NHS
Specialised Clinical Frailty Network

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Papworth optimises frail patients undergoing cardiac surgery

Introduction

The Specialised Clinical Frailty Network (SCFN) explores how specialised services can improve the way they deliver care and treatment to people with frailty. Standard specialised care pathways may not always be appropriate to the needs and preferences of more vulnerable patients, where there are greater risks of longer hospital admissions and increased mortality.

The Network's collaborative improvement programme, delivered by NHS Elect, helps NHS trusts to improve the way they identify frailty and make better treatment decisions to improve patient outcomes. The second wave included Neurosurgery, Spinal Surgery and Adult Critical Care. There were up to six trusts in each specialised area.

This is the experience of one of the Adult Critical Care sites…

The Royal Papworth Hospital NHS Foundation Trust joined the second wave of hospitals supported by the SCFN to improve the identification and care of older people living with frailty. It had previously participated in the first wave of the SCFN, as part of the Cardiac (TAVI) cohort. Focusing on adult critical care services, Papworth's aim was to identify frailty and optimise frail patients prior to urgent cardiac surgery.

The hospital is a specialist cardio-thoracic, transplant and ECMO (extracorporeal membrane oxygenation) centre, performing in excess of 2,000 surgical procedures a year. It carries out both emergency and elective surgical procedures and its patient population tends to be predominantly elderly or unwell, often with complex needs.

In April 2019, the hospital moved to a new building on the Cambridge Biomedical Campus. It operates a hub and spoke model, with no complex geriatric support on site.

Aims and objectives

Dr Chinmay Patvardhan was appointed as lead for the perioperative service at around the time that Papworth was invited to join the SCFN's adult critical care cohort.

He explained "I was particularly interested in optimising the care of emergency cardiac patients prior to surgery. However, our patient profile meant it was impossible for us to implement some of the approaches we would have liked to, such as support to stop smoking or an exercise programme prior to surgery, as there simply wasn't enough time. Patients come to us from many other hospitals. They may arrive from one to seven days prior to surgery, so it is difficult to offer a standardised optimisation programme as there is such a wide variation."

Support from SCFN

Before the frailty improvement work, patients were routinely seen by the anaesthetist on the evening before surgery and didn't have any perioperative interventions. Chinmay said "We wanted to develop pathways that optimised the care of frail patients before surgery, but we weren't sure how to do it. This is where the support of the Network was invaluable. They introduced us to a range of quality improvement methodologies and supported us with data collection, as well as advising us on implementing things like Comprehensive Geriatric Assessment (CGA)."

The team particularly valued having regular contact with mentors from the Network and being able to bounce ideas off them.

What they did

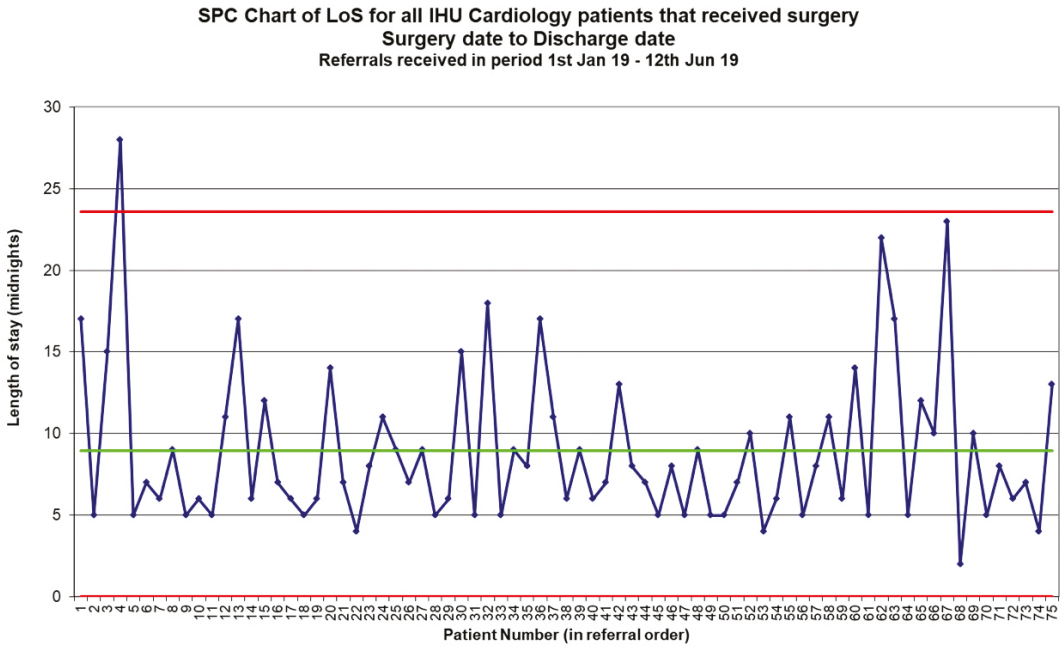
The Royal Papworth Hospital took a structured approach to its frailty improvement work.

Established a frailty improvement team

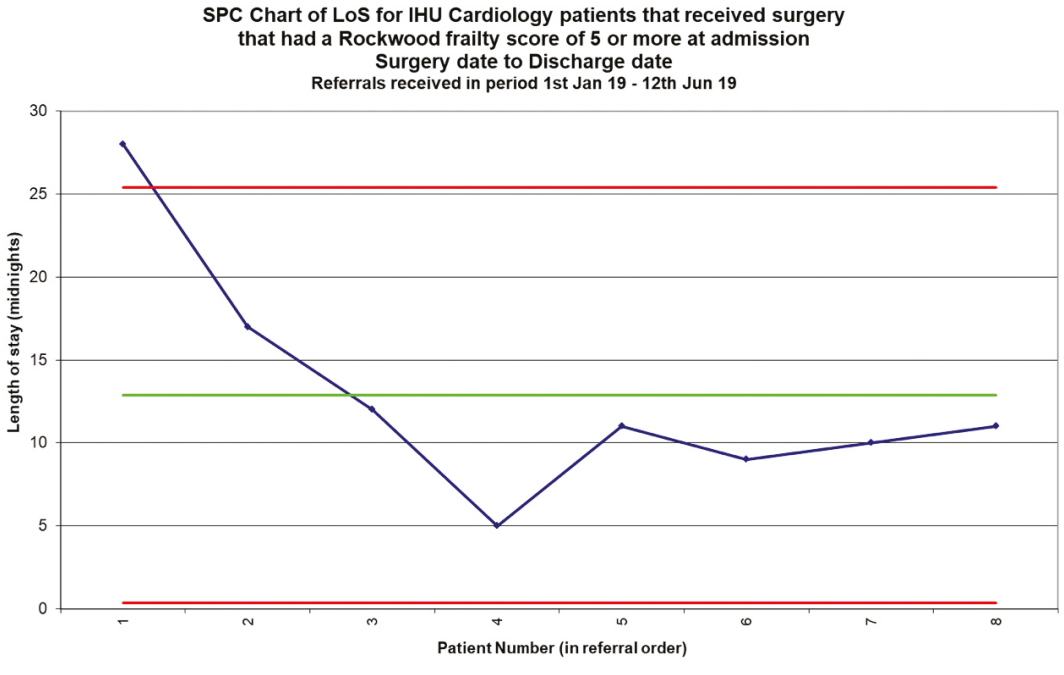
Firstly, a frailty improvement programme was established – the 'Papworth Frailty Project'. The team was headed up by Dr Chinmay Patvardhan, with Dr Rachel Jooste Consultant Anaesthetist, and Advance Nurse Specialist and Project Lead Julie Quigley. The group also included: a falls specialist nurse, physiotherapist, occupational therapist, pharmacist, dietitian, social worker, member of the discharge team, consultant haematologist, consultant psychiatrist and members of the Advanced Nurse Practitioner (ANP) team.

Baseline data

The hospital collected baseline data so that it could measure the impact of its frailty improvements. The average number of cardiology patients admitted for surgery each week between January and June 2019 was 3.5. Average length of stay over the same period was 8.93 days.



Mean average LoS = 8.93 days



Mean average LoS = 12.88 days

Rockwood clinical frailty scoring

The first step was to establish a mechanism to ensure that inhouse urgent surgical patients underwent frailty assessment using the Rockwood Clinical Frailty Scale (CFS) when they were admitted to hospital. The hospital introduced Rockwood into its basic nursing assessment documentation pathway. Alongside standard assessments – including nursing assessments, family details and nutritional status – nurses now routinely complete the CFS score.

Any patient with a CFS score of five or over triggers an email to the frailty team who respond by carrying out a CGA. However, during the pilot the scoring process showed relatively few patients with a high clinical frailty score (greater than six). Chinmay explained "Cardiac surgery is a very invasive and surgeons will only accept people who they believe are fit enough to undergo and survive the surgery. Effectively, this means that patients have already been triaged, so it was no surprise that clinical frailty scoring found only a small cohort of patients with high levels of frailty. The majority had a clinical frailty score of two or three. These patients are relatively independent and active."

Comprehensive geriatric assessment (CGA)

Nevertheless, there were still some patients – on average, one or two a week - with a clinical frailty score of five or more. It was important to assess these patients to find out what additional support they might need, but the hospital had no on-site geriatricians or registrars who could carry out the CGA. The anaesthetic team took on doing the CGAs to ensure that these patients' needs would be assessed and they would receive appropriate support.

Patient optimisation

Having identified frail patients in need of support, the next step was to optimise them before surgery to improve their outcomes. For most patients awaiting surgery there was a period of three or four days before their operation went ahead. Previously, these patients were seen by the anaesthetist on the day before surgery and, at this point, surgery might sometimes be cancelled if the patient was found not to be fit enough or if their haemoglobin levels were too low.

Chinmay said "We realised we were missing this 'golden gap'. It was an opportunity to do as much assessment and optimisation as we could, but we weren't doing that."

The 'golden gap'

The team decided to focus on optimising patients during this three to four day 'golden gap'. A member of the team now carries out a CGA at the start of this period. It provides a complete picture of the patient's medical and social history, as well as their functional and psychological status. From this, the frailty team is able to draw up a 'problem' list and refer the patient for appropriate support from allied health professionals, such as the consultant psychiatrist.

Among the tests conducted during the CGA is the 'timed up and go test' which reveals patients who might be at high risk of developing frailty-associated syndromes. These patients are referred to the occupational therapist, nutritionist, physiotherapist and falls specialist nurse. A tailored passive exercise programme allows patients who are bed-bound to do simple exercises to prevent them from losing muscle mass. For patients with social needs, referrals are made to the social worker, and the discharge team is also notified. Patients are screened for anxiety and depression, and medication levels are assessed to check for the risk of polypharmacy. If necessary, levels may be adjusted following surgery.

Other approaches to optimising patients include reviewing nutrition and, if necessary, giving them nutritional milkshakes to build muscle strength. The assessment also looks at respiratory function and corrects hyponatremia (low levels of sodium in the blood), anaemia assessment and optimisation.

Anaesthetic optimisation

One of the biggest problems facing frail patients after cardiac surgery is delirium, which can last anything from 24 hours to three months. The hospital follows guidance from the Association of Anaesthetists of Great Britain and Ireland (AAGBI), which includes using opioids sparingly in patients with a clinical frailty score of five and over. Nerve blocks rather than opioids are used for pain relief. Family members are encouraged to stay with the patient during their time on ICU.

The frailty team aims to try and prevent post-surgical problems by identifying patients with low haemoglobin perioperatively. Patients who are identified as being anaemic may be given a blood transfusion or iron supplements.

Impacts

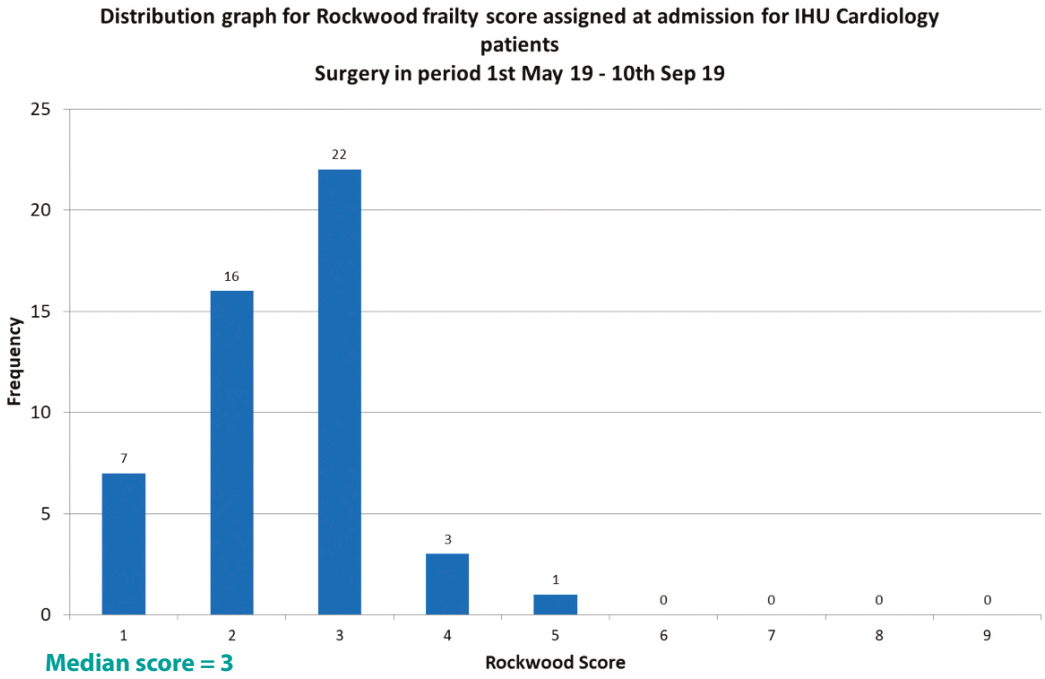
Identifying frail patients

Rockwood clinical frailty scoring is now carried out as a routine part of inpatient assessment in all patients across all pathways at Papworth. All IHU (inhouse urgent) pathway patients are assessed within 24 hours of admission. During the pilot (1 May to 10 September 2019), ten CGAs were carried out and the average frailty score for cardiology patients was three.

Improving patient communication

As well as providing detailed information about the patient's level of frailty, CGAs offer an opportunity to discuss the patient's expectations and ensure they understand fully the procedure they are having.

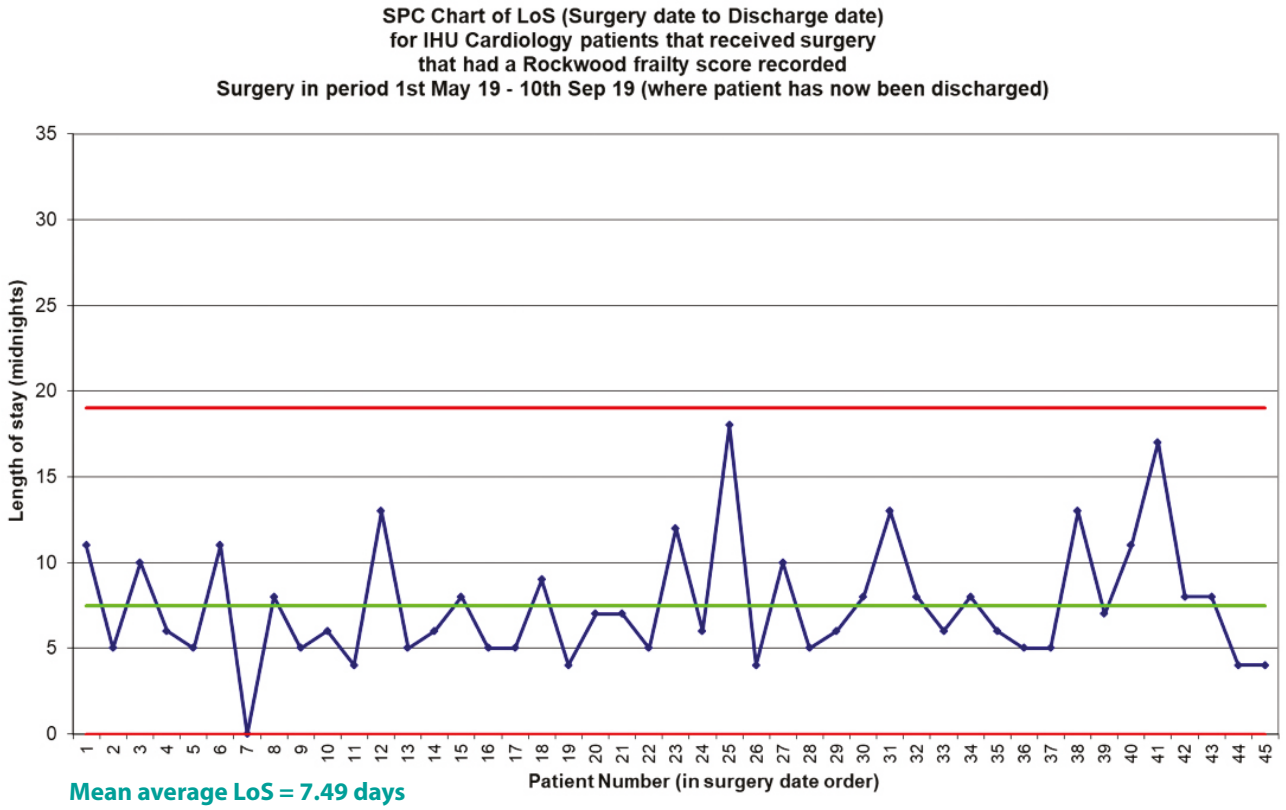
Chinmay said "Patients do not always understand what is being proposed, as medical language can be hard to understand, and some patients have unrealistic expectations. The CGA provides an opportunity to sit down with them and make sure they completely understand their treatment options, as well as providing invaluable information about the patient's level of frailty and their additional needs. Some choose an alternative to surgery once they fully understand the possible outcomes."



Length of stay vs patient outcomes

One of the stated aims of the project was to reduce length of stay. Baseline measures showed that cardiology patients had an average length of stay of 7.49 days. However, as the project progressed, it became clear that reducing length of stay might not be consistent with improving patient outcomes.

Chinmay explained that "The data showed that patients with a frailty score of more than five have a length of stay approximately three or four times longer than less frail patients. This is because, in very frail patients, there may be other, previously unidentified issues that can change the trajectory of treatment. In these circumstances, instead of cardiac surgery for example, we might recommend a TAVI, as it is less risky procedure that might result in better outcomes.



Mean average LoS = 7.49 days

However, the result of this change in trajectory can be a longer length of stay. It takes time to have these discussions with patients and plan the TAVI procedure. Ultimately though, although length of stay might end up being longer, the outcome for patients is often better. Rather than ending up in a nursing home, they might be able to continue living independently. For this reason, we concluded that aiming to reduce length of stay might not be an appropriate measure and that patient experience might be a better outcome measure."

The hospital cites the example of a woman in her late 80s who was living alone before she came into hospital for a surgical aortic valve replacement. She had a high clinical frailty score (six). During her CGA, she struggled to get out of the chair as her muscles were weak. She had experienced multiple falls and had undiagnosed neurological and respiratory problems. The frailty team recommended a TAVI as they believed it would lead to better outcomes. With support from social services, who provided some specialist equipment, she was able to go home after a few days and continue living independently. Although length of stay was longer in her case, her quality of life was better than it would have been with a more invasive surgical procedure.

Challenges

The Royal Papworth Hospital faced a number of challenges in its work to improve the care of frail patients having cardiac surgery. These included:

- **Resources:** As a standalone cardiothoracic hospital with no on-site geriatricians, there was some question about who would carry out the CGA on patients who were identified as being frail. The frailty team took on the responsibility of carrying out the assessments itself. This was an important learning experience, as Chinmay explained "We just had to learn how to do it and get on with it. We have an excellent support network of allied health professionals and utilised whatever we had. This showed us you don't necessarily need a geriatrician to improve the care of frail patients."
- **Patients admitted from all over the UK:** Many patients are admitted to Papworth from satellite hospitals around the UK. The team would have liked these hospitals to start using the Rockwood CFS so frailty could be identified as early as possible. However, it is difficult to tell other hospitals what they should do. The frailty team has previously held educational seminars with hospitals around East Anglia to try and raise awareness of frailty in its local area.

What's next?

Royal Papworth Hospital now hopes to expand its frailty service to include elective cardiac patients. It has joined the third wave of the SCFN, focusing on cardiac surgery. Chinmay said "This is a really exciting time for us. There is the potential for us to make an even bigger impact by identifying frailty in elective cardiac patients.

Normally, with this type of patient there is a time period of a couple of weeks or months before surgery, and so a greater opportunity to optimise them. There are also far greater numbers of patients - every week have around 50 elective patients – so we can make a bigger difference. However, whilst this is exciting, it will stretch our resources even further. We are aiming to get the Executive team on board to provide further backing for our improvement work. Our Executive sponsor Medical Director Roger Hall is supporting us with this."

Dr Chinmay Patvardhan said "I am thankful to every member of my team and the nursing staff in the hospital who continue to support our frailty initiative."

Key learning

Among the lessons learned by the team at Royal Papworth Hospital are:

- Changing culture takes time and it is resource intensive. However, even small changes in pathways can deliver good results.
- A tertiary centre can achieve high level geriatric care with support from the SCFN, despite not having specialist geriatric services on site.

Conclusion

Eilish Midlane, Chief Operating Officer, co-sponsored the frailty improvement projects in both Cardiology and Cardiac Surgery at the Trust and plans an organisational-wide role out of this project so that all Royal Papworth patients benefit from it.

Eilish explained that although patient numbers have been relatively small in this project the impact for individual patients has made it very worthwhile. She said "Use of CGA has allowed us to better inform our patients in the selection of their treatment option and allowed many to retain the level of independence that they previously enjoyed prior to treatment. The methodical approach taken in this initiative lends itself to understanding quickly what works best and the sharing of learning with other teams within the Trust."

Medical Director Roger Hall added "It is now clear that the NHS and other healthcare systems are dealing with an emerging and growing challenge as we are asked to manage frail elderly patients. What might have seemed like straightforward management decisions for our patients in the past are increasingly less appropriate for the frail. Our aim is to offer the best treatment options to these patients but to do this innovatively to help them, their families and carers to improve quality of life.

I am very proud of our frailty team at Royal Papworth. The work demonstrates the benefits of a clear frailty strategy, supported by our Board, and executed superbly by our wider multi-disciplinary frailty team."

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