master's degree in clinical education in 2006, and a postgraduate certificate in strategic leadership and change management in 2013. She served as chair of the BSSH trauma committee from 2019 to 2022, leading the development of nine key standards in hand trauma care and a consensus on triage standards, now embedded into national practice with an app. She is currently on the trauma committee for the Federation of European Societies for Surgery of the Hand and the clinical lead of the plastic surgery department at Oxford.

Her other interests include global surgery. She has provided training through regular visits to Nepal over 15 years and, more recently, in Ukraine.

Professor Vivien Lees, RCS England Council Lead

Professor Vivien Lees was elected to RCS England Council in 2014 and as Vice-President in 2023. She is professor of plastic surgery at the University of Manchester and holds a consultant post at Wythenshawe Hospital, where she has clinical interests in hand surgery including wrist and the rheumatoid hand. Her principal scientific interests are in functional anatomy of the distal radioulnar joint/forearm biomechanics (Hunterian Oration, 2010) and peripheral nerve injury. She is a past editor of the *European Journal of Hand Surgery*.

Professor Lees was an undergraduate in Oxford and completed her clinical studies in Cambridge, qualifying in 1985. She underwent plastic surgery training in Cambridge, Billericay and Leeds/Bradford as well as Louisville, Kentucky.

Having served as chair of the plastic surgery specialty advisory committee and examiner for the FRCS(Plast) exam, Professor Lees has been an active member of the councils of the British Association of Plastic, Reconstructive and Aesthetic Surgeons, BSSH and the British Association of Aesthetic Plastic Surgeons; she was president of BSSH for 2015. She has a particular interest in the development

of educational programmes. She led the development of the postgraduate diploma in hand surgery and the MSc degree in hand surgery, and also reconfigured/ rewrote the plastic surgery curriculum in its current modular format.

On RCS England's Council, Professor Lees has been involved with the Emerging Leaders and SAFE OR programmes as well as cosmetic certification/ credentialing. She has recently held responsibility for the HandsFirst QI initiative.

Her recreations include pottery, hill walking, lake swimming and history.

Ralph Tomlinson, RCS England Director of Research and QI

As director of research and QI at RCS England, Ralph Tomlinson is passionate about working with all members of the surgical care team to improve the care that they provide. He does this by leading teams that fund research, lead trials, deliver audits, assure safety, improve quality and accredit excellence. Ralph believes that when working at their best, surgical care teams do amazing things that change lives, and he enjoys helping them achieve the best outcomes they can for their patients.

Sheena MacSween, RCS England QI Programme Manager

Sheena MacSween works in the research and QI directorate, and manages QI collaboratives for RCS England. Some of the collaboratives focus on supporting healthcare teams to improve patient care in a specific clinical area of care and one is dedicated to supporting surgeons after adverse events.

HandsFirst2 works across specialties (plastic and orthopaedic surgery), and focuses on surgery and hand therapy. Sheena has enjoyed expanding the scope of the collaborative, increasing the surgical goals and including dedicated hand therapy goals. She feels privileged to be working with the project team and the participating sites on this area of work. Sheena is excited to continue being part of the team that will deliver HandsFirst3.

Ruth Colville, QI Consultant

Since 2004, Ruth Colville has worked in a variety of settings practising improvement science, which has led to a strong interest in occupational and behavioural psychology. She supports frontline staff to deliver large-scale change and improvement projects, providing improvement training to staff and regional trainees. An honorary lecturer for the Hull York Medical School, she designed, created and delivered the school's first online QI module with simulated QI scenarios to minimise the disruption to undergraduate medical education during the COVID-19 pandemic.

Now an organisational development manager at the NHS Humber Health Partnership (comprising Hull University Teaching Hospitals NHS Trust and Northern Lincolnshire and Goole NHS Foundation Trust), Ruth is the portfolio lead for the leadership development programmes across the Humber Health Partnership. Passionate about diversity, equity and inclusion, she is a Mary Seacole programme facilitator for the NHS North East and Yorkshire Leadership Academy, and a member of the Health Foundation's Q Community.

Ruth has found it a great pleasure to work with the highly engaging and deeply committed professionals involved in the HandsFirst collaborative. She eagerly awaits the start of HandsFirst3.

Ruth's other interests include reading, illustration, painting, printmaking and walking the Yorkshire Wolds.

Maureen McGeorge, QI Consultant

Maureen McGeorge spent many years with the Royal College of Psychiatrists, initially as a researcher before moving into quality assurance, developing many national audit and accreditation programmes. After completing the Institute for Healthcare Improvement's Improvement Advisor Professional Development course, she began her role as a QI consultant. Since leaving her substantive role there in 2013, she has applied her skills and learning in various consultant roles with the Patients Association and the King's Fund. She is currently working with the Royal College of Psychiatrists, where she supports improvement activities around their programme of national audits, and she also leads on QI training with the Yorkshire and Humber Improvement Academy.

Mark Fuller, QI Consultant

After studying law at the University of Durham, Mark Fuller spent a decade managing private hospitals for individuals with mental health, substance misuse and/or learning difficulties. This was followed by a governance-based role in what was previously NHS Improvement, during which time he was introduced to QI methodology. The position entailed supporting NHS trusts across the North of England. Mark then spent several years at Harrogate and District NHS Foundation Trust as improvement and transformation manager. He authored the trust's five-year improvement strategy, designed and delivered all QI training (from beginner to advanced levels), supported students to realise their own QI projects, managed and facilitated an annual schedule of improvement events, and provided ad hoc support to teams.

Mark has recently taken on the role of director of the health and care transformation programme for the Isle of Man. Passionate about continuing professional development, he has gained additional qualifications related to QI, teaching, human resources, health and safety, and project management. He is also a member of the Chartered Management Institute and holds an MSc degree in senior leadership.

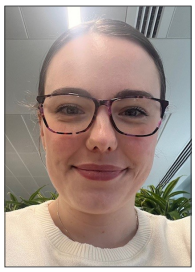
HandsFirst2 Key Stakeholders

Leanne Topcuoglu, BAHT Chair

Leanne Topcuoglu is an advanced practitioner in hand therapy working at Lancashire Teaching Hospitals NHS Foundation Trust with a team of occupational therapists, physiotherapists, and orthopaedic and plastic hand surgeons. She graduated from Canterbury Christ Church University College with a degree in occupational therapy in 2001 and has spent most of her working career in the field of hand therapy.

Leanne has been a member of the BAHT executive committee for over ten years, serving as director of the *Hand Therapy* journal and currently as BAHT chair. She is keen that the lessons learnt from the HandsFirst collaborative are shared across the hand therapy community to help support service improvements across the UK.

RCS England Business Intelligence Unit:



Tilly Russell (Business Intelligence Analyst) and Tim Hampton (Business Intelligence Unit Manager)

The Business Intelligence Unit (BIU) at RCS England plays a crucial role in supporting the College's digital strategy. It is responsible for developing our in-house capacity to source and utilise a wide range of up-to-date data and information. By analysing data, generating reports and developing dashboards, the BIU facilitates cross-functional collaboration and helps uncover valuable insights to drive strategic initiatives and enhance digital capabilities. The BIU's aim is to ensure that all RCS England departments have access to the data they need to make informed decisions.

The BIU developed the HandsFirst2 dashboard, which detailed the collected data, enabling a comprehensive analysis of the participating sites' data and each of the five injury categories. This facilitated the creation of a monthly report for each site, incorporating graphs to illustrate data trends and visuals to indicate whether the hand surgery or hand therapy targets were achieved for each injury category. As a result, sites were able to make data-driven decisions.

Appendix 7: Theory of change from Chole-QuIC

The theory of change outlined below was used in both the HandsFirst1 and HandsFirst2 QI collaboratives.

Evidence*/theory of change	Questions for yourselves:
1) Support from senior management and colleagues	
a) Agreement that the **problem needs to be fixed**	a) Has there been vocal support from broader surgical team at site visit or other meetings?
b) **Provision of active support** (e.g. releasing resource or supporting new capacity)	b) Have leadership/colleagues been responsive to communication and 'unblocked' issues needed?
2) Resourced team – Surgical lead(s) have resources for:	
a) **Improvement team** to help understand local issues, plan and test out solutions	a) Is there a diverse team that meets regularly and contributes?
b) **Data collection lead/team** resulting in:	b) Is there a regular person who owns the data and ensures data are updated regularly? (not site lead)
c) **Consistent data collection**	c) Are data complete and reliable on local data platform?
3) Understand your system – Data collection and existing knowledge to understand:	
a) True **patient pathway**	a) Has a pathway been developed, reviewed and agreed?
b) True **demand and capacity** (numbers week on week)	b) Does the team know week-to-week demand and capacity?
c) **Factors that affect flow** through the system	c) Has the lead identified key factors for improvement?
4) Plan and test solutions to fix identified problems, for example:	
a) Solutions to improve or **increase capacity**	a) Have changes been tested to ensure demand and capacity match?
b) Solutions to **manage patient flow** and additional capacity	b) Have changes been tested for managing patient flow?
c) Improve **engagement and support** for changes	c) Has engagement and support improved over time?
5) Review and learn from results; normalise change	
a) **Review and collaborate**	a) Have the teams reviewed and learnt from tests?
b) **Retest and embed**	b) Have new changes been introduced and embedded?

*Based on evidence from multiple improvement evaluations, but specifically: Stephens TJ, Bamber JR, Beckingham IJ *et al*. Understanding the influences on successful quality improvement in emergency general surgery: learning from the RCS Chole-QuIC project. *Implement Sci* 2019; **14**: 84

Appendix 8:Data collected in the HandsFirst2 REDCap database

Field group	Field	Field type	Choices
Record ID	Record ID	Text	
Overview data	Hospital number	Text	
	Hand trauma service	Dropdown	1. Orthopaedics; 2. Plastics; 3. Joint service
	Age (standards may differ for children and adults)	Dropdown	1. <10 years; 2. 10–15 years; 3. 16–59 years; 4. ≥60 years
	Category of injury	Dropdown	1. Open fracture (including radius) or joint; 2. Open soft tissue wound; 3. Closed fracture other than the radius; 4. Closed distal radius fracture; 5. Closed soft tissue injury
	Subcategory of structures repaired (open fracture [including radius] or joint); tick as many as relevant	Checkbox	1. Extensor tendon zones 1–2; 2. Extensor tendon zones 3–6; 3. Flexor tendon; 4. Peripheral nerve; 5. Digital nerve; 6. Soft tissue loss (incl fingertip terminalisation); 7. Finger ligaments; 8. Thumb ligaments; 9. No structural repair
	Subcategory of structures repaired (open soft tissue wound)	Checkbox	1. Extensor tendon zones 1–2; 2. Extensor tendon zones 3–6; 3. Flexor tendon; 4. Peripheral nerve; 5. Digital nerve; 6. Soft tissue loss (incl fingertip terminalisation); 7. Finger ligaments; 8. Thumb ligaments; 9. No structural repair
	Will the closed hand fracture be managed surgically or non-surgically?	Radio	1. Surgically; 2. Non-surgically
	Type of distal radius fracture	Radio	1. Intra-articular; 2. Extra-articular
	Will the distal radius fracture be managed surgically or non-surgically?	Radio	1. Surgically; 2. Non-surgically
	Subcategory of structures repaired (closed soft tissue injury); tick as many as relevant	Checkbox	1. Extensor tendon central slip; 2. Flexor tendon; 3. Finger ligaments; 4. Thumb ligaments; 5. Soft tissue mallet injury
	Will the closed soft tissue injury be managed surgically or non-surgically?	Radio	1. Surgically; 2. Non-surgically
	Mechanism of injury	Dropdown	1. Accidental; 2. Violence or assault; 3. Intentional self-harm; 4. Animal bite
	Type of accidental injury	Dropdown	1. Occupational; 2. Transport related; 3. Sport related; 4. DIY; 5. Leisure and other
	Other accidental injury	Text	
	Is hand therapy required?	Radio	1. Yes; 2. No
	Has a splint been used that uses static or dynamic traction to stabilise a closed fracture as an alternative to surgical fixation?	Radio	1. Yes; 2. No

Field group	Field	Field type	Choices
Date and time data	Date and time of injury	Text	
	Date and time of 1st presentation to any form of medical attention (e.g. emergency department)	Text	
	Date and time of decision to treat operatively	Text	
	Date and time of start of operation	Text	
Supplementary surgery data	Operation name	Text	
	Trust or health board (for site-specific location of procedure)	Dropdown	1. Birmingham W&C; 2. Cambridge; 3. East Lancashire; 4. Lancashire Teaching; 5. Manchester; 6. Mid and South Essex; 7. Oxford; 8. Sheffield; 9. Southampton; 10. UH Birmingham; 11. Dorset; 12. North Midlands
	Location of procedure (Cambridge)	Dropdown	1. Main theatre; 2. Professional support unit; 3. Ely main theatre; 4. Ely treatment room; 5. Papworth; 6. Emergency department; 7. Other
	Flexor tendon zone of injury (Cambridge)	Checkbox	1. Zone 1; 2. Zone 2; 3. Zone 3; 4. Zone 4; 5. Zone 5
	Flexor tendon type of repair (Cambridge)	Checkbox	1. Core suture; 2. 2 strand; 3. 4 strand; 4. Epitendinous repair; 5. None; 6. Minimal sutures; 7. Simple over and over; 8. Silfverskiold; 9. Other
	Location of procedure (Lancashire Teaching)	Dropdown	1. CDH theatre 1; 2. CDH theatre 2; 3. CDH theatre 3; 4. CDH theatre 4; 5. CDH theatre 7; 6. CDH theatre 8; 7. CDH theatre 9; 8. CDH theatre 12; 9. CDH other; 10. RPH theatre 8; 11. RPH theatre 10; 12. RPH CBT; 13. RPH PST; 14. RPH 3; 15. RPH 6; 16. RPH 9; 17. RPH other; 18. Other
	Location of procedure (Manchester)	Dropdown	1. Withington Hospital main theatre; 2. Withington Hospital minors theatre; 3. Wythenshawe Hospital acute block theatre; 4. Wythenshawe Hospital TDC; 5. Wythenshawe Hospital other; 6. Manchester Children's Hospital; 7. Manchester Royal infirmary; 8. Trafford Hospital; 9. Starlight (Vanguard theatres); 10. Other
	Location of procedure (Oxford)	Dropdown	1. West Wing main theatre; 2. JR main theatre; 3. NOC minor operations procedure room; 4. HAPI minor operations procedure room; 5. Other
	Location of procedure (Southampton)	Dropdown	1. UHS; 2. Lymington Hospital; 3. Other
	Location of procedure (UH Birmingham)	Dropdown	1. Procedure room; 2. Ambulatory care QEHB 5; 3. Ambulatory care QEHB 6; 4. Ambulatory care QEHB 7; 5. Main theatres QEHB 17; 6. Main theatres QEHB 18; 7. Main theatres QEHB 1; 8. Main theatres QEHB 2; 9. ED/SAU; 10. Wellcome theatres 24; 11. Wellcome theatres 25; 12. Wellcome theatres 26; 13. Wellcome theatres 27; 14. BHH; 15. ROH; 16. Other

Field group	Field	Field type	Choices
Supplementary surgery data	Location of procedure (Dorset)	Dropdown	1. Poole Hospital main theatre; 2. Trauma and Orthopaedic Ambulatory Care Unit – Poole; 3. Higgins Hub – Poole; 4. Royal Bournemouth Hospital; 5. Victoria Hospital, Wimborne; 6. Other
	Location of procedure (North Midlands)	Dropdown	1. North Midlands hand centre; 2. Royal Stoke University Hospital; 3. County Hospital main theatres; 4. Other
	Location of procedure	Dropdown	1. Theatre with laminar flow; 2. Theatre without laminar flow; 3. Minor operations procedure room (a room designated for sterile procedures) with enhanced air changes; 4. Minor operations procedure room (a room designated for sterile procedures) with no additional air changes as compared with the ward or outpatient area; 6. Clinical room with natural ventilation (e.g. window that can open); 7. Clinical room with no natural ventilation
	Anaesthesia	Dropdown	1. General anaesthesia; 2. Regional anaesthesia; 3. WALANT; 4. Local anaesthesia without adrenaline
	Grade of primary surgeon performing the procedure (see next question for supervision)	Dropdown	1. Consultant hand surgeon; 2. Consultant other; 3. SAS doctor; 4. Hand fellow; 5. Trust fellow (registrar level); 6. Specialist registrar ST3–ST5; 7. Specialist registrar ST6–ST8; 8. Trust fellow (SHO level); 9. Core trainee; 10. Foundation doctor; 11. Physician associate; 12. Surgical care practitioner; 13. Nurse practitioner; 14. Other member of surgical care team
	If surgeon was supervised, level of supervising surgeon	Dropdown	1. Consultant hand surgeon; 2. Consultant other; 3. SAS doctor; 4. Hand fellow; 5. Trust fellow (registrar level); 6. Specialist registrar ST3–ST5; 7. Specialist registrar ST6–ST8; 8. Trust fellow (SHO level); 9. Core trainee; 10. Foundation doctor; 11. Physician associate; 12. Surgical care practitioner; 13. Nurse practitioner; 14. Other member of surgical care team
	Level of sterile draping	Dropdown	1. Field sterility of at least 40cm around the wound but not full draping of patient; 2. Full standard draping; 3. Other
	Other level of draping	Text	
	Did any of the following cause a delay in the patient having their surgical procedure? (select all that apply)	Checkbox	1. No delay; 2. Available theatre time; 3. Anaesthetic cover; 4. Patient availability to attend clinical review; 5. Patient availability to attend surgery; 6. Unable to contact patient; 7. Patient availability other; 8. Awaiting preoperative investigations; 9. Change in management plan; 10. Patient had other more pressing clinical need(s); 11. Bed capacity; 12. Need for appropriately trained surgeon; 13. Missed diagnosis of open joint; 14. Other
	Other cause of delay to surgical procedure	Notes	
	Any further postoperative information (defined by requirements of the local team)?	Notes	

Field group	Field	Field type	Choices
Hand therapy data	Date and time referral MADE	Text	
	Date and time referral RECEIVED	Text	
	Date and time of 1st hand therapy appointment	Text	
	Method of referral	Dropdown	1. Electronic referral; 2. Email referral; 3. Paper-based referral
	Did the 1st hand therapy appointment take place face to face or virtually?	Radio	1. Face to face; 2. Virtually
	Did the 1st hand therapy appointment take place in another trust/service?	Radio	1. Yes; 2. No
	If the 1st hand therapy appointment took place in another trust/service, include name of this trust/service	Text	
	Hand outcome measure	Dropdown	1. Not used; 2. Range of movement; 3. Strength; 4. Patient-reported outcome measure; 5. Other
	Hand outcome measure – additional information	Notes	
	Training level of the therapist carrying out the 1st hand therapy appointment	Dropdown	1. Band 3; 2. Band 4; 3. Band 5; 4. Band 6; 5. Band 7; 6. Band 8+; 7. Musculoskeletal team; 8. Other
	Did any of the following cause a delay in the patient having their 1st hand therapy appointment? (select all that apply)	Checkbox	1. No delay; 2. Delay in receiving referral; 3. Patient availability; 4. Unable to contact patient; 5. Therapist availability; 6. Availability of therapy room; 7. Other
	Other cause of delay to 1st hand therapy appointment	Notes	
	Impact of the delay if known	Notes	
	Has the patient returned to work?	Radio	1. Yes; 2. No; 3. N/A
	Was the frequency and timeliness of follow-up hand therapy appointments adequate or inadequate?	Dropdown	1. Adequate; 2. Inadequate; 3. Not known
	Any further hand therapy information (defined by requirements of the local team)?	Notes	
Any other information or comments?	Any other information or comments?	Notes	

Appendix 9: Equipment sets at UHD

In setting up the Hand Hub at University Hospitals Dorset NHS Foundation Trust, the team rationalised equipment sets. Published on the BOA website in 2023, Preetham Kodumuri's article *Greening Orthopaedics: A Surgeon's Call for Sustainability* highlights a strong case for change.[44] It notes that:

- the surgical carbon footprint accounts for up to 70% of the total carbon footprint in an acute hospital, most of which resides in the operating theatre
- operating theatres take up a tiny proportion of an acute hospital's estate and yet they are responsible for 20–30% of institutional waste
- eliminating waste through activities such as streamlining surgical instrument trays, reducing draping or eliminating gowns can significantly reduce the carbon footprint

Greening theatres represents an economic win as it is more cost efficient. It also represents a productivity win when procedures are done under local anaesthesia or WALANT rather than under general anaesthesia as well as a win for sustainability given that there are energy savings associated with the reduced carbon footprint. All of these add up to patient wins.

Instrument set for the Hand Hub at University Hospitals Dorset NHS Foundation Trust

Appendix 10:
Patient information leaflet at MSE

Patient Information

NHS
Mid and
South Essex
NHS Foundation Trust

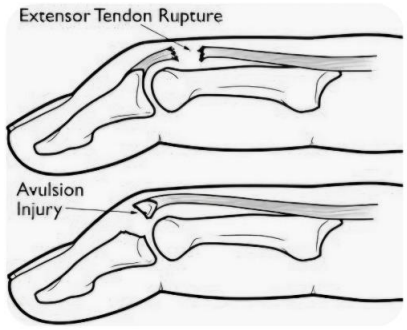
Mid and South Essex NHS Foundation Trust

St Andrews Centre for Plastic Surgery, Burns and Hand Therapy Department

Hand Therapy Advice

Mallet Injury

What is a Mallet Injury?
This is due to rupture, laceration or avulsion fracture of the extensor tendon that straightens the tip of your finger.
This injury is usually caused by impact to the finger, such as a fall or sporting injury, but sometimes it can be something as simple as pulling up your socks or making the bed.
Swelling and bruising at the injury site is normal.



How does this heal?

The joint must be held straight with a splint, for 6-8 weeks constantly 24 hours a day, depending on the underlying injury. It is important that all uninjured joints move fully to prevent stiffness. If you have a wound you will also be reviewed by the nurse led dressing clinic.
You will receive an appointment for splint fabrication in the Hand Therapy Department, to replace the temporary plastic stack/metal zimmer splint.
You may need a second splint to prevent hyperextension of the middle joint if required and will be advised of its use accordingly.

You should:

- Use your hand for light activities only.
- Maintain full movement of your uninjured fingers.
- Keep the splint on for 6/8 weeks as advised by your Hand Therapist, constantly 24 hours a day.
- You may be shown how to remove your splint for safe hygiene at a sink, if appropriate to do so.
- Move your finger to fully bend and straighten your bottom and middle joints, 10x an hour.
- Elevate your hand to reduce swelling, move shoulder and elbow regularly.

Exercises

- **Straighten your fingers fully**
- **Support your finger to bend the middle joint**
- **Make a flat fist (bend bottom and middle Joints)**
- **Make a full fist with your uninjured fingers**
- **Move your, shoulder, elbow, wrist and thumb fully.**
- **X10m hourly**

You should not:

- Remove your splint unless specifically advised how to do so safely.
- Take part in physical activity/contact sport for at least 10 weeks.
- Use the hand for any resisted activity.
- Remove your splint for showering due to the risk of accidently over straightening or knocking the finger.

Further Instruction:

- **If you have not regained full flexion (bend) within 3 weeks of your injury**
- **Or if you have not regained full extension (straightening) when the strapping is removed at 6 weeks.**
- **Or if you have any concerns regarding your recovery.**
- **Please call the Hand Therapy Department to make an appropriate appointment.**

Driving:

You may not be insured to drive following your hand injury.
It is advisable to check with your insurance provider.
It may be safe to drive when:

- You are no longer wearing a splint.
- You can comfortably operate all the hand operated controls, such as steering wheel, handbrake and gear stick.
- You can perform an emergency stop.

Contacts

If you would like further information about this leaflet please contact:

Hand Therapy
The Hand Therapists are based in the St Andrews outpatient department E121 and will be able to answer any questions that you have about your hand injury. The direct number is 01245 516009 and the email is **mse.hand.therapy.meht@nhs.net**

Please contact PALS (Patient Advice and Liaison Service) if you require this information in other languages, large print, easy read accessible information, audio/visual, signing, pictorial and change picture bank format.

Broomfield Hospital
Court Road, Broomfield, Chelmsford, Essex, CM1 7ET
Telephone: 01245 514130
Email: mse.public.response@nhs.net
https://www.mse.nhs.uk/
Phone line hours: Monday to Friday 10.30am to 3.30pm

Appendix 11: Patient pathways at OUH

At the April 2024 collaborative meeting, Sara Atkins presented a masterclass in leading change, engaging others and developing patient pathways. Her presentation was recognised as an excellent piece of work and one example is shown below. One of the most valuable aspects of being part of a collaborative is that sites share resources via the collaborative platform.

Central Slip

OARS

Category	Advice	Decision
① **Closed**	□ Buddy tapes	□ HAPI clinic on a therapist day
② **Open (suspect with any skin breach over the PIPJ)**	□ Oral abx □ Mepitel and adhesive dressing □ Buddy tapes	□ HAPI same or next day

HAPI

Category	Surgeon	Therapist	Book
① **Closed**	□ Confirm slip rupture □ EPR Refer 'Consult hand therapy HAPI' Pool	□ Thermoplastic splint (immobilise PIPJ, leave MCP and DIP free)	
② **Open**	□ Confirm open injury *and* possible slip rupture		□ LA DC Surgery NOC MOPS with post operative and splint (Zimmer)

Discharge and follow-up

Category	Plan
① **Closed**	□ Discharge to Therapy
② **Open**	□ EPR referral of operation note to Hand Therapy via 'Hand Therapy JR Team' Pool for therapy appt TBA □ Discharge to Hand Therapy

Appendix 12: HandsFirst2 awards

The following awards were presented at the HandsFirst2 QI collaborative celebration event at RCS England on 13 December 2024.

Trailblazing Teamwork

- Lancashire Teaching Hospitals NHS Foundation Trust

Outstanding Manager

- Rachel Wiltshire, Mid and South Essex NHS Foundation Trust

Outstanding Leadership in QI

- Rebecca Hargreaves, Lancashire Teaching Hospitals NHS Foundation Trust
- Stuart Clough, Lancashire Teaching Hospitals NHS Foundation Trust
- Jordan Oldbury, Manchester University NHS Foundation Trust
- Sara Atkins, Oxford University Hospitals NHS Foundation Trust

Data Champion Award

- Carolyn Flanagan, Manchester University NHS Foundation Trust
- Caroline Webb, Manchester University NHS Foundation Trust
- Eleni Fragkouli, Oxford University Hospitals NHS Foundation Trust
- Nikhil Arora, University Hospitals of North Midlands NHS Trust
- Linda Cornish, University Hospitals Dorset NHS Foundation Trust

Best PDSA*

- Birmingham Women's and Children's NHS Foundation Trust
- Oxford University Hospitals NHS Foundation Trust

**The Best PDSA award winner was selected via a whole-collaborative vote following site presentations at the celebration event. BWC and OUH were joint winners.*

Bridging Cultural Boundaries

- Paul Malone, University Hospitals Birmingham NHS Foundation Trust

Unstoppable Hero

- Miriam Parkinson, East Lancashire Hospitals NHS Trust
- Eleni Balabanidou, University Hospital Southampton NHS Foundation Trust

Leading Change in Hand Therapy

- Leanne Topcuoglu, Lancashire Teaching Hospitals NHS Trust/BAHT Chair

Appendix 13: List of co-authors

From the HandsFirst2 project team and BAHT

Ruth Colville: writing – lead author of the original draft; writing – reviewing and editing

Sheena MacSween: writing – co-author of the original draft; writing – reviewing and editing; programme management and administration

Leanne Topcuoglu: writing – co-author of the original draft; writing – reviewing and editing

Mrs Sarah Tucker: writing – review and editing

Professor Vivien Lees: writing – review and editing

Maureen McGeorge: writing – review and editing

Mark Fuller: writing – review and editing

Ralph Tomlinson: writing – review and editing

Special thanks to:

Joanna Higgins, University Hospitals Dorset NHS Foundation Trust: contribution to case studies

Greg Neal-Smith, University Hospitals Dorset NHS Foundation Trust: contribution to case studies

Emma Rogers, University Hospitals Dorset NHS Foundation Trust: contribution to case studies

Eleni Balabanidou, University Hospital Southampton NHS Foundation Trust: contribution to case studies

Sara Atkins, Oxford University Hospitals NHS Foundation Trust: contribution to case studies

Isabella Colville, student at the University of York: contribution to modelling impact of a traumatic hand injury across a working life

Appendix 14: List of contributors

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