Neck of Femur Fracture Quality Improvement Programme Three Year Plan

Introduction

Hip fracture has a major impact on the function and lives of those who have this serious injury, and is the most common serious injury in older people. Treating and caring for people with hip fracture is resource intensive, and involves a cohort of patients who are often frail and comorbid, and require the input of a wide array of professions and disciplines both in hospital and in the longer term in the community. The Neck of Femur Quality Programme Board recognise that caring for people in the right way in a timely manner optimises outcomes, and in turn reduces length of stay and overall resource requirements. Measurement, analysis, multi-disciplinary / professional working and planning have made this easier to achieve, have enabled us to collectively prioritise hip fracture, and have improved the quality and maturity of our service. Due to the improvements made, coupled with our innovative and comprehensive approach to managing Hip Fracture, there has been much interest in the work and approach of our Quality Programme Board from a number of Boards across Scotland, the Scottish Government and Information Services Division.

The Quality Improvement Programme has taken our collective understanding of how NHS Lothian manage hip fracture to a higher level, which in turn has offered a number of opportunities to improve our services by innovating for our patients with a hip fracture. We have seen significant measurable improvements in our service's structure, a number of our processes, an improvement in outcomes and a reduction in length of stay. There is nonetheless much to do, and there are significant opportunities for improvement in the post-operative acute pathway and community pathway. With NHS Lothian's forecast growth in the ageing population, hip fracture will only become more common in the future. As a result, the challenge faced by the Hip Fracture Quality Programme Board will be to continue to ensure that our services are as optimally efficient as possible, in order for them to remain responsive to our future patients.

Chris Myers, Clinical Service Manager, Department of Trauma and Orthopaedics

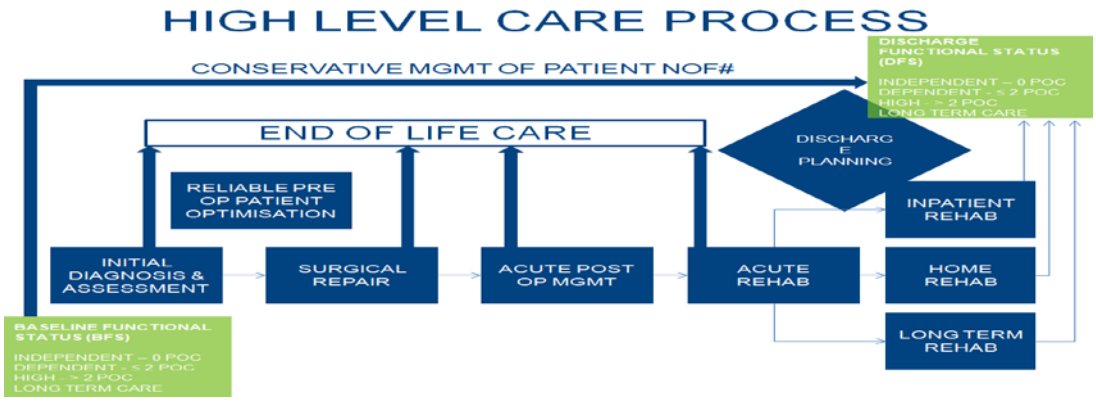
Background

Each year NHS Lothian cares for over 1000 patients with a Neck of Femur Fracture and it is the single most common fracture dealt with in the trauma unit. Although mortality rate is low, NHS Lothian performs less well in terms of other outcomes including time to theatre, length of stay and proportion of patients returning home. The frail population and long length of stay, also put pressure on the orthopaedic and trauma services and elective operating is often compromised over the winter months. For this reason, The Hip fracture Clinical Quality Programme was established in May 2017.

Aim

The high level aim of the program is to improve outcomes and experience of Neck of Femur Fracture care for patients in NHS Lothian and to deliver optimal management of their condition to ensure they receive best quality care with maximal return to a homely setting in the shortest necessary time with minimal harm. The improvement work is aligned to the Scottish Hip Fracture Quality Improvement programme but adapted to allow more detailed feedback for local learning.

Quality planning has involved working with multidisciplinary teams to create a High Level Care Process Model which describes the processes of care experienced by a patient from time of injury and presentation to acute care facility, through treatment and the acute phase of care to discharge.



Infrastructure

The program has appointed a full time **Senior Project Manager (SPM)** to engage and liaise with the multi-professional interdepartmental team who are involved in the care of patients from admission to rehab. The SPM is currently undertaking the Scottish Improvement Leadership course and will subsequently support coaching for improvement within the programme

A full time **Senior Data Analyst** has worked closely with SPM and Local Audit Co-ordinators for the National Hip Fracture Audit to enhance the availability of data at a local level. The Analyst has worked alongside the SPM to develop an electronic data collection system which NHS Lothian are piloting to supersede the paper work required for the National audit. Improved access to live data to analyse our progress on a day to day basis is enabling more rapid feedback to staff on impact of QI interventions.

Reporting and governance

There is an internal program reporting structure with regular review of QI project progress, process and outcome measures at Clinical Quality Programme Board for Neck of Femur Fracture meeting which takes place bi monthly. All specialities across the pathway are involved in this multi-professional meeting and representatives from the MDT regularly attend. There is involvement of an Executive Sponsor who is invited to attend; there has also been participation from Scottish Government and ISD representatives. QI projects are shared and supported with improvement coaching provided in local site based QI team meetings.

Progress is written up as a highlight report which is submitted bi-monthly to the Quality Directorate Operational Group. The Quality Programme also reports to the Trauma and orthopaedic Clinical Management Team.

Clinical leadership

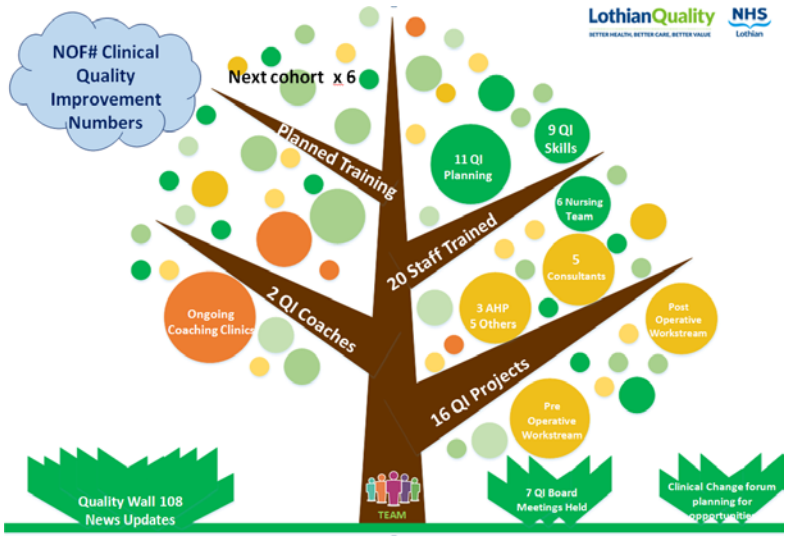
Strong clinical leadership has been demonstrated by the senior medical staff in the emergency department, trauma surgery, anaesthetics and medicine for the elderly and from senior nursing and allied health professionals staff across the pathway. Strong leadership is being demonstrated by clinical nurse managers, clinical leads and service managers on the Royal Infirmary site.

Capacity and Capability Building and Service Engagement

During the initial phase of the programme, professional and service leads have undergone QI Leadership training through the NHS Lothian Quality Academy Planning for Quality course. This has equipped them to use data to understand the service and to support and coach frontline clinical teams in delivering QI projects

Twenty staff have undergone QI training to date. Coaching support for individual projects carried out through the QI academy has been provided by two coaches. Ongoing quality improvement work is supported on the Royal Infirmary site at improvement team meetings with coaching support provided to each by senior clinicians who have QI expertise are supported by the Project Manager.

The Neck of Femur QI Programme now has twenty one projects up and running and staff are beginning to acknowledge the benefits of QI work for their team and patients. The QI team is growing steadily and the staff are promoting their improvements, eight abstracts have been submitted for the Scottish National Hip Fracture Conference in August 2018.



Progress and Key Achievements

Data Capture

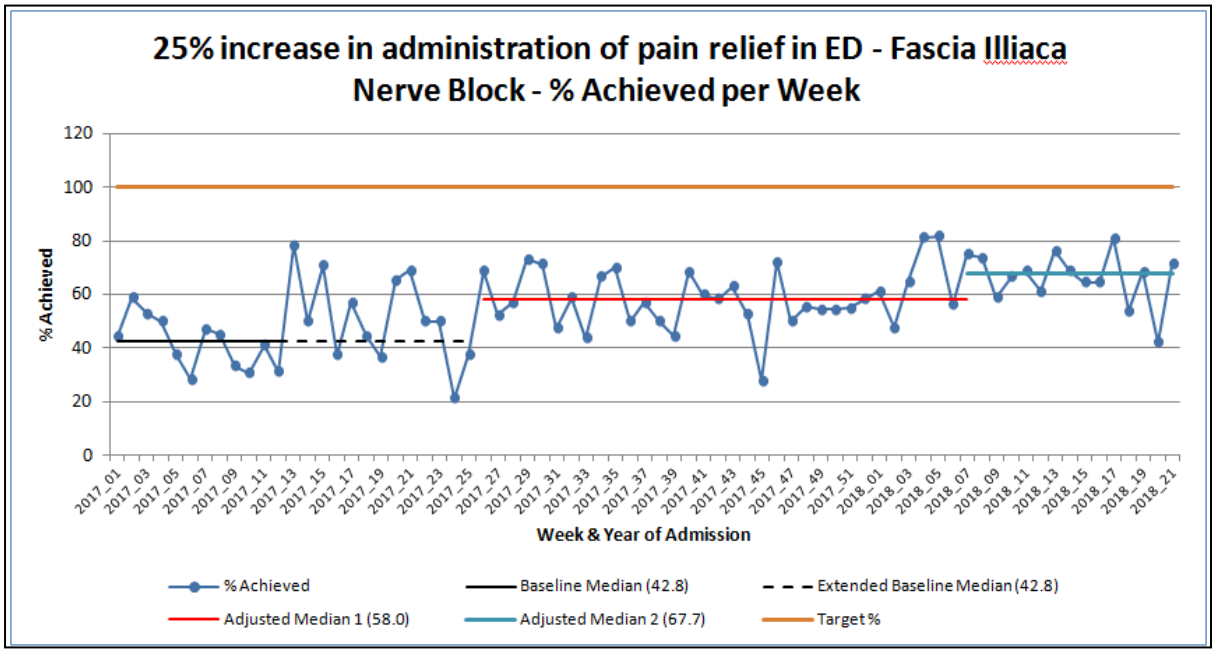
Process and outcomes data on management of hip fracture has been collected by case note extraction for submission to the Scottish Government Hip Fracture Audit for many years. Within the Scottish Government portal, data is aggregated and accessible for benchmarking across all boards within Scotland and for individual boards across time. However, the data is aggregated and there is a time lag to access due to central collation and verification which make it less useful for assessing the impact of local quality improvement interventions. An IT based solution which allows real time access to data, while fulfilling all data requirements of the Scottish Government portal has been developed locally and real time data is available from January 2018. This allows greater understanding of variation at individual patient level and allows rapid assessment of impact of changes.

Clinical Pathway improvement

Initial QI work has focused on the pre-operative phase of the pathway. As hip fracture is very painful and patients are bed-bound until the fracture surgically fixed, the speed of fracture fixation (time to theatre) is a key step in the pathway to improve patient experience. Prior to fracture fixation, provision of good pain relief and maintaining hydration are essential to optimise patient comfort and reduce chance of harm. Initial improvement work has focused on the pre-op phase

Pre-operative pain Control

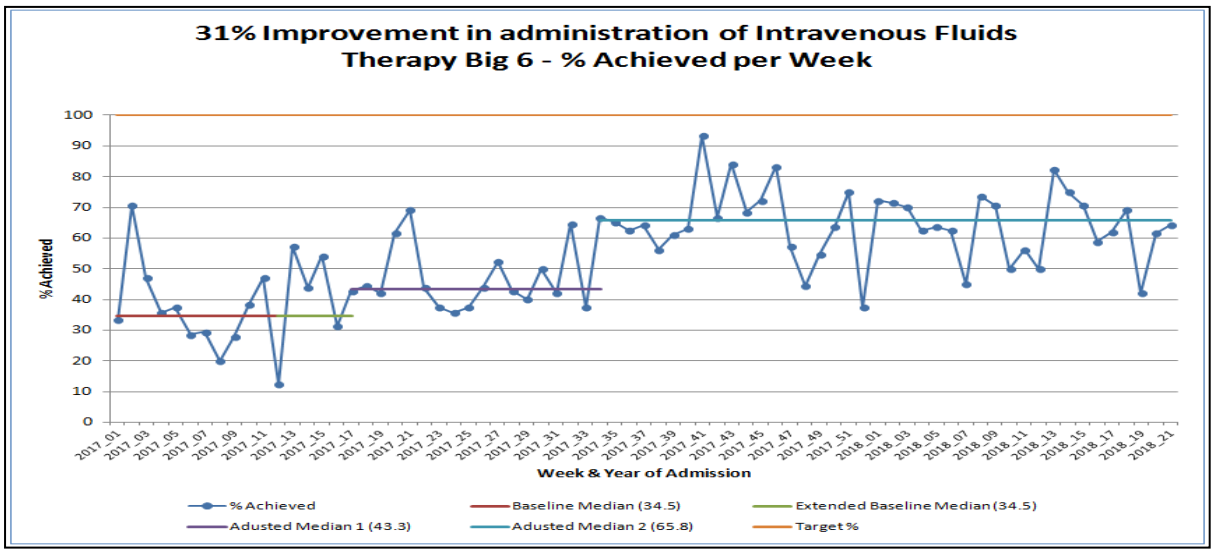
Provision of a Fascia Illiaca Nerve Block in the emergency department to manage severe pain suffered from a hip fracture improves patient experience and minimises the potential side effects of strong pain relieving medications. It is offered to all patients on diagnosis of hip fracture. Patients may choose not to receive a block (which involves an injection in the leg). Abnormalities of blood clotting are a contraindication to nerve block.



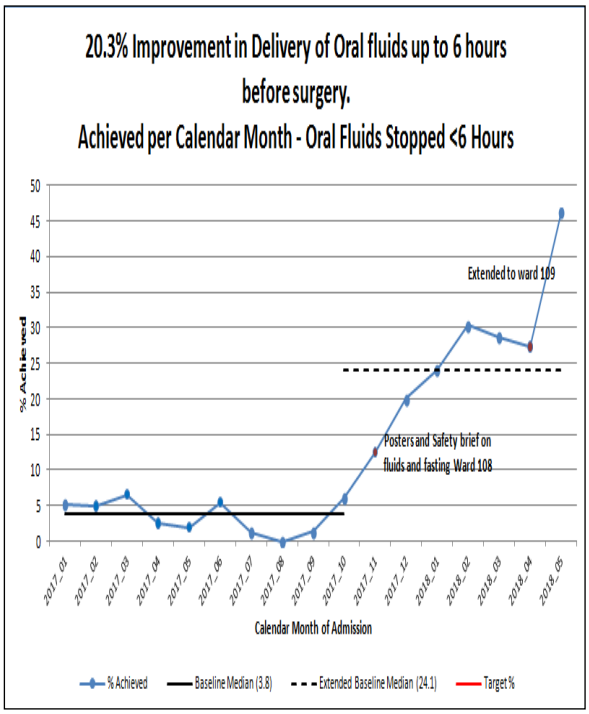
Pre-operative hydration

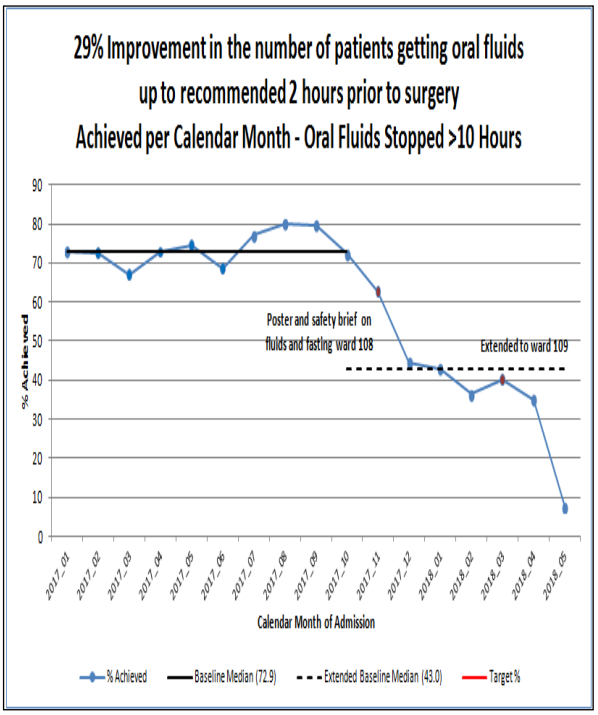
Ensuring adequate fluid intake in the perioperative period is key to ensuring that patients remain well hydrated. This not only improves patient experience but also reduces chance of developing Acute Kidney Injury (AKI). Three separate improvement projects have been undertaken across the pathway to address this.

There has been a marked improvement in reliability of intravenous fluid administration in patients leaving the emergency department.

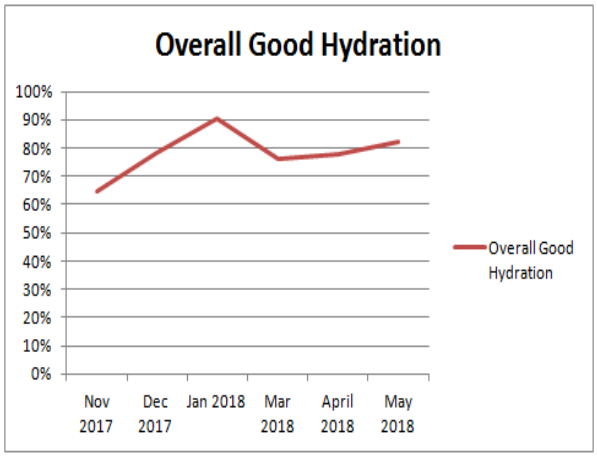


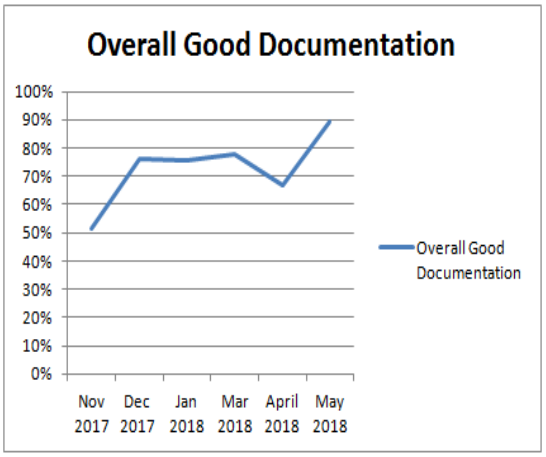
Work has been done to reduce the amount of time that patients are not drinking fluids while waiting to go to the operating theatre



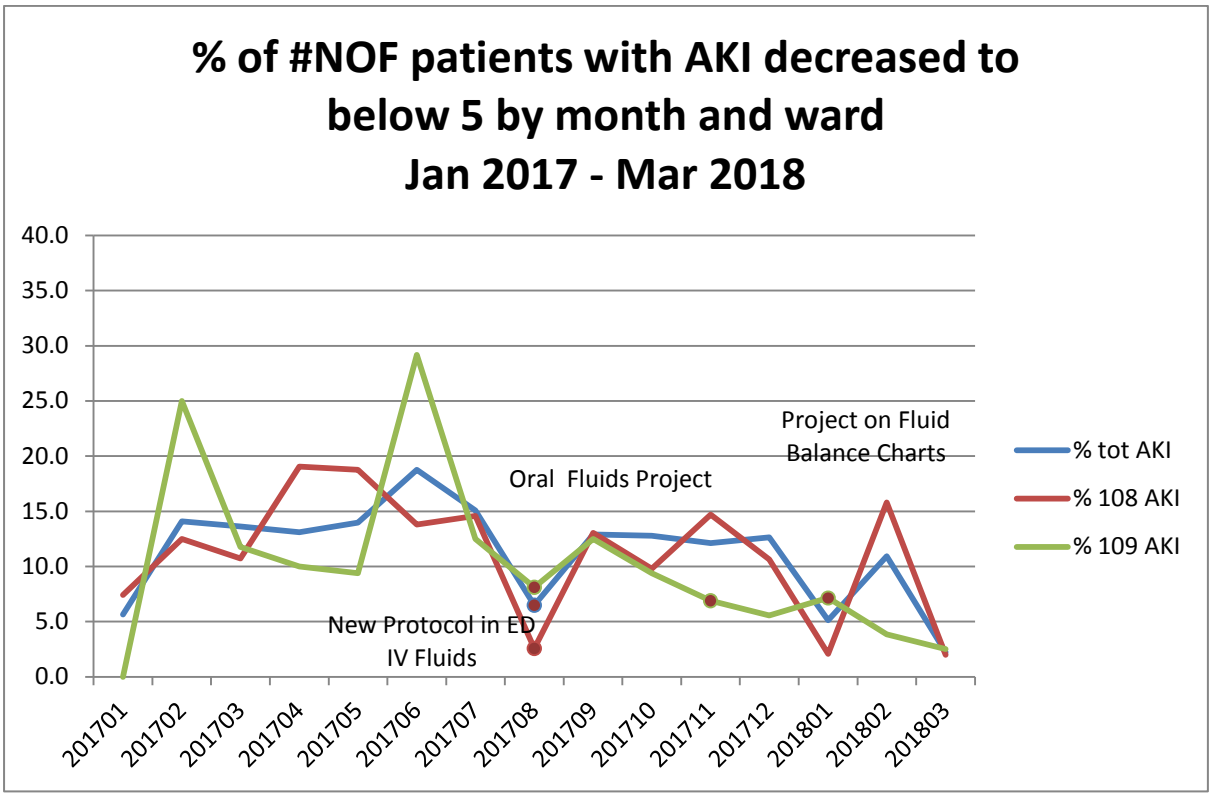


There has been an improvement in documentation of fluid balance and hydration of patients on the wards.

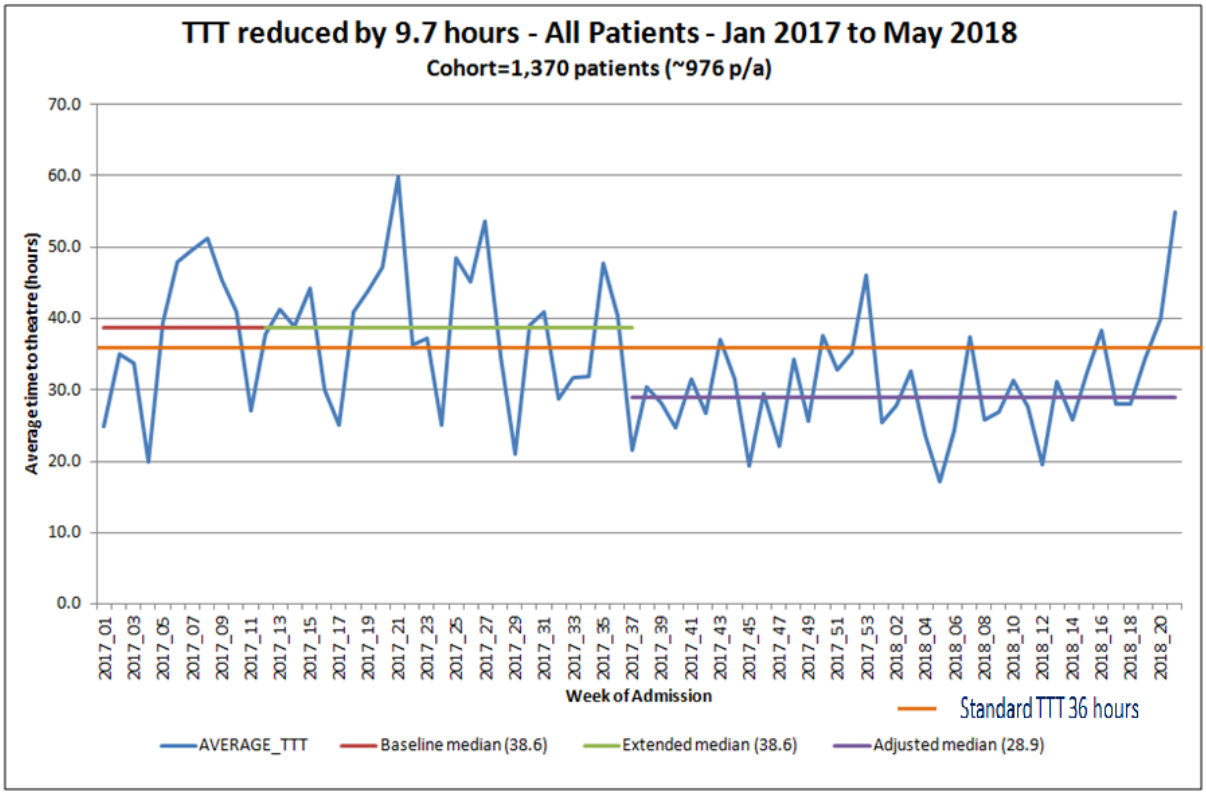




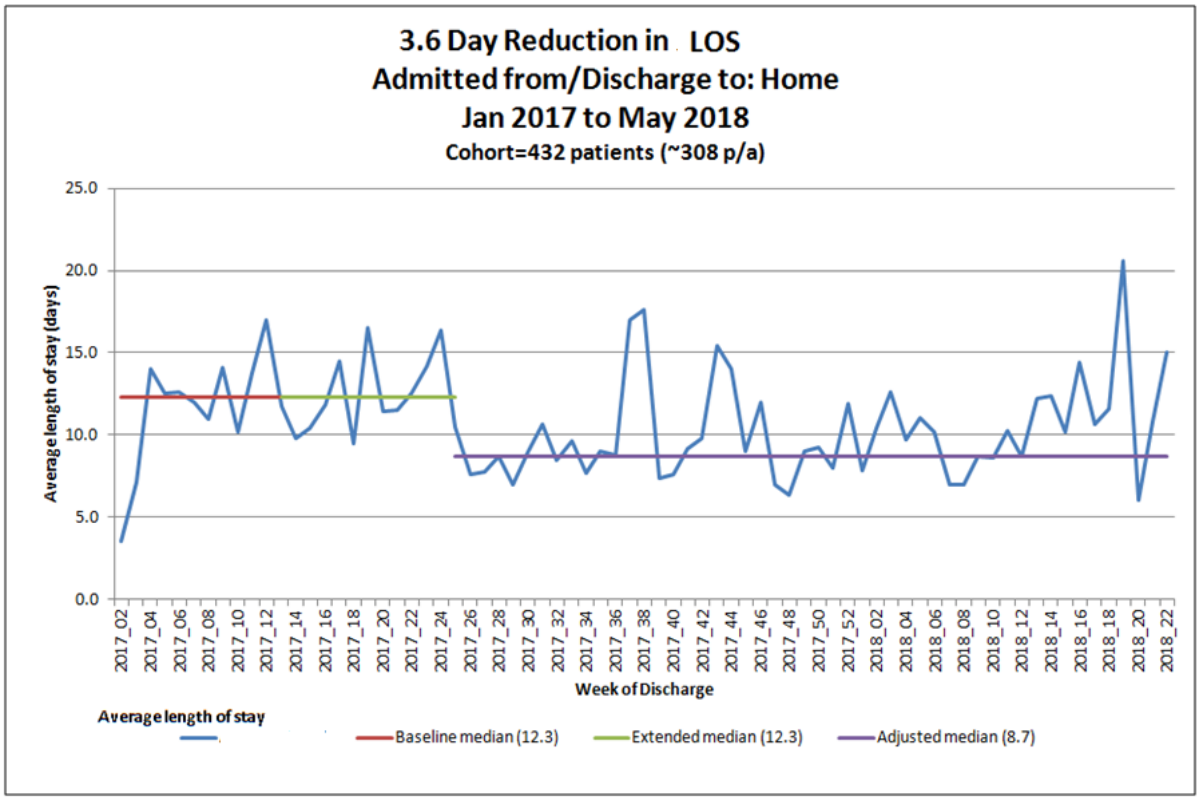
This has resulted in a reduction in the percentage of patients who get Acute Kidney Injury.



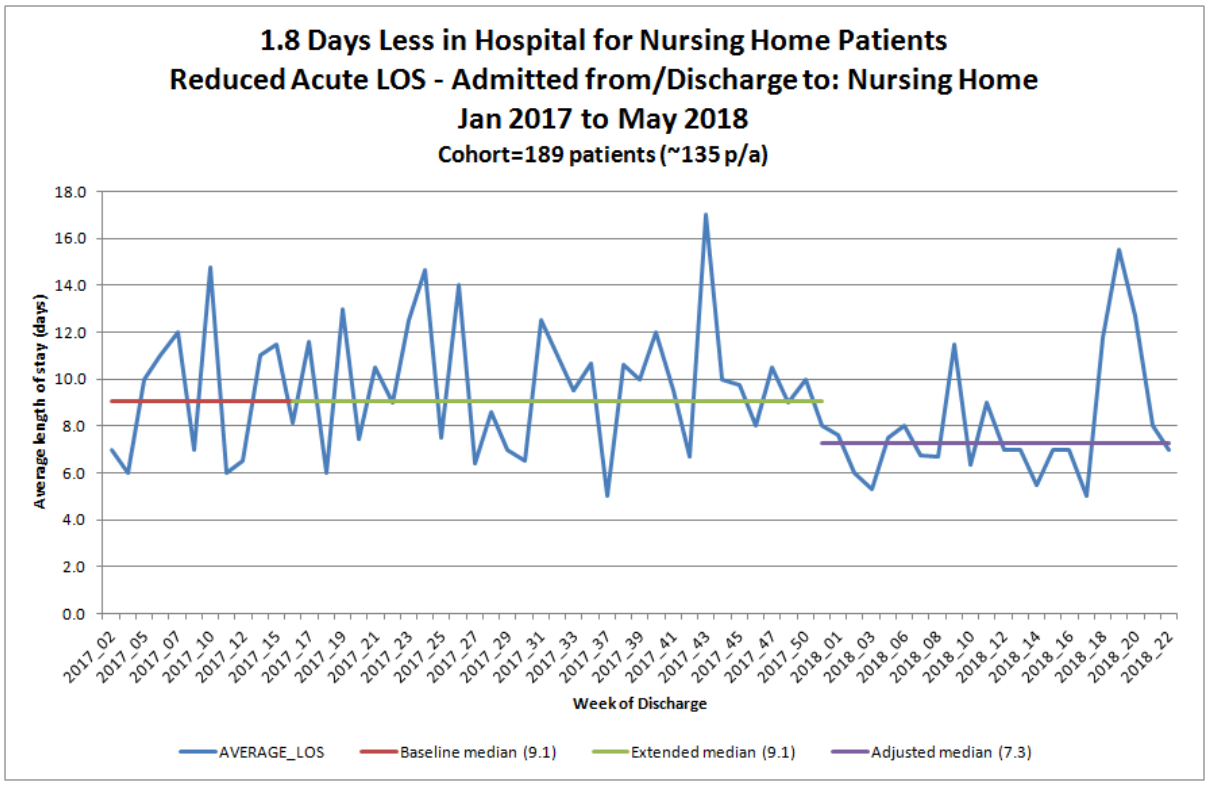
Time from admission to surgery has been reduced to meet the National Standard of 36 hours Time to Theatre for femur fracture repair. The median weekly time to theatre has been reduced by 9.7 hours to 28.9 hours. This improves patient comfort and experience and also allows early mobilisation which is key to successful recovery after hip fracture.



By optimising time to fracture fixation, mobilisation can be achieved with minimal delay and can result in more effective and timely rehabilitation and discharge. This has been demonstrated in the cohort of fitter patients who are admitted having been self caring at home and can be returned to home postoperatively without requiring further support. In this group of patients, (approximately 1/3 of patients with hip fracture), length of stay has been reduced by 3.6 days.



A reduction in length of stay has also been seen in the group of patients who are admitted from care homes and are able to be discharged back to their care home after surgery. This cohort makes approximately 15% of patients with hip fracture.



Return on Investment

The Return on investment on the improvement work currently underway can be seen in the table

ROI Domain	**Examples of Improvement projects & impact**
Revenue	• Hip fracture quality improvement program has run in parallel with closure of Liberton rehabilitation beds and reprovision of beds in ward 120 RIE
Cost Reduction	• Increased proportion of patients returning home from acute hospital stay (savings for community services) • Reduced length of stay for patients returning home after hip fracture
Cost Avoidance	• Reduction in harm – reduced incidence of acute kidney injury (AKI)
Productivity & Efficiency	• Reduced time to fracture fixation in operating theatre • Streamlining of processes to book patients to operating theatre lists • Early identification and optimisation of medically unwell patients to reduce delays to fracture fixation • Early fracture fixation allows early mobilisation and reduces level of nursing care required
Staff Experience	• Improvements in staff experience, engagement, involvement in QI projects with achievements recognised at local and national level • Reduction in nursing care load due to earlier fracture fixation
Patient, carer & family experience and outcomes	• Improved compliance with hip fracture bundle leads to increased patient pain relief • Early fracture fixation reduces time in bed and pain and distress for patient and family • Improved fluid management and reduced fasting times improves patient wellbeing and reduces harm • Earlier return to home increases patient & family experience

3 year Plan 2018-2021

Aims

The next stage of the programme for Neck of Femur Fracture is to sustain the gains of early work and continue to improve pre-operative patient experience by optimising pain control and working to further reduce theatre waits through improvements in the process of scheduling, early identification & treatment of patients requiring medical optimisation and equipment availability. Further work will focus on the reliability of post operative care for patients, timely and effective assessments and rehabilitation and decision making by the multidisciplinary team. Increasing the percentage of patients returning home with shortest necessary length of stay while ensuring minimal harm will be key outcome measures.

Capacity and Capability Building & Service Engagement

This phase of the program will necessitate collaborative working with health and social care partners to optimise discharge planning and rehabilitation in the community. The program will also look to increase involvement of patients and families and build on learning from patients experience data.

Plan will be to increase the number of staff trained in QI and participating in improvement projects to 50% of full time staff over the next 3 years and 75% within 5 years.

Shared Learning

Information will be shared on the "Quality Wall" in Royal Infirmary of Edinburgh and more widely through a regular newsletter and using social media. Improvement work will be celebrated and shared at clinical change forums and at local and national meetings.

Infrastructure/ e-health

Work with e-health to use the electronic patient record to support staff to deliver reliable care for patients with hip fracture through testing of order sets in TRAK which will make some aspects of care 'automatic (such as ordering of blood tests) and also deliver prompts / reminders to staff for ongoing care needs (observations, assessments & treatment). Such a system will also improve data capture as a by-product of care delivery through Electronic Health Record and allow more accurate reporting in future. This work has been part funded by Scottish Government

Work will be progressed to deliver stable outcome and process measures through Tableau in future.

Further Opportunities

The use of similar quality management methodology can be applied in future across other fracture pathways and in the management of elective orthopaedic surgical procedures.