



SUSQI PROJECT REPORT

Trial Without Catheter - a structured approach

Start date of Project: May 2025

Date of Report: September 2025

Team Members:

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- Imogen Cotton - Graduate Management Trainee
- Erika Tapanan - Catheter Lead
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Background:

The problem we aimed to address was the absence of a commonly known, evidence-based and structured approach to “trial without catheter” (TWOC) in community settings.

Indwelling urinary catheters are among the most used invasive medical devices in the UK. It is estimated that at least 90,000 people in community settings across England require long-term catheter use (1). Evidence suggests that the longer a catheter remains in place, the higher the risk of infection, with figures indicating a 20% increased likelihood (2). This raises significant concerns, as approximately 2,100 deaths per year are directly attributed to catheter-related infections (3). Additionally, the financial burden on the NHS is considerable, with Catheter-associated Urinary Tract Infections (CaUTIs) costing approximately £2,000 per episode and the total annual cost of Foley catheter use estimated between £1 billion and £2.5 billion (4).

Despite these significant clinical and financial implications, there is currently no commonly known, standardised TWOC protocol. This is most likely because of the lack of clear evidence on how to manage the process. This may be a factor in prolonged and repeated catheter use, unnecessary district nurse visits, ambulance callouts, and avoidable hospital stays. These inefficiencies not only compromise patient care, comfort and quality of life, but also generate considerable plastic waste from catheters, gloves, aprons, and maintenance solutions.

It is known that removing catheters as soon as possible has many advantages, as suggested from the information above. However, it is equally important to ensure the removal is planned and effective, to ensure that there are no adverse events, unnecessary emergency call outs or attendances to the emergency department. It is desirable to avoid the cycle of failed TWOC, repeated catheter insertion and further trips around the same cycle.

The community service at Lewisham and Greenwich NHS Trust supports a wide range of patients, but the majority will often be older adults with complex medical conditions, frailty and co-morbidities such

as dementia. Younger adults with complex conditions are also on the caseload and many of the patients are housebound or have limited ability to attend a clinic environment.

The project was centered on community services and in particular the Bladder, Bowel and Pelvic Health team, District Nursing teams and Urgent Care Service. It supported further development of excellent working relationships with urology services, inpatient wards and the emergency department. Our team was uniquely well-positioned to lead this initiative. We have specialist expertise in catheter care, with a Band 7 nurse from the Bladder, Bowel, and Pelvic Health team already leading the early development of a structured TWOC process. We are one of the first services, as far as we are aware, to try to develop a structured TWOC process, setting a potential national precedent for best practice in catheter removal. Once the structured TWOC protocol has been fully developed, the catheter specialist nurse will deliver the necessary training and monitor progress to ensure successful implementation across the community and the Trust as a whole.

We have established strong working relationships with our District Nursing and other specialist teams due to the integrated nature of our team. Our relationship with the care home staff and patients across Lewisham Borough is also very strong due to a previous quality improvement project to transform continence care in care homes. Our experience in quality improvement projects, including audits of TWOC success rates and catheter maintenance practices, further strengthened our ability to drive this initiative. Additionally, we had managerial support and a strong commitment to sustainable healthcare improvements at Trust level.

Specific Aims:

Primary aim: To optimise the success rate of TWOC, ensuring that catheters are removed as soon as clinically appropriate, reducing over-use and the length of time catheters are left in situ.

To achieve this, the team aimed to:

- Create a structured approach to the Trial Without Catheter process, implementing a classification system (Green, Amber, and Red) for TWOC suitability and corresponding TWOC strategies
- Improve staff confidence and practice through targeted training and support in catheter care.

Secondary aims / expected outcomes:

- Reduce catheter-related District Nurse call-out, ED attendances, ambulance call-outs, and hospital admissions.
- Reduce environmental and financial expenditure on catheters and catheter-related products, including plastic gloves and aprons.
- Improve integration, communication and patient pathways between clinical teams, including community services, the emergency department, inpatient wards, and Urology.

Methods:

Baseline

Prior to undertaking the project, the team had a TWOC service that ward staff, outpatient clinics and community nurses could refer into. These referrals were managed by a member of the nursing team,



in an 'ad hoc' fashion. There were no TWOC protocols in place for staff to follow. This led to variation in clinical reasoning and practice. From referral form alone, it was often unclear why the catheter had been inserted in the first place, and any rationale for its removal. The team anecdotally observed some inappropriate referrals coming through, which may indicate a lack of confidence in TWOC amongst teams.

Recognising this process could be optimised, a band 6 nurse was appointed to lead and take responsibility for reviewing all the TWOC referrals. This process involved either seeing the patients, at all stages in person, or referring them to other team members if there was a problem with capacity and workload.

When the Band 6 post became vacant in September 2024, it was successfully up-graded to a band 7 role in recognition of the more specialised nature of the work. The appointment of the Band 7 nurse from the Bladder, Bowel, and Pelvic Health (BBPH) team already led to early improvements in the service due to their specialist expertise.

Implementing changes

With a band 7 leading the service, formalised TWOC reviews were established. Any patient undergoing a community TWOC is now referred to the service by community district nurses, GPs or hospital staff (on discharge). Each patient is reviewed for approximately 30 minutes - via a review of notes and speaking to staff involved in care to understand the rationale for the catheter, the plans for removal plans (if any), any changes since insertion and if removal was appropriate. Patients and relatives/carers are contacted if further information is still required.

Time for these reviews was embedded into the band 7 role with the triage of referrals completed as quickly as possible, and aimed to be done within six calendar days of receipt of referral. The catheter lead clinician assessed all patients (an experienced nurse took over during periods of leave).

Patients, relatives and/or carers were contacted to plan and book the TWOC process, and given an appointment. Patients are then seen at home by a district nurse (DN) if housebound, or in clinic by the band 7 lead. The relevant District Nursing teams would be contacted through the Single Point of access centre used across the community site. The catheter is removed if appropriate. A follow-up and monitoring plan was to be established, and any inappropriate referrals dealt with by contacting the referrer and arranging a suitable alternative plan.

A simple classification system was designed to filter patients into groups. Those who were ready for TWOC would be dealt with as soon as possible. Those who were assessed and found to be unsuitable for TWOC (for example, had not had the issue that led to a catheter insertion investigated or resolved), were referred to the appropriate clinic or person for further intervention. Patients who were considered to be possible TWOC candidates had the relevant work-up to maximise success. This may include medication, use of a catheter valve or the optimizing of bladder and bowel function.

The classification system was designed by the team after researching possible options, and was used by only two clinicians as part of this project. Once the system had been tested, the District Nurses were included, during the catheter-removal stage. The staff within the BBPH team carried out the

follow up (although the team hopes that if patients are unable to attend the clinic in person, follow-up care will, in the future, be led by the District Nurses in the team).

Going forwards, we plan to clearly document this as part of our TWOC standard operating procedure and then test it out amongst other clinicians within the trust. The hope is that this will allow the patients who are clearly appropriate for an immediate TWOC to have the process started as quickly as possible, and avoid delay by being referred to the BBPH team.

The District Nurses were key to the success of the project as they often visited the housebound patients to remove the catheter. The team developed a system of 'bladder and bowel champions' in each of the four District Nursing neighbourhoods to help strengthen team relationships and training needs.

There was no change that was unsuccessful, but we are aware that this is a project at an early stage, and we anticipate further changes in the future. No additional resources were required for this project.

Measurement:

Patient outcomes:

The project hoped to support a patient-centred approach to care, ensuring an appropriate balance between the timely removal of catheters and the need to ensure clinical effectiveness, minimising risk, and maximising the safety and success of the procedure.

Measures to evaluate clinical outcomes included:

- Number of TWOC referrals per month.
- Number of patients assessed for TWOC within 6 days.
- Number of patients deemed not suitable for TWOC.
- Number of patients who passed TWOC.
- Number of patients who failed TWOC.
- Monthly number of ambulance call-outs for catheter-related issues.
- Monthly number of ED attendances for catheter-related issues.
- Monthly number of catheter-related hospital bed days.
- Monthly number of catheter-related hospital admissions.
- Monthly number of catheter-related District Nurse call-outs.
- Catheter-associated Urinary Tract Infections

Patient safety was monitored by reviewing the number of adverse events related to TWOC (e.g. complications, re-catheterisation) and the number of referrals redirected to other services (e.g. Urology) due to clinical complexity or need for further investigation.

Population health

The project has potential to bring benefits to wider populations of patients (those not currently seen within the service). Some of the patient outcome measures, monthly activity data including ambulance call-outs, ED attendances, hospital bed days, hospital admissions, and District Nurse call-outs, will demonstrate if services are available sooner to others.

The project can support vulnerable patients, under the team's care, to be managed at home. Often patients who are housebound have more difficulty in accessing specialist services, therefore ensuring these patients are reviewed by an experienced specialist clinician, can help reduce health inequalities. The team acknowledged that measuring this data, however, is not a simple task, but hopes to explore this in the future.

Environmental sustainability:

To measure the environmental impact of this project, we collected usage / activity data in the Table below. For each activity, we recorded the monthly average between October–December 2024 as the “before” baseline, and the monthly average between May–July 2025 as the “after” measure.

To convert the activity data into greenhouse gas emissions, emissions factors were taken from the Sustainable Healthcare Coalition's (SHC's) Sustainable Care Pathway Guidance Modules for Patient Travel, Inpatient Days and Emergency Department Visits (5) and Rizan C et al's paper on the environmental impact of PPE (6). The carbon footprint calculations of catheter and catheter related items were based on costs using the emissions factor (7) for other manufactured goods from the UK government's database on conversion factors by SIC Codes (8). The calculations of the GHG emissions associated with travel of the district nurses was based on an average journey of 1.21 miles and the emissions factor from the UK government's database on carbon conversion factors for company reporting for an averaged sized car with unknown fuel.

Table: Emissions factors and their references

Activity data	Unit	Emissions factors (kgCO ₂ e/unit)	Source
Ambulance call outs	call out	36.1	SHC 2015
ED attendance	attendance	13.8	SHC 2015
Hospital stays	bed day	37.9	SHC 2015
District Nurse call outs - avg car, unknown fuel	mile	0.34	DESN 2025
District twilight call outs - avg car, unknown fuel	mile	0.34	DESN 2025
UCR call outs - avg car, unknown fuel	mile	0.34	DESN 2025
PPE			
Non-sterile gloves	pair	0.052	Rizan et al.
Apron	item	0.065	Rizan et al.
Catheter - medical equipment	£	0.704	DESN 2025, SIC Codes

Economic sustainability:

There were no investment costs required for this project. Financial data was obtained from the following locations/teams:

- Non-sterile gloves: Procurement team at Guy's and St. Thomas (who oversee LGT's procurement expenditure)
- Aprons: Procurement team at Guy's and St. Thomas (who oversee LGT's procurement expenditure)
- Catheters: Procurement team at Guy's and St. Thomas (who oversee LGT's procurement expenditure)
- Ambulance call out: finance team at Lewisham and Greenwich NHS Trust
- ED attendance: finance team at Lewisham and Greenwich NHS Trust
- Hospital stay: finance team at Lewisham and Greenwich NHS Trust
- Hospital admission: finance team at Lewisham and Greenwich NHS Trust

Social sustainability:

The social sustainability of the project was explored by looking at its impact on both patients and staff, with particular attention to comfort, experience, and day-to-day working conditions. We reviewed patient complaints and experience prior to the project to show the negative impacts to patients now being avoided. Impacts on staff were explored anecdotally through meetings and conversations.

Results:

For each activity, we collected monthly figures for the 3 months before the project started (Oct, Nov, Dec 2024) and 3 months at the end of the project (May, June, July 2025) to calculate the before and after monthly averages.

Activity Data for Patients with Catheter				
Activity	Unit (per month)	Number before	Number after	Change
Ambulance call outs	Call out	47	35	12
ED attendances	ED attendance	102	99	3
Hospital stays	Bed day	246	168	78
Hospital admissions	IP admit	32	28	4
District Nurse call outs	Call out	87	84	3

Our data revealed that all selected activities were reduced throughout the course of our project, suggesting improved patient outcomes partly because of the project. While some activity data showed a significant improvement, in particular, a significant reduction in the number of ambulance call outs

and length of hospital stay, the other activities only revealed minor reductions. While these smaller changes are less striking, the overall downward trend across all activities is encouraging.

Clear improvements:

- Catheter-related ambulance call outs reduced by 25% (47 → 35 per month), suggesting more timely community interventions.
- Catheter-related hospital stays (bed days) reduced substantially (246 → 168 per month), showing fewer prolonged admissions. This represents a 32% reduction in catheter-related bed days.
- Catheter-related hospital admissions fell modestly (32 → 28 per month). While the reduction is smaller than hospital stays (12.5%), this still indicates fewer acute deterioration events.
- No catheter associated Urinary Tract infections were reported.

An interesting and insightful impact of the project has been to see how difficult it is to access the data we need to monitor changes. The improvements reported are assumed, in part, to be connected to changes driven by the project but there are of course other variables that may have an influence.

Marginal improvements:

- ED attendances decreased only slightly (102 → 99 per month). This suggests the intervention has not yet had a strong impact on preventing first-line emergency presentations, though it shows promise.
- District Nurse call-outs reduced only minimally (87 → 84 per month), meaning workload changes in community teams are small at this stage.

The data shows that standards of care have been maintained throughout, with a positive impact on patient outcomes demonstrated across all activity measures. The reductions in bed days and ambulance call outs could be indicators of better practice and safer care, with patients avoiding unnecessary inpatient exposure.

These early results are promising, but we recognise that more time and longer follow-up will be needed to fully demonstrate the impact of the project on patient outcomes.

From a clinical perspective, there is currently limited national guidance on the best approach to trial without catheter (TWOC). Our findings suggest that careful assessment and planning provide the best opportunity for a successful outcome.

Several referrals during the project period were redirected to the appropriate service (often urology) when it was felt further tests or interventions were required. In future, closer collaboration with urology and a systematic follow-up of this cohort should help to provide feedback on the most suitable patients for referring elsewhere.

Importantly, none of the patients audited in this project were involved in any adverse event, suggesting that the reduction in hospital and emergency activity was achieved without compromising patient safety.

TWOC outcome data, January to August 2025:

	TWOC referrals	Not suitable for TWOC	Passed TWOC	Failed TWOC	Assessed within 6 days
March	7	0	4	3	7
April	9	0	7	2	7
May	5	0	4	1	4
June	4	0	3	1	3
July	8	1	7	0	5
August	7	0	4	3	7

The numbers above reflect the efficiency of assessing patients (the team hope to reduce this further). It is positive that through work done previously very few inappropriate referrals were received.

The number of failed TWOC was low even at the start of the project. Accurate data on the average success rate of TWOCs in community settings could not be found in order to compare our rates to a national figure, but anecdotal evidence of the previous service, showed it was common to have a number of attempts and failed TWOCs. Continued audit and development of the project, it is hoped, will keep these numbers low and stable.

The project has led to measurable improvements in the standard of care for catheter patients. Though the scale of impact varies by activity type, an improvement was seen across all our measurements.

Population outcomes:

At a population level, the results are promising.

Significant reductions in hospital bed days (246 → 168 per month) frees up capacity for other patients, therefore supporting the wider system. Reduced ambulance reliance improves equity of access, as resources can be redirected to those in greatest need.

Vulnerable patients are more likely to be managed at home, which can reduce health inequalities.

Less clear impacts:

ED attendance rates showed little change, suggesting that prevention of emergency presentations is not yet strongly demonstrated. More proactive primary care engagement may be needed to influence and improve these figures.

Overall, while not every metric improved significantly, the consistent downward trends in catheter-related acute admissions and hospital stays suggest that the initiative has potential to reduce pressure on acute care at a population level if sustained and scaled.

Environmental sustainability:

The project data demonstrated a significant net environmental gain:

- Positive impacts:
 - Large reductions in CO₂e from hospital stays (-2,956 kgCO₂e/month) and ambulance call outs (-433 kgCO₂e/month).
 - Overall net saving: ~3,547 kgCO₂e/month.
 - Extrapolated to a year: 42,562 kgCO₂e/year
- Negative impact:
 - Increased PPE use, specifically non-sterile gloves, generated +33.80 kgCO₂e/month (405.60 kgCO₂e per year). While relatively small compared with savings, this highlights an area for further sustainability improvement.

Thus, while the environmental impact is strongly positive overall, future work could explore ways to mitigate rising PPE use.

In total, our projected annual saving is 42,156.40, equivalent to driving 124,026 miles in an average car.

Economic sustainability:

The data so far presents a compelling financial case for this project.

- Hospital activity reductions:
 - Hospital stays (bed days): The largest area of savings, with an average monthly reduction of 78 bed days, generating £30,342/month savings (£364,104 annually).
- Emergency care reductions:
 - Ambulance call outs: Down 12 per month, saving £5,508/month (£66,096 annually).
 - ED attendances: A modest reduction of 3 per month still generates £786/month (£9,432 annually).
- Procurement efficiencies:
 - Improved catheter use saved a further £211/month (£2,532 annually).

The only area where costs increased was non-sterile glove usage (+£38/month, £456 per year). However, this increase is negligible compared with the six-figure savings generated elsewhere and, as detailed previously, changes in PPE expenditure is not necessarily representative of the project as it reflects the PPE used across all clinical community teams.

Overall, the project has demonstrated sustained, high-value savings, with no economic investment costs required. On average, the initiative contributed to net savings of £36,809 per month, and when accounting for increased PPE, this equates to projected annual savings of £441,708 if sustained. This represents a major efficiency gain for the Trust and the wider health system. Pressures on the service, especially in winter, may have an impact on the time that can be set aside for work such as this but the plan is to continue to develop this aspect of the service and focus on gathering supporting data.

Social sustainability:

Patients:

Patients described the impact of catheter management most clearly through their lived experience. Direct complaints highlighted the distress caused when TWOCs failed, sometimes leading to

emergency hospital admissions. District nurses also shared anecdotal accounts of repeated emergency visits linked to catheter issues, which placed a heavy burden on both patients and their families.

Audit findings reinforced these stories, showing dissatisfaction where TWOC procedures were inconsistent, and patients reported feeling anxious or uncertain about what to expect. Alongside this, the project considered how greater opportunities for self-management could empower eligible patients, improving their sense of control and reducing unnecessary worry. The team intends to explore this at a later stage (once urology services are back in the trust planned for 2026) and hopes to continue the project by aligning with work done by NHS England on self-TWOC for suitable patients.

The significant reduction in bed days meant that patients spent less time in hospital and more time at home. Research shows that hospitalisation has a significant negative effect on patients' emotional wellbeing and increases feelings of depression and anxiety (9). The reduction in hospital admissions and number of bed days for catheter-related issues, supported by this project, can also be linked to improved emotional wellbeing for patients.

Staff:

Before the project began, staff frequently faced the challenges of managing repeated TWOC attempts and urgent visits for catheter-related complications. This created significant pressure on district nurses, whose workloads were often disrupted by unplanned call-outs, leaving less time for scheduled care. Care home staff, in particular, reported uncertainty about best practice in catheter management, which added to their stress and lack of confidence when supporting residents.

These issues were not formally captured through surveys but were consistently raised in informal conversations and anecdotal reports from frontline staff. This qualitative feedback provided valuable insight into the day-to-day realities of practice and highlighted the need for clearer guidance, improved training, greater integration between teams, and more sustainable working practices. As the project progressed, these same channels — ongoing dialogue, informal staff feedback, and case-based reporting, continued to be used to monitor changes in staff experience, confidence, and workload pressures.

Changes from the project were often felt in subtle but important ways. Informal conversations revealed that staff felt increased confidence as knowledge and training around catheter management improved, which helped create a stronger foundation for sustainable practice. Care home staff, who had previously reported uncertainty about how best to support residents with catheters, began to benefit from clearer guidance and improved communication. These small but significant changes contributed to a working environment that was less reactive and more focused on delivering high-quality, consistent care.

Improved integration, communication and patient pathways between clinical teams, including community services, the emergency department, inpatient wards, and Urology helped to ensure accurate referrals, faster and more effective communication and more simple patient pathways.

Discussion:

In summary, the project has supported the team to further develop a structured approach to a TWOC service, with excellent preliminary results and encouragement to continue with the next stages of the plans as outlined. The team plan to continue to collect and share data, and to extend the work across the wider Trust to ensure every patient is managed in the same way.

Collection of accurate data was a challenge, especially around carbon foot printing and costs for equipment and materials. While some of the activity data (e.g. hospital admissions, ED attendances) was already routinely captured by the Trust, the project highlighted significant difficulties in collecting reliable information on equipment, consumables, and material use. The main challenges included:

- Lack of standardisation in purchase orders: Procurement systems are not designed to separate out items used for specific patient groups (e.g., catheter care). This made it difficult to accurately quantify how many items were used within this pathway alone.
- Variability in recording practices: Different teams and departments logged expenditure and stock usage in different ways, meaning that central data is often incomplete or inconsistent.
- PPE tracking limitations: PPE such as gloves and aprons is used across a wide range of clinical settings, and current recording systems do not allow usage to be linked to a particular intervention or patient group. As a result, we were unable to isolate the PPE units and expenditure attributable specifically to catheter-related care.
- Time and resource constraints: Extracting and cleaning data across multiple systems was labour-intensive and required significant manual validation, which limited the granularity of what could be reported.
- Monthly variations in spending: certain materials and equipment, including aprons, are purchased in bulk at certain times throughout the year. We therefore found that for some months, community expenditure on aprons was 0 while other months had high levels. This means that calculating a monthly average for these materials over a 3-month period doesn't paint an accurate picture of Trust expenditure. A longer timeframe e.g. yearly averages would give a more accurate reflection.
- Some staff resistance however increased acceptance following admission to Green Nursing Challenge. Resistance was related to the concern that investing time into a project might take time away from other activities.

Despite these limitations, we were able to collate robust data on the major activity drivers (hospital stays, admissions, ambulance call outs, ED attendances), which account for the largest financial and environmental impacts. However, the difficulties experienced with consumables and PPE data underline the need for more integrated and standardised procurement and activity tracking systems across the Trust to enable better measurement of sustainability initiatives in the future.

Future considerations:

To improve future measurement and evaluation, we recommend:

- Standardising procurement codes so consumables can be tagged to specific pathways (e.g., catheter care), making it easier to monitor usage and link expenditure to patient outcomes.

- Aligning finance and clinical data systems to ensure activity, cost, and material use can be integrated into a single dataset without extensive manual cleaning.
- Introducing pathway-level reporting for frequently used consumables (e.g., PPE, catheters, dressings), enabling better tracking of both financial and environmental impacts.
- Exploring digital stock management tools at ward and community team level to capture real-time usage by clinical area.

These steps would not only support more accurate assessment of future projects but also strengthen the Trust's ability to monitor progress against NHS Net Zero targets and deliver more transparent reporting of both costs and carbon impacts.

There are no risks that we are aware of, and a structured approach should help to minimise them. A similar approach could be utilised on the wards when a decision to remove a catheter may be considered, and may reduce the risks of a failed TWOC and reinsertion.

The team has found the project a positive process and the TWOC service is now well structured, organised and efficient with good outcomes in a variety of aspects. They team will be looking to share this learning and support others who may wish to undertake a similar piece of work.

The team have found it has been very interesting to work through the process of carbon foot printing, and it became clear quite quickly that we were in a challenging position to accurately collate baseline data. There are many reasons for this, but we were supported in the process at every stage. It will be interesting to review the changes in a year, and to look at carbon foot printing in the future to assess sustainability projects and their impact.

It is hoped that as we continue this project we will see further improvements in emergency attendance, hospital stays, CaUTI rates, usage of catheter materials and speed of catheter removals. It is expected that developing more comprehensive guidelines will lead to faster assessment and TWOC, or referral elsewhere, with the net result being a significant reduction in catheter usage overall.

This will impact patient well-being, staff workload, adverse events and costs, as well as carbon footprint.

Conclusions:

This has been an extremely useful and interesting project, with Imogen a key part of the success of carbon foot printing and Erika instrumental in managing the clinical aspects of the TWOC service.

We are ready to progress to the next stage, which will include the District Nursing teams following up on the relevant patients as directed by the TWOC service lead. The Trust has purchased bladder scanners for all four District Nursing teams and we are in the process of ensuring that the teams are confident in their use.

We will aim to understand why TWOCs fail and to use that learning to improve the initial assessment process. There will always be some elements that we are unable to control and hope that this structured piece of work will add to the overall knowledge base on TWOC services.

We currently categorise the patient as “red” - not suitable for TWOC, or green – suitable for TWOC. This will be further developed to the “red, amber, green” categorisation over the next few months, with the more challenging cases (red) being seen by the specialist bladder, bowel and pelvic health team.

We are looking at ways to share our learnings within the Trust and at conferences and perhaps publications in the future.

References

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Critical success factors

Please select one or two of the below factors that you believe were most essential to ensure the success of your project changes.

People	Process	Resources	Context
<input type="checkbox"/> Patient involvement and/or appropriate information for patients - to raise awareness and understanding of intervention X Staff engagement <input type="checkbox"/> MDT / Cross-department communication <input type="checkbox"/> Skills and capability of staff <input type="checkbox"/> Team/service agreement that there is a problem and changes are suitable to trial (Knowledge and understanding of the issue) <input type="checkbox"/> Support from senior organisational or system leaders	<input type="checkbox"/> clear guidance / evidence / policy to support the intervention. <input type="checkbox"/> Incentivisation of the strategy – e.g., QOF in general practice <input type="checkbox"/> systematic and coordinated approach <input type="checkbox"/> clear, measurable targets <input type="checkbox"/> long-term strategy for sustaining and embedding change developed in planning phase <input type="checkbox"/> integrating the intervention into the natural workflow, team functions, technology systems, and incentive structures of the team/service/organization	<input type="checkbox"/> Dedicated time <input type="checkbox"/> QI training / information resources and organisation process / support <input type="checkbox"/> Infrastructure capable of providing teams with information, data and equipment needed <input type="checkbox"/> Research / evidence of change successfully implemented elsewhere <input type="checkbox"/> Financial investment	X aims aligned with wider service, organisational or system goals. <input type="checkbox"/> Links to patient benefits / clinical outcomes <input type="checkbox"/> Links to staff benefits <input type="checkbox"/> 'Permission' given through the organisational context, capacity and positive change culture.