British Geriatrics Society
Improving healthcare for older people

Royal College of Physicians

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NHS
Specialised Clinical Frailty Network

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Specialised Clinical Frailty Toolkit

Version 2 – September 2021

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Foreword Dr Jennifer M A Burns

I am delighted to commend the SCFN Toolkit to healthcare professionals, providers and commissioners who are responsible for delivering and developing specialised services for older people. Following the success of the Acute Frailty Network (AFN) Toolkit in developing front door services in secondary care, NHS Elect has delivered a toolkit focusing on certain specialised areas where older people present for assessment and treatment. Early identification of people living with frailty facilitates implementation of a process of Comprehensive Geriatric Assessment (CGA) and promotes delivery of personalised care. Key principles include involving the patient in decision making, agreeing goals aiming to deliver tailored interventions to improve function and quality of life.

Highlighted throughout the Specialised Clinical Frailty Network (SCFN) Toolkit are examples of the value of these approaches in oncology (frail patients being considered for chemotherapy), renal, adult critical care, neurosurgery and spinal surgery and provide support to those who are looking to improve their pathways of care and to optimise the outcomes of patients. Cardiology departments will also find the toolkit helpful in older patients being considered for transthoracic aortic valve replacements (TAVI). The work to spread the message about 'making frailty everybody's business' continues in many other services including teams in Vascular Services, Cancer Surgery and Cardiac Surgery.

The Toolkit was developed with certain principles in mind to ensure it promotes effective and high-quality improvement in care. A robust project management structure supported by an executive sponsor and establishing clinical champions are considered necessary at the outset of the process. Geriatricians are particularly well placed to be leaders in this field. An important aspect is to develop interventions that are tailored and personalised to individual patients, with a patient and public involvement process embedded in the development to help with this. A practical mechanism for early identification of people with frailty, so that timely CGA can be instituted are also key goals. It is also necessary to adopt clinical professional standards to reduce unnecessary variation in practice and to organise appropriate education and training to develop a capable workforce. There is also emphasis on setting up systems so that communication is robust across services to enable shared decision-making and to develop a quality improvement mindset.

Designing these specialised services, with a focus on identifying and personalising care for older people who are frail, will significantly improve the patient experience and minimise harm. The resources contained in this Toolkit will aid specialist services in this process. I commend the team for this work to improve healthcare for older people across the many different NHS settings.

Dr Jennifer M A Burns
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British Geriatrics Society
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British Geriatrics Society
Improving healthcare for older people

FOREWORD

Foreword Professor Ken Rockwood

Many older people who present with common problems require carefully focused interventions. Benefit is more likely when treatment is by skilled teams, whose experience from providing these interventions in sufficient volume typically yields the outcomes desired by patients and providers. This virtuous cycle of skill and experience informs expectations of benefit and risk. People who live with frailty can challenge this welcome predictability. Their worse outcomes might even disrupt the cycle, unless effort is put into understanding how to achieve better outcomes for them. Such understanding for this increasingly common group begins by first naming frailty, and then staging it.

Although frailty is strongly associated with age, being frail is not the same as being old. Likewise, although frailty is not a disease, it acts across a range of late-life disorders to moderate the potency of risk factors (typically to increase them) and their influence on disease expression – typically to make it worse, and to predispose people to more complications from given procedures. Frailty also produces characteristic changes in how illness presents (e.g. more often with delirium, or functional decline, or falls).

Against this background, one reaction of health care providers often is "then why should I bother"? When frailty was uncommon, that might be forgivable. Now though, when so many people who are ill are also frail, attention needs to be paid to achieving better outcomes for them. The Specialised Clinical Frailty Network (SCFN) is showing that this can be done: it is a challenge worth taking on for the good results that can be obtained.

The first step in ensuring that 'frailism' does not simply become the acceptable face of ageism is to recognise that frailty is not all or none. Plainly, the more frail an older person with an important illness is, the more variable their outcomes are, and the more challenging the prediction of risk and of benefit. Understanding this also allows some understanding of how frailty impacts the virtuous cycle of greater expertise and volume giving rise to better outcomes. Unless the degree of frailty is specified, it becomes harder to tailor treatments in ways that can improve the outcomes of care.

For this reason, at the heart of the efforts of the SCFN is the recognition of not just the presence but the degree of frailty. This often is facilitated by employing the Clinical Frailty Scale (CFS), a tool originally introduced to summarise the results of Comprehensive Geriatric Assessment (CGA). The goal of CGA is not the assessment in and of itself but implementing what arises from knowing the patient's health in some detail and understanding how the intervention can improve it.

Importantly, as we have seen even in a public health emergency, the CFS alone must not be used to direct clinical decision making. This should always come after a more holistic assessment and shared decision-making process. Tailoring of treatments is not simply a matter of determining who is 'too frail' to receive the usual care, nor is the remedy for frailty simply to dispatch the patient back to the referring physician. Instead, it involves knowing what is making the person frail, how their degree and manifestations of frailty might be related to the proposed intervention, whether some sort of 'pre-habiliation' before the intervention might help, and how the intervention itself might be tailored to still offer benefit, but with less harm. When benefit from the specialised intervention seems unlikely – even with the prospect of a modified procedure in a patient whose health has been optimised - then it will often be necessary to traverse tough country. The milestones on that trek are typically understanding how best to communicate this information, how best to prognosticate and, where needed, how best to offer an organised approach to end-of-life care.

These questions – from optimising a range of interventions to recognising when the end of life is near – all fall within the remit of the SCFN. As laid out in the SCFN Toolkit, a typical care plan for a frail older adult undergoing a specialised intervention will emphasise management of pain, early mobilisation, proper nutrition,

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a detailed medication review, and explicit attention paid to sleep, daily function, and patient and carer preferences. This is a complex, multifaceted intervention and its successful realisation will require skilled leadership, dedicated effort, multiple iterations, and many local champions. To the extent that all this then becomes part of routine care for all patients, the work of the SCFN offers the prospect of benefit not just to patients living with frailty and to their families, but to anyone who receives the outstanding care that goes with focused interventions by highly specialised teams.

Building on its early years of tackling this important challenge, the SCFN is well placed to make a meaningful impact both in the United Kingdom, and by example, to other countries around the world.

Kenneth Rockwood MD, FRCPC, FRCP
Professor of Medicine (Geriatric Medicine and Neurology)
Dalhousie University, Halifax, Nova Scotia, Canada and Nova Scotia Health, Halifax, Canada

PREFACE

Preface

Frailty is increasingly recognised as a challenge for individuals and for health care systems across the globe. In contrast to other areas of care, little has been done to examine how the care of people needing complex interventions can be improved by a better understanding of frailty. The Specialised Clinical Frailty Network (SCFN) has been supporting specialised health care teams to improve the way services are delivered. At the heart of this work is a vision that specialised care and treatments are tailored to the needs and preferences of any individual with frailty.

The NHS Long Term Plan sets out an evidence-based framework for older people with frailty which focuses on delivering integrated personalised care in communities. Such a framework is just as relevant within specialised services. An individual's frailty needs to be recognised and evaluated to enable tailored care and treatment. This important theme is central within the 2021 White Paper 'Integration and innovation: working together to improve health and social care for all'. The need to integrate and innovate around the management of complex pathways has been bought into focus as specialist teams have considered the issue of frailty. Offering care in this way will help mitigate some of the risks associated with poorer outcomes – be that for the individual or the NHS.

This guide is for anyone involved in the design or delivery of specialised services, working with older people with frailty. You will find the guide useful if you are a clinician, manager, administrator, commissioner, information analyst or healthcare student. Other support and guidance is being developed through this programme to compliment this toolkit, which will include more specific advice to commissioners of specialised services.

We hope the resources collated in this guide help inspire other specialised service teams to improve their services for the frailer individual. It will guide commissioning teams in how services can be developed for the more vulnerable patient groups. These examples can also be broadened to other service pathways, including those that involve the delivery of more complex care.

We thank the team at NHS Elect for their work in developing this guide alongside all of the specialised service teams that have been involved in the Network to date. We will ensure that this guide further informs the work of specialised commissioning teams across England in improving service quality.

Dr. Richard Fluck
Associate Medical Director
Specialised Clinical Frailty Programme NHS England

INTRODUCTION

Introduction

There is a national ambition to improve outcomes for older people living with frailty, as set out in The NHS Long Term Plan.

This plan sets out a new service model for the NHS in the 21st Century. To achieve the ambitions of the Long Term Plan the NHS will increasingly be:

- more joined up and coordinated in its care;
- more proactive in the services it provides;
- more differentiated in its support offer to individuals.

Specialised service models have started this transformation by focussing on improving the journey of older people living with frailty. This Toolkit describes principles that can be applied to transform existing pathways by incorporating early identification of frailty and the subsequent tailoring of treatment pathways to meet the needs and preferences of older people with frailty through shared decision making.

Frailty provides an important lens which helps unpick the heterogeneity of the ageing process. It aids identification of people who have the same chronological age, but very different levels of function and risk of poor outcomes. This has important implications for the management of specialised conditions.

The Clinical Frailty Scale (CFS) is widely used in both primary care and urgent care services, but has not historically been systematically extended into specialised services. The Specialised Clinical Frailty Network (SCFN) is a collaborative improvement programme with the ambition to support specialised teams to integrate best practice frailty management into their services to improve patient centred outcomes. A priority is to enhance shared decision-making, to ensure that care and treatment is tailored to the needs and preferences of every person who is accessing specialised services.

National data analysis using the Hospital Frailty Risk Score (HFRS), has improved our understanding of frailty in the context of NHS specialised services. The HFRS is based on ICD-10 codes over-expressed in a distinct group of individuals with features of frailty, who are at risk of adverse outcomes (mortality, readmission and long hospital stays). The HFRS analysis identified the likely levels of frailty within treatment populations and indicates how frailty significantly increases risks of poorer outcomes and longer lengths of hospitalisation across a number of different specialised services. It also indicates the level of variation between individual providers in the prevalence of frailty within their treatment populations. This underpins the aim of SCFN to improve specialised services.

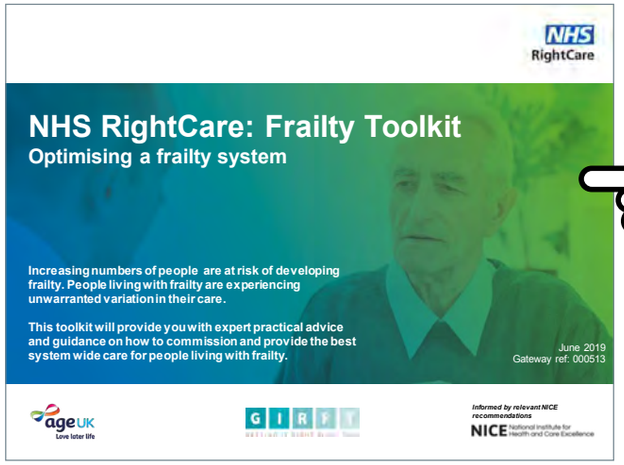
The SCFN was established by NHS England in September 2018 to work with fourteen hospital teams in Wave One, focusing upon three specialised services areas – end-stage Renal Failure, Interventional Cardiology (TAVI) and Chemotherapy for lung cancer. Twelve more hospitals joined the programme as part of Wave Two in February 2019, focusing upon Adult Critical Care, Neurosurgery and Complex Spinal Surgery. Since then the programme has expanded to work with specialised services in Cancer Surgery, Vascular Services and Cardiac Surgery.

THE PRINCIPLES

The objectives of the Network are to:

- Provide expert support to sites to work together to test the practical application of using a frailty assessment tool (specifically the CFS) in specialised service settings, supported by improvement methodology.
- Work with each site to develop its own outcome, process and balancing measures to be able to determine where each site has made improvements as part of their time in the Network.
- Develop a set of tools (including case studies and good practice material) on what, where, when, who, how and why to implement clinical frailty assessment and management within specialised services.
- Develop a network of leaders (including clinical leaders) that have a detailed knowledge of Quality Improvement (QI) tools and techniques, and understand how to use these locally to support improvement.

A number of best practice principles emerged from the sites participating in the first two waves of the Network and these are described in this Toolkit. These principles provide a basis for managers and clinical teams to improve services and the quality of care given to older people with frailty. This guide complements the *NHS RightCare: Frailty Toolkit*, adding guidance on how our specialised services can respond to frailty.



Click on the image to download a pdf of the NHS RightCare: Frailty Toolkit.

THE PRINCIPLES

Overarching principles of managing frail patients in specialised clinical care settings

There are a number of core principles to consider when improving outcomes for older people living with frailty accessing specialised services. These are:

TOOLKIT NOTE
You can navigate to the principles within this toolkit by clicking the principle header in this side bar.

PRINCIPLE 1

Principle 1

Establish a mechanism for early identification of people with frailty

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We recommend using the Clinical Frailty Scale (CFS) as it is quick, simple and easy to use. It has been validated in many of the specialised services in the SCFN. The CFS is often split into three categories that can be used to guide which treatment paradigm is likely to be most useful, although the importance of the scaling of frailty cannot be under-stated. Frailty represents a spectrum, not a dichotomous measure; this is key to individualising care..

Importantly, the CFS alone must not be used to direct clinical decision making; this should always come after a more holistic assessment and shared decision-making process.

Embedding the CFS in your services takes a bit of time, but it is not that difficult. We have developed the CFS app to support you. There are four key steps:

1. Work out where, early in the referral pathway, it is most feasible to apply CFS scores.
2. Check they are being done accurately (inter-rater reliability).
3. Work out where this information is best-stored (paper versus electronic health records) such that the whole team have access to it. If the frailty score can be added to your electronic hospital records, this will allow you to easily map out patient pathways using frailty.
4. The final step is to check that the frailty identification leads to an action. Depending on your setting, this might be a referral to a frailty team, frailty clinic, or bespoke documentation that initiates holistic assessment, known in the research literature as Comprehensive Geriatric Assessment (CGA).

Figure 1 Clinical Frailty Scale

CFS 1–5	**Fit to Mild** Care as usual but address reversible issues: sarcopaenia ('pre-habilitation') and nutrition.
CFS 6	**Moderate** Actively seek out and manage geriatric syndromes – falls, cognitive impairment, continence, polypharmacy; self-assessment tool from HoW-CGA study.
CFS 7–9	**Severe** Think about care versus cure, and advance care planning.

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Step One – Where is it most appropriate to apply CFS scores?

On admission to hospital, assess all adults for frailty:

- Use the Clinical Frailty Scale (CFS), as part of a holistic assessment where appropriate. More information is also available from the London Frailty Clinical Network, and e-Learning for Healthcare.
- Be aware of the limitations of using the CFS as the sole assessment of future risk (especially in the context of COVID).
- The CFS has been widely validated in older people; it has not been so extensively tested in younger populations (below 65 years of age), or in those with learning disability. It may not perform as well in people with stable long-term disability such as cerebral palsy, whose outcomes might be very different compared to older people with progressive disability.
- Consider comorbidities and underlying health conditions in all cases.
- Record the frailty assessment in the patient's medical record.

You may already have a good idea about where this information is likely to be available. It could be included as part of the referral pathway, or at the first point of physical contact with your service.

To check the data is available reliably, you will need a clinical data collector – nurse specialist, doctor, therapist, whoever, just so long as they know what the information means and can use it to derive a CFS. Check the process works using run charts – remember, you don't need to check many patients – perhaps just ten patients per day for a week or two should be enough. You'll then get a run chart that looks something like Figure 2 where 1 means that patient could be scored and 0 means they could not.

Figure 2 shows that two patients could not be coded – you need to understand why not, and if appropriate change the process to ensure that they can be coded in the future. It might be that the referral letter is not capturing information on cognition, in which case you need to get them to start doing so. Test again after the process change and you will hopefully get a run chart like Figure 3.

A run of eight points such as the second chart opposite indicates a stable process, so you know that it is working.

Figure 2 Checking number of people identified using CFS (A)

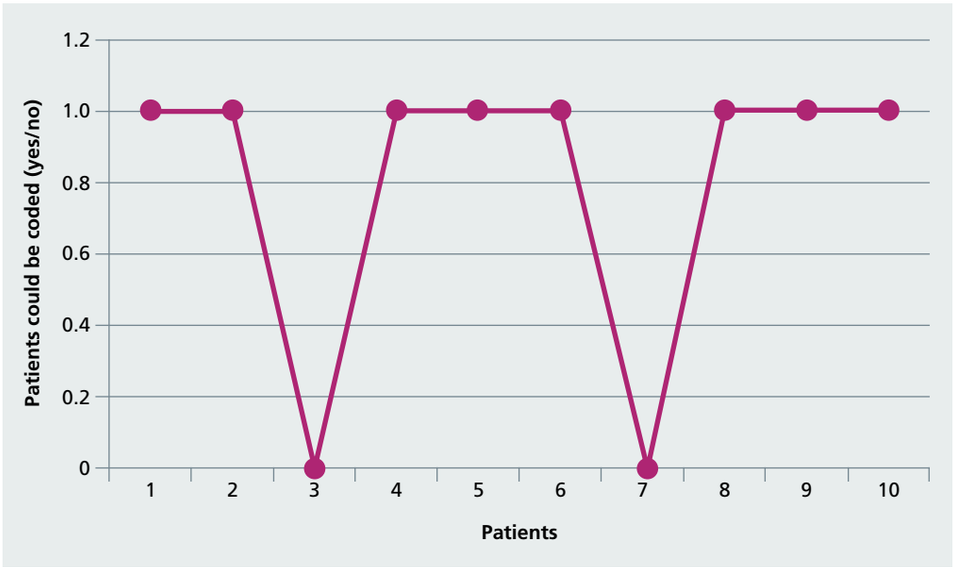
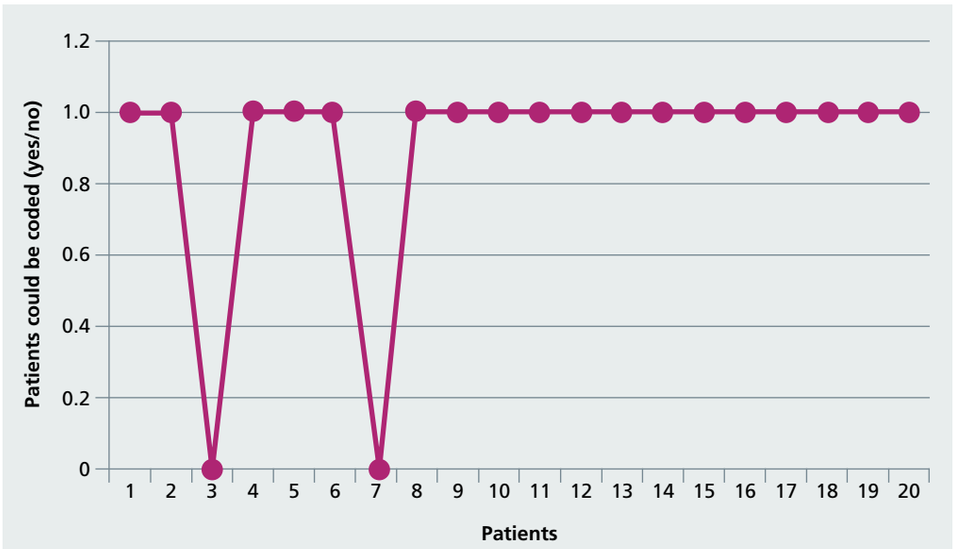


Figure 3 Checking number of people identified using CFS (B)



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Step Two – Inter-rater reliability

Once you have CFS scores being recorded reliably, it is sensible to check they are accurate. Ask one of your team with the most experience of using frailty scales to double mark scores in about 10-20 patients. You should record the two scores in two columns like this:

Patient	CFS score Rater One	CFS score Rater Two
1	7	7
2	4	5
3	5	5
4	3	4
5	etc.	etc.

You can then copy and paste the scores into an analysis package that allows you to calculate kappa scores (examples include SPSS, Stata or mini-tab).

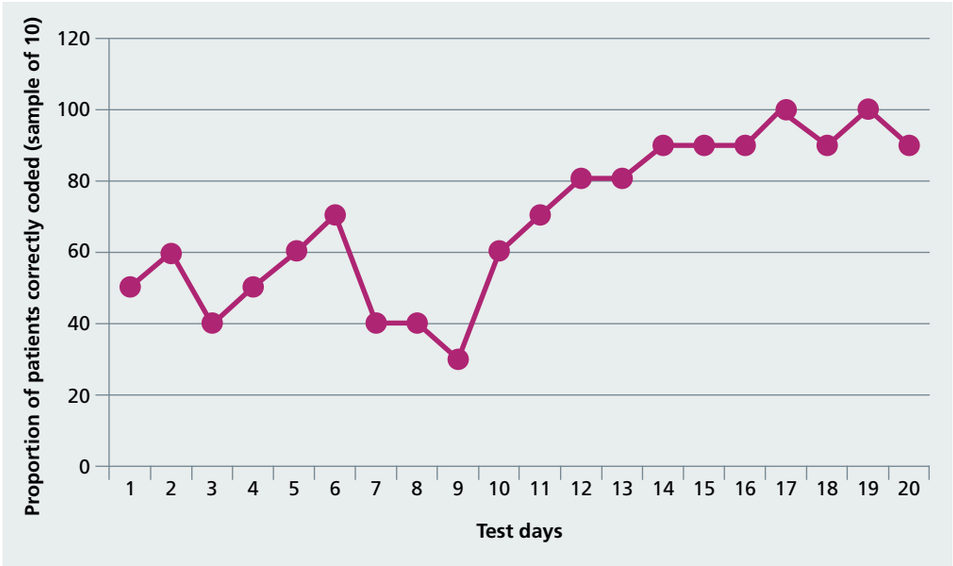
Ideally, you should be aiming for excellent agreement (kappa>0.8). If this is not the case, then further education and training on how to score the CFS will be needed.

Step Three – Where is the information best stored?

It will depend upon your service as to where is the best place to store the CFS. It might be part of an initial assessment proforma, or as part of the electronic health record. You will need to discuss with your team about where would be most useful, in order to initiate CGA early on the patient pathway. You can probably do this through discussion rather than as a PDSA (Plan, Do, Study, Act) cycle.

If you are using an IT system to capture frailty and track it though the hospital, it is a simple case of checking that older people coded as frail are captured. If there are problems, find out why, correct the process and keep measuring until it is correct and stable – it will look something like Figure 4

Figure 4 Checking frailty coded on system



You may find that you have to run a few cycles to get the process right.

Step Four – Frailty identification leading to action

Now that you have a stable process in place that ensures that people with frailty are identified, all you need to do is check that those identified as frail are receiving CGA! This is a case of defining what you mean by CGA. Using the principles below, we would suggest that you look for evidence of assessment in each of the five domains of CGA, evidence of a multi-disciplinary team (MDT) discussion and stratified problem list. You could do this by counting how many of these seven elements have been undertaken. As your service matures, you could look at the individual components to check that they are each being delivered consistently.

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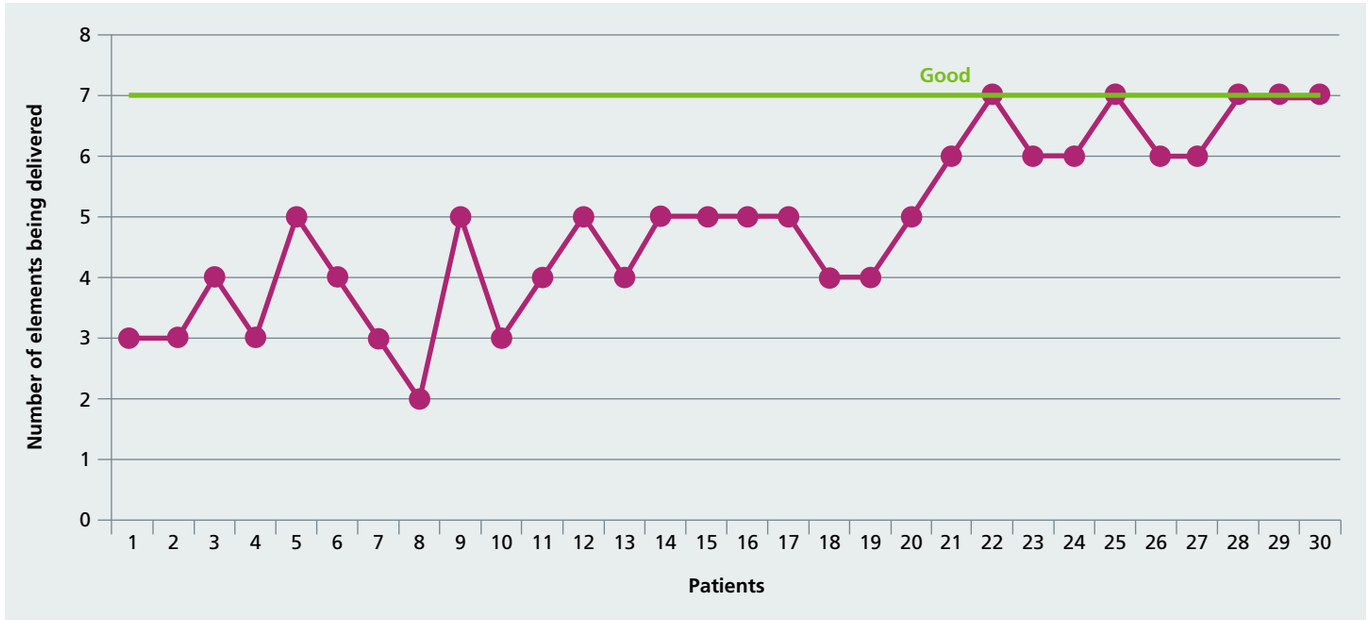
Figure 5 Seven elements of CGA being delivered?



You now have a process in place for identifying and managing frailty.

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Case studies

At **Nottingham University Hospitals NHS Trust**, the specialist renal nurse brought along to her focus group the patient supported copy of the CFS. Thirteen patients who attended did not all have frailty, but they willingly participated in exploring their own scores on the scale and discussing what they felt about the term.

The results were interesting in that patients didn't overly like or dislike the term but couldn't think of another term they would use instead. They would be happy for health professionals to use the term with them in private but wouldn't like it if discussed in front of family or friends. The group felt it would help staff be holistic and not focus just on kidneys. They also liked being able to score themselves using the patient friendly version of CFS.

The team at **Newcastle Upon Tyne Hospitals NHS Foundation Trust** are now assessing frailty in all suspected lung cancers and have made the recording of the frailty score a mandatory field in their MDT. 92 patients were assessed over a three month period between November 2018 and January 2019, ranging in age from 45 to 99. The majority (84) were outpatients and most of the screening was done by consultants. The average age of patients was 72.

Most patients scored a frailty rating of 4 (indicating that they are vulnerable and that their symptoms may limit their activities to some degree). Slightly fewer were found to be managing well while others were rated as mildly or moderately frail.

The team analysed which treatment plan patients were receiving. Unsurprisingly, patients undergoing chemotherapy, immunotherapy and radiotherapy tended to score some of the highest frailty ratings. "Watch and wait" were found to be among the most frail.

The team also looked at the medications that people were taking and compared performance status scores against clinical frailty scores (performance status is a recognised method of classifying patients with cancer but it is not as specific as the CFS).

They found that the CFS was more detailed and more accurate and gave a clearer picture of what was actually going on for the patient. They are still in the relatively early stages with this but the data has provided some helpful insights and they are now drilling down further, for example by correlating frailty scores against outcome data.

As next steps, they plan to explore how this will support decision-making e.g. whether patients with a high CFS might respond better to treatment if they are supported with pre-habilitation first.

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Principle 2

Deliver patient-centred care and improve the patient experience

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Patient-centred care

The advantage of using a standardised approach to identifying older people living with frailty in specialised care is that clinical teams can consider the severity of frailty of individuals alongside the available care options. This information can be used to agree a patient-centered plan with patients and their carers that meets their individual needs.

For example, this provides the opportunity to use a personalised plan to encourage preparation for an intervention/surgery, and emphasises the importance of using 'waiting time wisely'. Specifically, in the context of surgery, patient-centred plan can increase the appropriate use of day surgery use and minimise time spent in hospital.

It is important to include the patient and where appropriate their carers in decisions about their care, to understand 'what matters to them' and how this can be included in shared decision-making, assessments, and treatment plans. To respect the wishes and autonomy of patients and carers it is important to ensure that shared decision-making forms the foundation of treatment decisions.

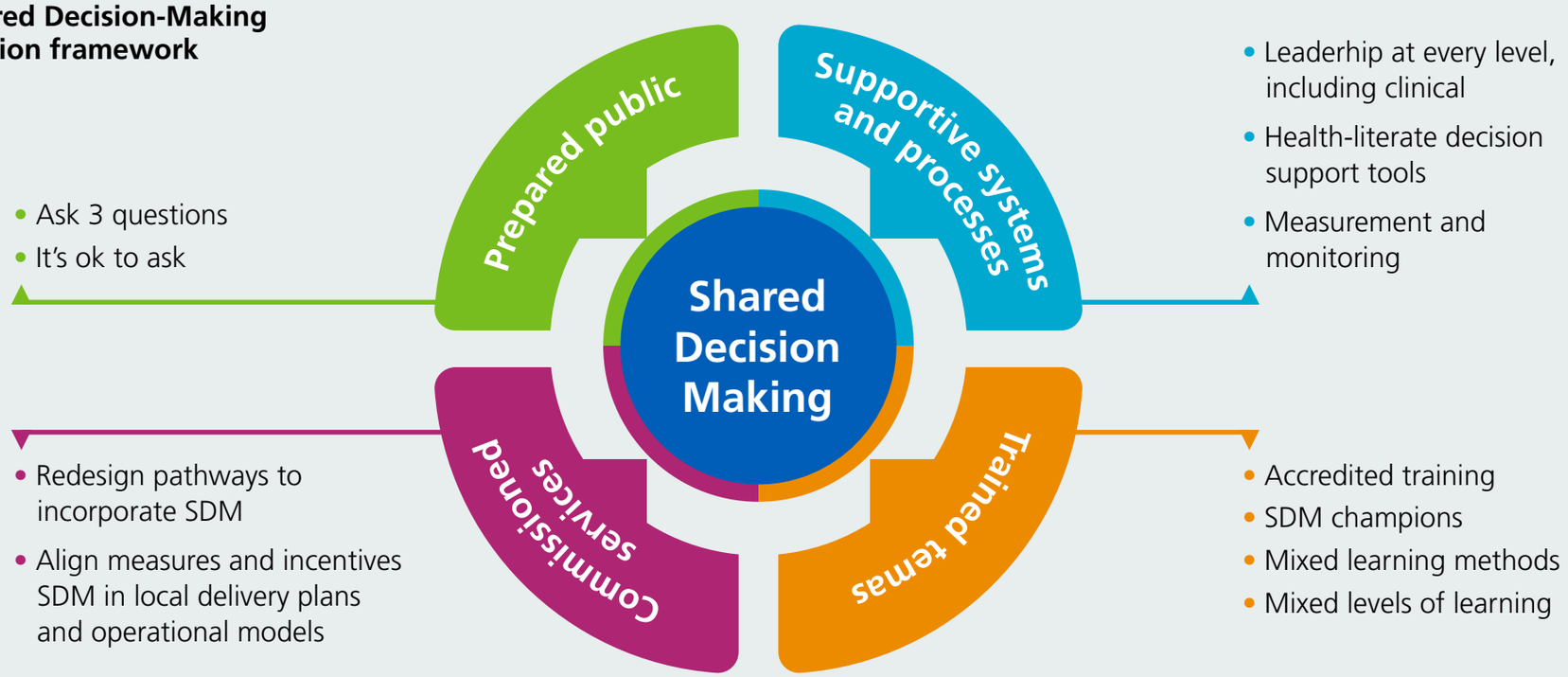
People should be supported to:

- Understand care, treatment and support options as well as risks, benefits and consequences of those options.
- Make decisions based on their personal preferences ('what matters to me') and high-quality evidence-based information.
- Provide feedback at the conclusion of care to determine if the expectations matched what was experienced.

Further information and resources on Shared Decision Making are also available on the CPOC website here.

See the Shared Decision-Making implementation framework (Figure 6).

Figure 6 Shared Decision-Making implementation framework



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Improving patient experience

Evidence shows that involving patients, carers and the public in the planning, design and delivery of health and social care services can lead to more co-ordinated and efficient services. This means services can be designed to be responsive to local community needs, deliver the services people will want in the future, and identify areas for service improvement and transformation.

To help understand how the pathway for older people living with frailty in specialised services could be improved we have supported sites to use the quality improvement technique 'Experience Based Design' (EBD), which has four phases:

1. Capture
2. Understand
3. Improve
4. Measure

In the first waves of this programme we worked with some sites to test and develop tools to capture patient experience data in both inpatient and outpatient settings. This approach has helped staff understand the areas where patients have a negative experience and work with them to make improvements. This data gathered has also formed an important part of the dataset within their project groups.

Subsequently, a staff experience tool has been developed alongside the patient tools which enables sites to understand the experience of their staff and identify opportunities for improvements as well as celebrating the things that go well. To access the tools please email us.

Bart's Health NHS Trust incorporated EBD into their approach. Both inpatient and outpatient aspects of the 'TAVI' pathway were reviewed to better understand the experience of patients. The data informed work with patients to understand what was needed to improve the pathway from their point of view. Staff at Bart's have really embraced the EBD approach and their Service Improvement Manager outlines the benefits opposite.

EBD is not a new approach in specialised services. In 2013, the King's Fund undertook a global survey and reported that EBD projects had been implemented or were being planned in more than 60 health care organisations across the world. Results of the survey were used to create a toolkit, including a case study from a chemotherapy team on the power of EBD to develop a patient centred approach. Click here to access their story

EBD is a simple concept which helped the Bart's TAVI Frailty Improvement programme achieve the ultimate goal of improving patient experience within our service. The EBD approach allows patients and their loved ones the opportunity to sit down with staff and actually evaluate and influence the on-going process of healthcare design, improvements and delivery. It gives them a major say in how things look, feel and work.

Using the EBD approach at Bart's placed a greater emphasis on collecting 'stories' and the 'lived experience' told to us by patients and their loved ones. With thanks to the SCFN team at NHS Elect, the EBD improvements achieved are small changes that cost little or nothing to implement, such as reducing anxiety for a vulnerable group of patients with complex health and social care needs. We highly recommend the EBD approach as the way forward in co-design with patients and their loved ones as equal partners in shaping how healthcare innovations and improvements should be designed and improved going forward.

Darren Barnes
Senior Improvement Manager, RN
Bart's Health NHS Trust

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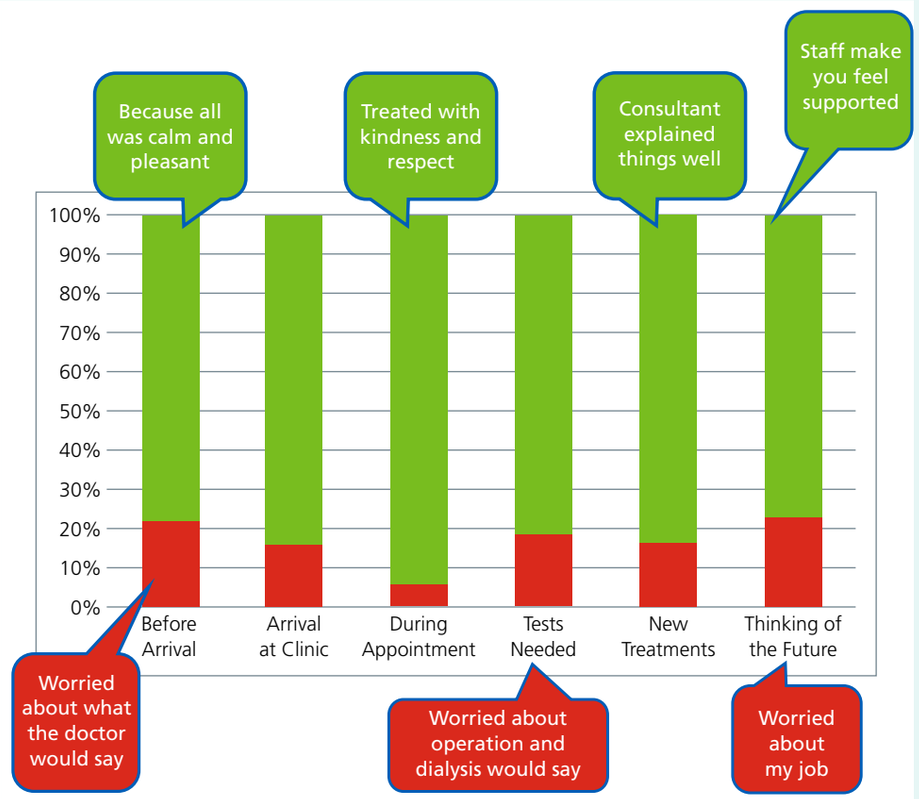
Case studies

The team at Royal Preston Hospital (**Lancashire Teaching Hospitals NHS Foundation Trust**) worked together with the SCFN team to develop a tool to assess the experience of older patients' attending appointments in the renal outpatient department. They used data gathered to review patients' views of the care pathway and to establish emotional touch points.

Preliminary results were overall positive (see Figure 7). The team focused on the domains where the results showed patients experiencing negative emotions. These were before arrival at clinic and also when thinking about the future.

Further information is available in the case study developed with colleagues at Royal Preston Hospital which can be found here.

Figure 7 Lancashire Teaching Hospitals NHS Foundation Trust (Renal) Emotional Map



The team at **Sheffield Teaching Hospitals NHS Foundation Trust** started undertaking frailty assessments with their patients in November 2018. They are now using the information provided by the initial frailty assessment, alongside a case note review and patient-focused EBD to inform the design of their new patient pathway.

The team at **Royal Papworth Hospital NHS Foundation Trust** has developed an 'all about me' booklet, which is now in use for TAVI patients identified as frail. A copy of the booklet can be found on the SCFN website in the Member Area*.

The team have also recently introduced a post treatment review for all frail TAVI patients to review the impact of treatment to inform future improvements .

Since the start of the Network, the team at **Oxford University Hospitals NHS Foundation Trust** has put in place a process for frailty identification. They have also completed an EBD study. Information from the findings is being used to review and redesign the pathway for older people living with frailty.

* www.scfn.org.uk/member-area

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Principle 3

Communicate shared decision-making across services, settings and systems, making frailty everyone's business

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Effective management of the frail older person in a hospital environment is very dependent on understanding the Directory of Services they can access inside and outside the hospital. Within the hospital setting, communication and collaboration between specialised services and geriatricians can be very beneficial in determining the best processes for frailty identification, assessment and shared decision-making, recognising that not all specialist hospitals have geriatricians within their own organisation.

Across settings, many acute hospital teams work closely with community teams; some work across the boundary of acute and community care to develop the skills to case manage patients and ensure they can access the services they need. Within specialised services these relationships are also important to ensure a coordinated and holistic approach to the management of a frail older person undergoing specialised treatment. Of particular importance is the collaboration between specialist and referring hospitals to enable an integrated approach to frailty identification, referrals, assessment and shared decision-making. Consideration should be given to how to communicate expectations about pathway management for both clinicians and patients and carers, for example expectations about follow-up.

Lastly, local social services departments will have social workers or care staff working both in hospitals or in the community providing a range of social care assessment and support for older people in their own homes or in care homes. Third sector agencies such as the British Red Cross and other locally based charities also now offer services in many areas to transport and resettle patients in their own home following a hospital attendance or admission.

Across the NHS there is an agenda to ensure care is integrated across the system. In specialised services this would enable the continuity of person-centred care through effective collaboration and communication with other services and primary care. After frailty has been identified, each service should have a mechanism in place to enable a frail person to access other resources to optimise their care throughout the system both in hospital and the community. This caters to the needs of frail people who often require more than single episodes of care.

The *NHS RightCare: Frailty Toolkit* is a good resource to inform the design of frailty services across the system.

Case studies

The recently established Renal Frailty Team at Royal Preston Hospital (**Lancashire Teaching Hospitals NHS Foundation Trust**) offer home assessments to patients living with frailty and chronic kidney disease, using the principles of the Comprehensive Geriatric Assessment. The team communicate directly with Community Services and Primary Care teams. The Renal Frailty Team is liaising with CCG representatives to discuss a more structured integration of care for patients living with frailty and chronic kidney disease across primary and secondary care services. The team secured charity funding for a part-time Occupational Therapy post for 12 months, which allowed more time to develop the service and demonstrate its value strengthening the business case for the Renal Frailty Team.

At St James's University Hospital (**The Leeds Teaching Hospitals NHS Trust)**, the IT system enabled the renal team to be able to see primary care electronic Frailty Index of all the patients referred into them and to feedback Clinical Frailty Scale (CFS) scores, allowing them to risk stratify the entire population.

As a result of participating in the Network, the team at **Cambridge University Hospitals NHS Foundation Trust** (Addenbrookes) has come together to develop a onco-geriatric pathway for lung cancer, which involves a dedicated frailty MDT review prior to final treatment decision.

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Principle 4

Undertake Comprehensive Geriatric Assessment (CGA) early in the pathway to inform subsequent care planning

Comprehensive Geriatric Assessment (CGA)

"A multidimensional, interdisciplinary diagnostic process to determine the medical, psychological, and functional capabilities of a frail older person in order to develop a coordinated and integrated plan for treatment and long-term follow-up."

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Comprehensive Geriatric Assessment (CGA) is a well-evidenced form of holistic care for older people. All healthcare professionals should be able to initiate CGA, including at the very least assessments of:

- Diagnoses (there will usually be multiple active comorbidities)
- Psychological function (especially confusion and mood)
- Physical function (activities of daily living and falls risk)
- Cognitive function (especially dementia and delirium)
- Environment in which the individual functions
- Social support networks present or required to maintain on-going function and a focus on who matters to the patient

Whilst all staff should be able to undertake the initial assessment, an interdisciplinary team will usually be involved in assessing each domain in more detail, proportionate to the needs of the individual. The team should work within a flattened hierarchy which facilitates mutual trust and encourages constructive challenge. Examples of the process of CGA are shown in Appendix Three.

The initial assessment should be summarised as a stratified problem list, with the most urgent and important issues documented first, but other important but less urgent issues flagged for on-going management. Delivering a coordinated and integrated treatment plan requires a mutual understanding of team roles and expertise. This diagnostic process will be iterative, as issues will evolve in terms of urgency and importance. It should be tailored to the individual, not protocol-driven, using the principles of patient-centred care. You will need to consider:

- How are you going to achieve completion of CGA in your specialised service?
- Where and when should this be delivered?
- Who is going to initiate the process?
- How are you ensuring it is being completed appropriately?

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Case studies

Sites have explored how this could be used to support patients who were moderately frail to have a geriatrician or frailty service introduced to support identification of any problems that could, if left undetected, impact on subsequent treatment decisions.

St James's University Hospital (**The Leeds Teaching Hospitals NHS Trust**) had already commenced work earlier in 2018 with a geriatrician clinic embedded into the renal clinic, where once a fortnight the geriatrician was able to see any patients who were of concern to the team. Original referral criteria based on age, modality selection and transplant listing had evolved and now patients were being referred for a range of reasons.

A case note analysis was undertaken to review the first 30 patients seen by the geriatrician to understand themes leading to referral which could be developed into a Standard Operating Procedure (SOP) and to explore any themes and plans that were made as a result of the geriatrician review.

It was recognised that there were seven main criteria on which referrals were made:

1. Recognition of the frailty phenotype
2. Recognition of other geriatric syndromes
3. Recognition of unexpected home circumstances during home visits
4. Patients finding it difficult to achieve a decision regarding treatment options
5. Patients with treatment expectations judged unrealistic by the MDT
6. Patients with families who appeared to have unrealistic expectations of the treatment options
7. Patients aged over 80 years with a plan to start dialysis.

Following geriatrician review, it was found that 38% changed their treatment modality decision, including an increase in the rates of patients choosing conservative care after review, and only one patient remained undecided. Additional outcomes included a discussion of resuscitation and record of patient wishes on appropriate forms (52% DNAR and 24% choosing to receive resuscitation; the remaining patients chose not to make a decision), 43% completed an advance care plan; one or two patients had one or more of the following outcomes – referred back to GP, referred to local palliative care services, referred for other additional services (e.g. continence, falls, etc). Most patients were seen twice in the clinic. All patients were seen with an additional family member, carer or other advocate. A few patients had found the consultation difficult, but overall this type of review in clinic was well-received.

The service had been well established but the exact benefits in terms of interventions had not been well understood. Following review, it was noted that 40% of geriatrician reviews resulted in strategic management decisions. There was clear benefit to the patient of having a geriatrician review but the team had no therapy service embedded into the clinic, instead using referral to other established external services. Further work continues to explore an MDT approach to undertaking CGA and creating plans.

At **King's College Hospital NHS Foundation Trust**, a test of change was undertaken to explore the benefit of having a geriatrician engaged in the low clearance clinic service. A clinical fellow keen to explore the implications of a service to renal patients was employed to work for a period of time reviewing patients and undertaking a CGA and creating a personalised plan with patients.

The team at **University College London Hospitals NHS Foundation Trust** is making sure that all lung cancer patients admitted to the Oncology ward have a frailty assessment. Patients identified as frail (CFS>4) go on to have a CGA.

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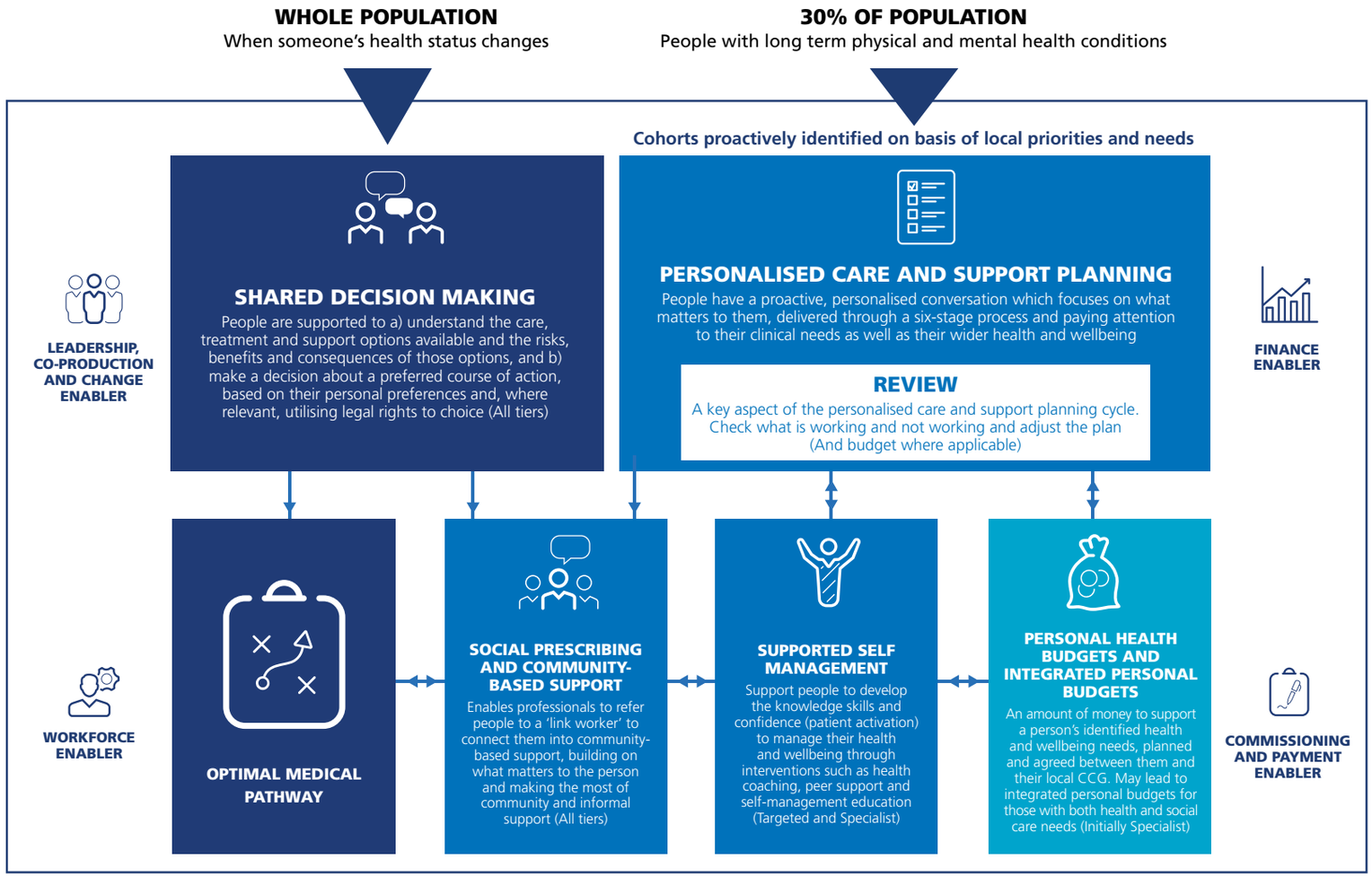
Principle 5

Support personalised care

The Comprehensive Model of Personalised Care

For more information click here



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The NHS England Personalised Care programme is based on 'what matters' to people and their individual strengths and needs and will benefit up to 2.5 million people by 2024.

The Comprehensive Model of Personalised care has been developed to implement this. For specialised services the most important component is effective shared decision making between clinicians, patients and carers. This enables patient choice and for the discussion surrounding their wishes to be documented in their personalised care plan in primary care. Social prescriber's will be in place who can refer older people living with frailty to link workers who can help coordinate personalised plans.

Further resources can be found on the SCFN website*.

Specialised services have traditionally focused upon the care of the condition, often focusing on what choices the patient has available in relation to the treatment. In frailty, although all choices can be on offer, some choices may not always be of benefit, particularly if the patient has moderate or severe frailty, when the risks of intervention may be greater. Recognising that a patient is frail, and recognising their level of frailty can support teams to:

- Personalise and tailor the potential interventions on offer to ensure patients are informed as to the true risks/benefits from one specific modality versus another.
- Following on from the assessment, and informed by CGA, to tailor interventions towards recognising and responding to the need to place the patient in a better position to avoid potential complications e.g. post-operative delirium, increased risk of falls or bone health issues caused by the treatment etc.

CGA allows specialised interventions to be tailored to those most likely to derive benefit, for example:

- Pre-habiliation to ensure changes in nutrition and a designed exercise programme so that the patient is in a better position to respond well to the surgical intervention/treatment on offer.
- Patients with frailty are more likely to develop delirium; this risk can be identified and mitigated, for example through reducing Anticholinergic Burden.
- Cognitive function review to ensure the patient can understand the planned specialised intervention e.g. what they need to do in order to be able to undertake dialysis in the home.
- Falls and bone health risk assessment to ensure the patient is not at risk of further harms and if they are, a tailored plan developed to reduce the risk.

Mildly frail patients might benefit from efforts to optimise physical and psychological well-being through self-management in order to maintain their current level of function.

Those seen to be moderately frail may benefit from discussions as to whether invasive treatment options are suitable for them, such as systemic treatment in cancer, and haemodialysis versus peritoneal dialysis in renal services.

Those with severe frailty may benefit more from honest conversations regarding likely risks and benefits, and decisions as to treatment escalation wishes and a plan to support end of life care.

There are other areas that commonly need to be included in the frail older person's care plan and they are described below.

Medication reviews

Anticholinergic medications are commonly used in older people living with frailty and increase the risk of delirium. Tools such as the Anticholinergic Burden Scale can help identify drugs that might be suspended or stopped prior to intervention to reduce the risk of delirium or other anticholinergic side-effects (constipation, urinary retention, or xerostomia). Using tools such as STOPP/START can also support clinicians to prescribe more frailty attuned treatments.

* www.scfn.org.uk

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Pre-habilitation

In elective surgery, pre-habilitation before surgery, with a specific program consisting of exercise training, nutritional and psychological support, may lead to better functional recovery after surgery. Further information is available from the Centre for Perioperative Care (CPOC) a cross-specialty collaboration dedicated to the promotion, advancement and development of perioperative care for the benefit of patients at all stages of their surgical journey.

Cognition

Cognitive decline can be gradual, perhaps only being noticed once it starts to impact on activities of daily living. The 4AT is a screening instrument designed for rapid and sensitive initial assessment of cognition in order to detect any impairment and delirium. This tool can be downloaded from the 4AT website. Many areas use the AMT-4 as a quick way of assessing cognition and this is to ask the patient to state their age, date of birth, place (name of the hospital or building), and current year. This has been used successfully in renal services at the clinic points of contact to look for small changes in cognition.

If patients have obvious unexplained cognitive dysfunction, the Montreal Cognitive Assessment (MOCA) can be used. This test is a more in-depth review of cognition and looks at visuospatial/executive abilities as well as naming, memory, attention, language, abstraction, delayed recall and orientation. Scores of 26/30 or more are considered normal, while lower scores indicate the need for further assessment to explore the possibility of dementia. A collateral history from family, carers or others who know the individual well is essential.

Falls and bone health

Falls and fall-related injuries are a common and serious problem for older people. People aged 65 and over have the highest risk of falling, with 30% of people older than 65 and 50% of people older than 80 falling at least once a year. Falls in older people can impact upon physical function, resulting in reduced mobility, and undermine confidence and independence. Even 'minor' falls can result in serious injury such as hip fracture or head injury ('silver trauma').

Specialised service teams might consider asking about falls and referring onwards for strength and balance training or other falls prevention interventions.

Falls are associated with an increased risk of fracture; fracture risk assessment tools include QRISK or FRAX.

Case study

At **Oxford University Hospitals NHS Foundation Trust,** patients receiving TAVI had Clinical Frailty Scale (CFS) scores measured; patients with scores of ≥6 were more likely to develop post-operative delirium, constipation or falls. They changed their approach to TAVI in patients with high CFS by involving geriatricians and correcting electrolyte imbalance and providing nutritional support. Early results appeared to show post-operative benefits for older people living with frailty.

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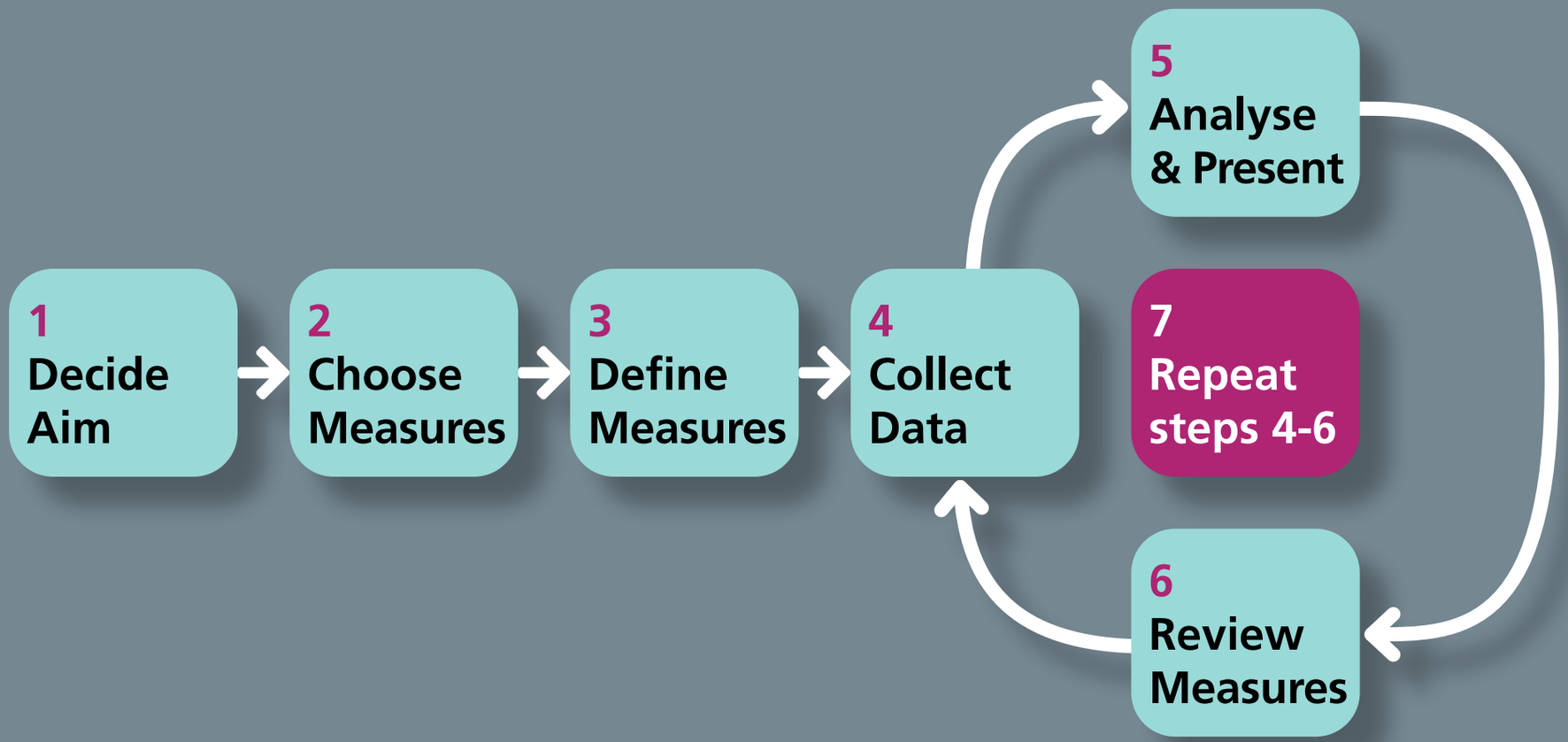
Principle 6

Develop a measurement / QI mind-set



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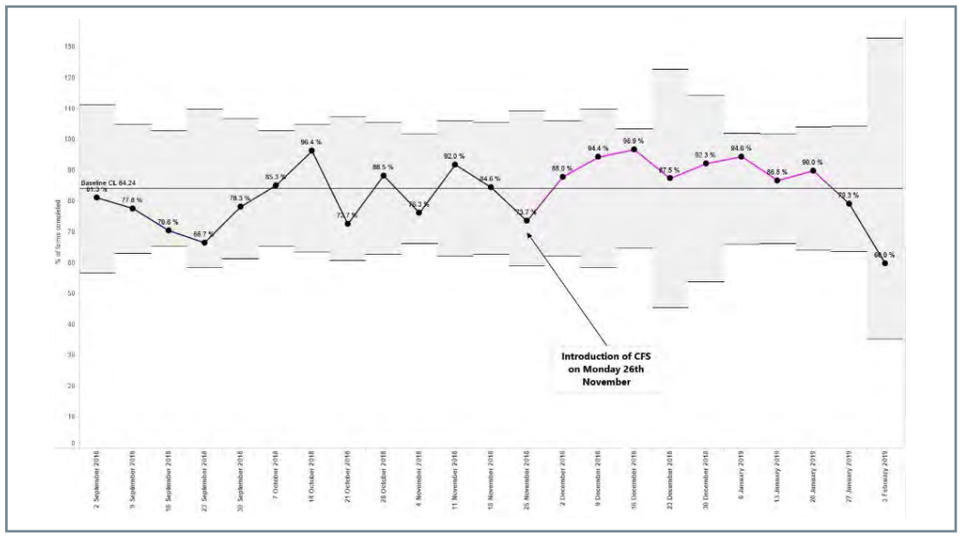
The aim is to identify frail patients in your specialised service then, using this information, enhance shared decision making to ensure that care and treatment is tailored to the needs and preferences of patients. This will require many changes to be tested and implemented. It can also involve different health and social care professionals and cross organisational boundaries. Change can also have unexpected consequences for patients, individual staff members and services.

It is therefore essential that change is accompanied by a robust and sustainable approach to measurement. The right measures answer the question 'How will we know that change is an improvement?' After all, it is improvement that we are seeking, not just a change from the present way of doing things. You will need to work at creating and using the right measures to help you know where you are at, and where you are heading.

You will need a reliable approach to choosing the right measures and then collecting the data and displaying it. The NHS Elect Measurement Guide, available in the Member Area of the SCFN website, takes you through just such a process.

Figure 8 Completion rate on the 'new patient' eForms (DS forms) with CFS incorporated



A core part of the measurement guide are the seven steps to measurement:

Step 1 Define aim: Without a clear 'outcome' based aim, it will be difficult to decide what improvements you need to implement in order to try and meet the aim.

For example, **Manchester University NHS Foundation Trust** developed the aim "To improve outcomes and maintain quality of life in frail patients at risk of critical illness following emergency laparotomy in patients aged 65 and over".

Step 2 and 3 Choose and Define measures: Use the measures checklist to define frailty. All sites are encouraged to use the 'Measures Checklists' from the SCFN website to ensure you understand how to clearly define the outcome/impact, process and balancing measures that you are going to collect. All sites have created a driver diagram to start to understand that process measures (the right hand side of the diagram) will help achieve the aim (the left hand side of the diagram).

Step 4 Collect data: Collect data in line with the PDSA (Plan, Do, Study, Act) model, meaning you may want to collect a small amount of data to start with and review it regularly. For example, at **Salford Royal NHS Foundation Trust** they were encouraged to collect the outcomes from their new MDT for 25 patients and then look at the data.

Step 5 Analyse and present: It is essential to display an appreciation of variation in the way you present your data. Analysis is being able to spot the 'signals' from the 'noise'. Statistical Process Control (SPC) is the best way of doing this. Please download from the SCFN website the SPC Generator.

Steps 6 and 7 Review and Repeat.

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What measures might you use?

A complete list of outcome/impact, process and balancing measures created by SCFN sites can be downloaded from the SCFN website. Linking your own seven steps journey and the list already created will help you decide what to measure.

It might be useful to think about improvement/measurement at three quite different levels across your health and social care system.

MACRO-LEVEL

External comparisons – SCFN sites vs. rest of NHS to determine benefits over and above usual care; using Hospital Frailty Risk Score to standardise assessment of frailty across the NHS

MESO-LEVEL

Internal service metrics based on hospital data (age, mortality, bed-days; progress reports for internal use as well as for local commissioners and benchmarking activities)

MICRO-LEVEL

Internal service development metrics aligned to specific aims

Firstly, there is the local or **Micro-level**. This is bespoke measurement to inform local, internal quality improvement initiatives or to inform PDSA cycles. Measurement here needs to be tailored to the aim of the specific project. This means that your results will almost certainly not be comparable with elsewhere because you will be using different measures, or apparently similar measures that are defined subtly differently.

Then there is the service or **Meso-level**. This is assessing the impact of developments on the pathway for older people living with frailty through your specialised service. It is at this level that we showed the example of using the seven steps approach above. As frailty is not currently captured in routinely collected hospital data, it will usually be necessary to measure the relative impact of service changes at the hospital level using age-bands for historic data. Once you have a reliable frailty identification process in place, you may be able to place a flag in your hospital system that will enable you to analyse your data at a local level.

Finally, there is the system or **Macro-level**. This is useful for examining patient flows across pathways, or undertaking benchmarking exercises between different settings.

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National data analysis, developed by NHS England, has been aiming to improve our understanding of frailty in the context of NHS specialised services. This analysis has utilised the Hospital Frailty Risk Score applied to Hospital Episode statistics inpatient database 2017-18. The analysis has identified the likely levels of frailty within treatment populations and indicates how frailty significantly increases risks of poorer outcomes and longer lengths of hospitalisation across a number of different specialised services. It also indicates the level of variation between individual providers in the prevalence of frailty within their treatment populations. The published data is available on the SCFN website.

The outcome, process and balancing measurement triangle is a useful framework at all three levels of data. We have found that we have softened the term 'outcome' to the word 'impact' resulting in clinicians moving away from a research lens for this improvement project. A useful example of this is from **Lancashire Teaching Hospitals** Figure 10) showing the impact of CGA recommended actions at the MDT meeting, in a Pareto chart.

Figure 9 Outcome/Process/Balancing Measurement Triangle

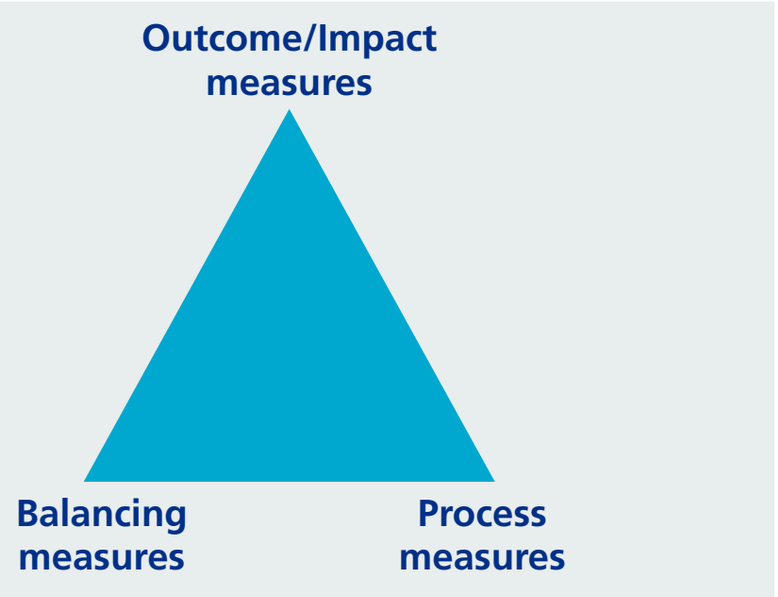
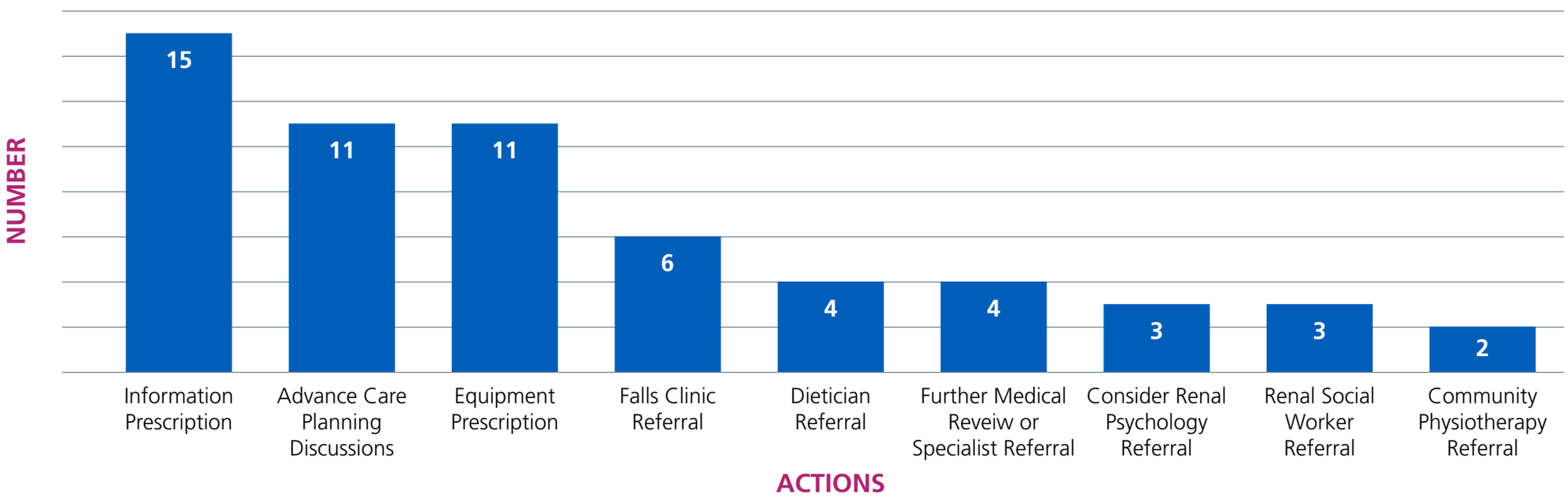


Figure 10 Impact of CGA recommended actions



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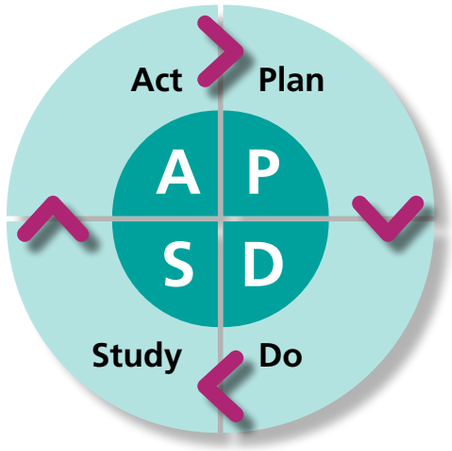
Using the PDSA approach (Plan, Do, Study, Act)

PDSA methodology is recommended for testing changes. There are four stages to the PDSA cycle:

- **Plan** – the change to be tested or implemented
- **Do** – carry out the test or change
- **Study** – data before and after the change and reflect on what was learned
- **Act** – plan the next change cycle or full implementation



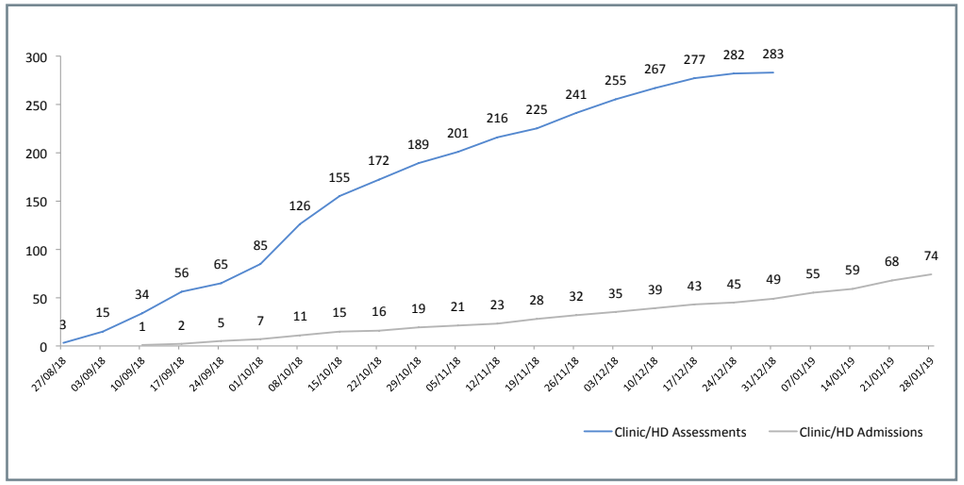
You may not get the results you expect when making changes to your processes, so it is safer, and more effective, to test out improvements on a small scale before full implementation. Running a series of PDSA cycles has a number of advantages:

- You can learn and adapt after each test
- It increases the degree of belief in the changes amongst stakeholders
- It builds a common understanding of what you are trying to achieve
- You can evaluate unintended consequences
- It reduces the total lead-time of full implementation
- You can test ideas under different conditions.

Case study

The team at **Barts Health NHS Trust** are now using frailty assessment scores alongside their 'get up and go' videos in the MDT meeting, to assist with decision making. To review the impact this could have, the team are measuring their 30 day and 1-year mortality rates, as well as occupied bed days.

Figure 11 CFS Assessments Complete vs Unplanned Admissions after Initial Assessment (Clinic and HD Patients Only)



We considered how we could embed measurement for improvement within each planned change. We have subsequently been able to evaluate the changes implemented, identifying those that were successful and those less so. This has allowed us to continually improve our patient pathway and progress along our journey to improve outcomes for patients living with frailty and chronic kidney disease.

Dr Andrew Nixon
Clinical Research Fellow in Renal Medicine
Department of Renal Medicine
Lancashire Teaching Hospitals NHS Foundation Trust

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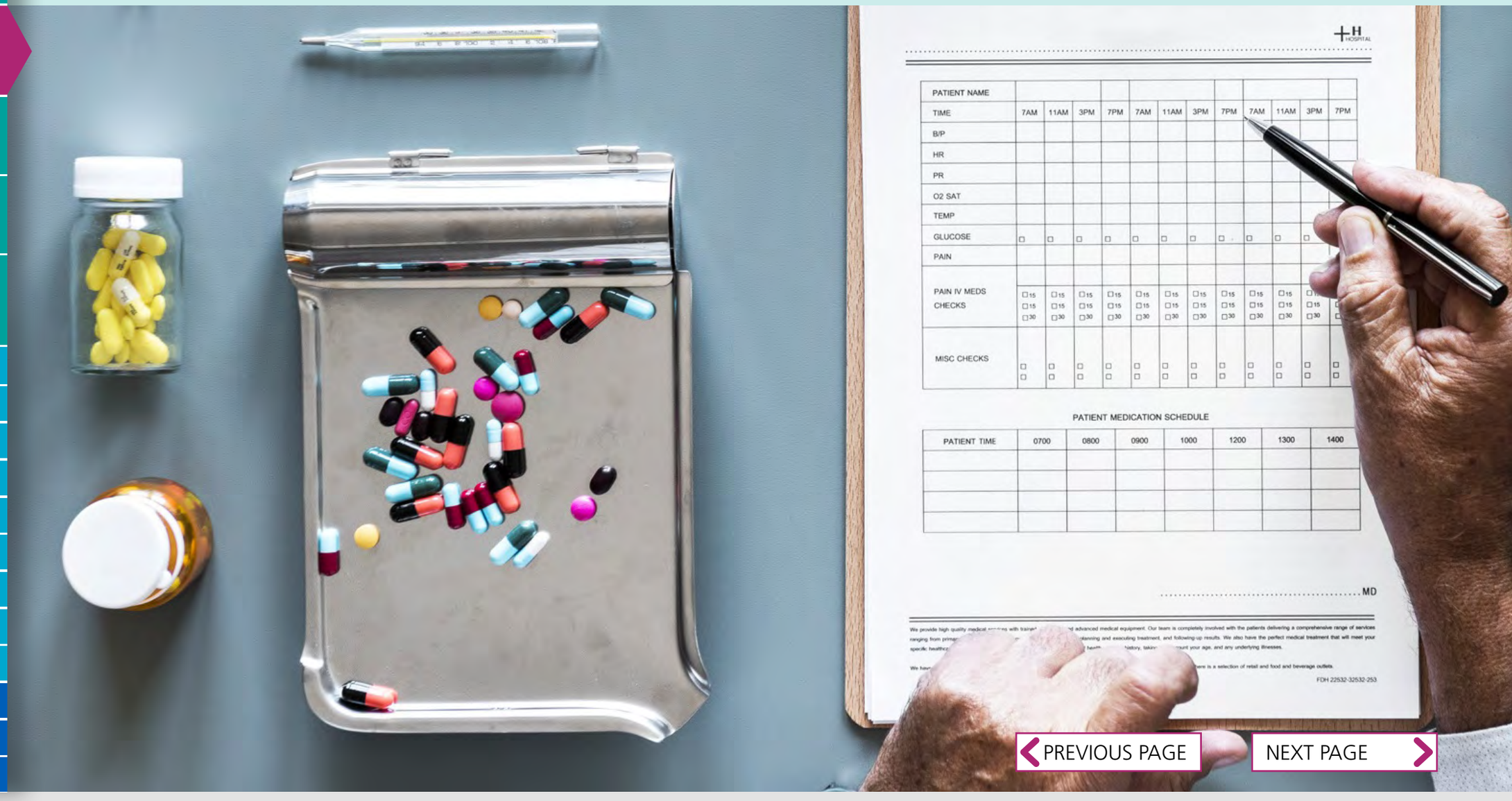
Principle 7

Adopt clinical professional standards to reduce unnecessary variation



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Teams should work together to agree clinical professional standards to describe and monitor how you work together as a team – 'the way we do things around here'. They are not 'straight-jacketing', 'protocolising' or treating everyone the same, rather they are about agreeing what good looks like and striving to achieve this wherever possible. Whilst clinical decision-making will absolutely vary according to individual patient needs, which needs are identified routinely, how, and by whom, are important to measure in order to reduce unwarranted variation and improve patient outcomes.

For example, medication reviews are an important aspect of addressing the care of older people with frailty and specialised care needs. So questions to be asked of your team – and the answers measured routinely – might include:

- Do you undertake medication reviews in older people living with frailty with specialised care needs?
- Do you always assess Anticholinergic Burden?
- Do you use an evidence-based tool?
- Do you specify why you are STOPP-ing or START-ing medication?
- Are changes that well communicated internally and externally?

Other examples of clinical professional standards might include:

- The MDT meeting will have a lead clinician, from the specialty (this is key where patients from surgical specialties are being reviewed), pharmacist, therapists, nurses and social services input.
- At the meeting each patient's stratified problem list will be reviewed and actions taken logged to show clear decision-making processes.
- All older people living with severe frailty will have their resuscitation status and treatment escalation plans clearly recorded in the notes with the decision and rationale explicit.

To limit variation in these service standards it is recommended that clinical professional standards are monitored and reported on a weekly basis. This will allow measurement of the quality of the pathway, and an understanding of where there may be constraints that need to be addressed. For example, if the percentage of patients receiving comprehensive geriatric assessment is low and the investigation highlights that only a minority of staff are trained in the process, there is clearly a training gap to be addressed. Monitoring of the standards therefore will enable active management of the service.

How well are you doing against these standards at the moment?

Case study

At **Lancashire Teaching Hospitals NHS Foundation Trust** as the project team have been working on tests of change they realised that they have inadvertently engaged in developing standards, by making clear what is expected from each aspect of care delivery in renal services in relation to Frailty. Following discussion, the team agreed that these are indeed aligned to Principle 7; through their improvements, they had explicitly articulated the expectation for frailty in renal services to improve the care of older people with frailty on a renal pathway.

Following adoption of the CFS and the introduction of a renal frailty team whilst building on the improvements, a draft of these professional standards has recently been developed. The standards encompass best practice and make it clear to the broader MDT the standard of care expected and the interventions that should be included in the patient's care plan. The team plan to measure the standards through audit. The aim is to improve the quality of the care, patient outcomes and reduce the time older people with frailty spend in hospital.

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Principle 8

Identify clinical change champions

The team from Lancashire Teaching Hospitals NHS Foundation Trust championing change

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'Clinical champions' are crucial to the development of a truly great service. Whilst they can come from any part of the service, they need to be respected by their peers, lead by example, act as an advocate for the project, oversee patient safety, and praise success of the project, sharing results widely. They also have an important role in communications with their peers to drive clinical engagement and working in partnership with senior managers and system leaders to influence at an operational and strategic level.

Clinical champions should have access to appropriate training and development to support them in this role, such as 'managing and leading change'. It is important they have the resources available to help them undertake this crucial role, such as protected time to lead the team and delivery of the improvement plan. It is a recognised problem in the NHS that people are not sufficiently supported and trained to lead change and clinicians particularly are not given administrative support to help them in their role.

Clinical champions should be supported by staff with a range of skills such as service improvement and project management. To avoid pitfalls the following checklist is useful to make the most of clinical leadership:

- Agree dedicated time for clinicians to lead the project
- Identify support and training programmes for clinicians on leading change
- Schedule project meetings around clinicians' availability
- Assign support to allow clinicians to focus on leadership e.g. admin to schedule meetings and take notes
- Connect clinicians with relevant stakeholder groups
- Provide information and updates for clinicians to share across the organisation
- Provide analyst support for the purpose of data analysis
- Review opportunities e.g. board meetings that clinicians can attend to share project information and progress

More information on establishing 'clinical leaders' roles can be found in the NHS Sustainability Model and Guide.

Within the SCFN programme, the clinical leads for the different organisations have worked together through a network approach to lead change and support each other. The sites have quickly identified common challenges and that introducing a frailty programme was mostly new to their clinical teams. There was also recognition of finite service improvement and change management experience across the sites. As a result, the clinical champions and their teams identified with NHS Elect the need to have a collaborative and network approach to discussing problems, identifying solutions and they have worked together to achieve this.

Case study

The clinical leads for neurosurgery have been aided by colleagues not just from their own hospitals but across the Network when leading pathway change. This has been achieved through very simple methods; regular joint conference calls and the use of communication services for the teams and consultants to discuss issues and challenges with adopting new pathways. This has allowed for sharing of (non-patient identifiable) information and ideas to support the implementation of change. NHS Elect have supported the groups with their work, providing notes/ recommendations. These methods have allowed the frailty clinical champions to lead change within their sites using the support from peers across the Network.

Whilst the teams have had access to their own QI teams and change management programmes, they feel they have benefited from the network approach, regular communication and support from other clinical leads and teams through the programme. The use of communication services and conference calls has helped provide quick and accessible support from other sites to break down challenges the individuals and sites face and identify solutions.

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Principle 9

Put in place appropriate education and training to develop a highly capable workforce

Mrs B's Frailty Journey

A 'virtual study day'

This e-learning course is based on a series of lectures on best practice in managing frail older patients in hospital and community settings. The course follows a fictitious patient, Mrs 'B', on her imaginary journey through increasing frailty.

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Older people living with frailty are regular users of specialised services. To meet their complex needs, it is essential that all staff involved in their care have appropriate training in frailty identification, assessment and management.

Guidelines and toolkits adapted for the local setting can support this and should be readily available throughout the specialised pathway. A recent NIHR study produced a service self-assessment toolkit that you might find helpful as means to evaluate where any training gaps might exist in your service.

Health Education England has also recently published ***Frailty – A framework of core capabilities***, click here to download a copy.

HEE has also published support to find bespoke solutions to workforce gaps which can be found here.

In addition, a range of educational activities, including e-learning, face-to-face teaching and induction, should support professionals in their daily work.

Clinical attachments rotating though frailty services should be the norm, and for some this might include a bespoke fellowship for a longer period time to develop expertise in the area of frailty. Clinical training in frailty services should reflect the range of services in which comprehensive geriatric assessment (CGA) can be delivered.

Case studies

Barnet Hospital (part of **Royal Free London NHS Foundation Trust**) has worked with AFN to develop an online educational resource, ***The Frailty Journey***, exploring key areas of frailty care for the multidisciplinary audience. The aim of this is provide easy access to educational resources in a virtual learning environment and help work towards making frailty everyone's business. Subsequently, the site has developed Mr B, the story of a frail older persons journey through COVID-19, delivered as a four part webinar series.

University Hospitals Birmingham NHS Foundation Trust linked with geriatric services to support further training of renal staff in frailty recognition and CGA. This enabled the renal team to recognise frailty as a condition and its potential impact upon patients with advanced kidney disease, significantly increasing their response to common geriatric syndromes in conjunction with therapy, social work and geriatrician support.

Shared Decision-Making training has been delivered to the MDT at **Newcastle Upon Tyne Hospitals NHS Foundation Trust** and they are using this approach to work with patients from a 'shared-decision making' perspective, to address both under and over-treatment in lung cancer patients.

At **Imperial College Healthcare NHS Trust** conventional teaching on frailty was very well received and led to a demonstrable improvement in understanding of frailty among the therapists and junior medical staff who participated. However, it was not accessible to everyone. Nursing staff and junior doctors were unable to leave the ward to take part. Abby Harper-Payne, Neurosurgery Advanced Clinical Practitioner, introduced the concept of turbo teaching for neurosurgery ward staff who had been unable to attend the MDT training. Abby said "Turbo training consists of five to ten minutes of teaching integral to the nursing handover. The same topic is covered for a number of days, to ensure the whole team is trained. We focused on the 5Ms – mind, mobility, medication, multi-complexity and matters most." The turbo teaching showed a marked improvement in knowledge of frailty. 92% of participants reported that their knowledge and understanding of frailty was improved following attending the turbo teaching sessions.

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Principle 10

Identify an Executive Sponsor for the project and underpin with a project management structure

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Improving specialised services needs the support of a wide range of skill sets and resourcing decisions to support the improvements. It is therefore vital to have a senior leader at Board level to sponsor the project who can influence resourcing decisions as needed, including allowing the team to take the time to participate in and deliver the project. They can also help 'unblock' issues that may arise and hinder progress.

Delivery of the specialised frailty project will be more effective and sustainable if supported by a robust project management structure. Project management ensures that everyone has the same aims, objectives and expectations. You can then agree and prioritise timelines and resources. It also improves communications between the various stakeholders and the project team.

The project team meetings should not last longer than an hour. They should be used to review progress against the agreed project plan, consider improvement data and agree next steps. The team will ideally meet fortnightly, chaired by a senior manager or clinician. Membership will depend on your project and those in your teams, but usually they are attended by the project lead, lead clinicians from the specialised service and from frailty, other members of the frailty and specialty multi-disciplinary team as appropriate, an analyst and any transformation/change management representative who may be helping you.

The project should ideally be within the overall strategy and programme management structure of the organisation to ensure corporate ownership of and support to the project. Most hospitals and health systems will have significant improvement programmes in place focusing on improving care for older people living with frailty; it is important that specialised services are linked into these programmes.

It is important that information and support flows through from the project team to the executive team. Within the programme structure will be a requirement for regular reporting and the measurement and evaluation approaches described above will be helpful with this. You may also wish to think about any links to commissioners to ensure their ownership and understanding of what you are aiming to achieve.

Case study

Manchester University Hospital NHS Foundation Trust (MFT) set itself a clear aim when joining the SCFN, namely *to improve outcomes for frail older patients (65 and over) who undergo emergency laparotomy*. They established a multi-disciplinary frailty project group which meets regularly. It is supported by their service improvement team and can access analyst support to provide measurement for improvement data. This project group fits within a Greater Manchester-wide frailty project strategy.

The MFT project group set itself clear aims focused on:

- Frailty at the front door such as frailty scoring performed at the front door in ED, available on EPR/patient track.
- Development of documentation that will follow the patient through their inpatient journey, for example, the emergency surgery clerking document for patients aged 65 years and over.
- Training and education including an e-learning package incorporating frailty into mandatory training.
- A vision and set of standards, that underpin the care of frail patients accessing services at MFT.
- Enhanced Recovery After Surgery for patients who are vulnerable to clinical frailty (ERAS-OP).
- Identifying key outcome measures focusing on areas such as readmissions, length of stay, shared decision making, patient satisfaction, delirium, and establishing whether the Clinical Frailty Scale (CFS) is a useful screening tool.

The MFT team has benefited from excellent support from their executive sponsor, MFT's Medical Director. She worked with the team on developing and refining their SCFN project aim. She meets regularly with the team to understand progress and any issues with which she can help such as capacity, blocks to achieving the aim and ensuring frailty is a priority across the Trust.

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Feedback on the specialised pathways of the SCFN programme

The SCFN programme looks at specialised pathways in Renal, Spinal Surgery, Cardiac Surgery (including TAVI), Neurosurgery, Chemotherapy, Cancer, Vascular, and Adult Critical Care Services. Clinical leaders from each of the NHS England CRG for each of these service areas have developed the following sections to describe how frailty improvements and development of key principles have been a benefit in their specialised service.

Renal >
Cardiac Surgery (including TAVI) >
Chemotherapy >
Cancer Surgery >
Neurosurgery >
Spinal Surgery >
Adult Critical Care >
Vascular Services >

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Renal

Across the UK during 2017, 8001 people commenced renal replacement therapy (RRT) for established kidney disease. The total prevalent population was 64,887 [UK Renal Registry *21st Annual Report*] with a median age of 59.2 years. There is a large cohort of older people receiving dialysis as their form of RRT and for those over 65 years the relative risk of death is six to ten-fold higher. In addition, functional and cognitive impairment and frailty in patients reaching End Stage Renal Disease (ESRD) is highly prevalent, and strongly and independently associated with adverse health outcomes. As people transition from independent kidney function onto dialysis there is a potential for a large functional decline for that person.

The majority of older people will undertake in-centre haemodialysis requiring travel to a facility, four hours of treatment and then a return journey. For many the 'hangover' effect of dialysis can last into the following day. The challenge is that people over the age of 75 are the fastest growing cohort of people undertaking haemodialysis, yet functional decline as dialysis starts may be profound.

There are different options for established kidney disease, including transplantation, dialysis (which can be delivered using peritoneal dialysis or haemodialysis) or to forgo these therapies and have a supportive package (commonly this is known as conservative care). It is also increasingly recognised that RRT may not always offer an improvement in symptoms or a survival advantage to older patients with high levels of comorbidity.

However, there is evidence in variation of approach between specialist centres. There is a need to develop prognostic tools to identify patients who are frail within the renal pathway. This can support patients and staff to make informed decisions about the true risk / benefit from the differing treatments, incorporating person centred goals and values to agree a treatment plan. Understanding the degree of frailty for someone approaching ESRD has several benefits. It may change the individual's view on dialysis but equally it may highlight the need for alternative or additional treatment to reduce the burden of frailty.

The SCFN commenced with five initial sites selected by NHS England. The pilot sites agreed to work across the outpatient low clearance pathway. The low clearance pathway covers the decision-making and preparation for ESRD and RRT. This pathway typically covers one-two years of a patient's journey with input from a large MDT.

There are many improvement stories from renal sites and some have been used to illustrate the principles outlined in this Toolkit. Others are described below to share examples where this improvement programme has made a difference for older people living with frailty.

King's College Hospital NHS Foundation Trust team wanted to investigate which tool to use to identify frailty. They trained 3rd year medical students to undertake frailty screening assessments in the low clearance clinic and used three different scales to assess frailty or proxy markers of frailty. The following tools were used:

- Timed Up and Go test (TUG)
- Rockwood Score (Clinical Frailty Scale)
- Montreal Cognitive assessment tool (MoCA)

All those who scored five or more on Rockwood, had a TUG of greater than 15 seconds or a MoCA of less than 24 were offered a Comprehensive Geriatric Assessment (CGA) during their visit to the low clearance clinic in order to help recognise and address any issues.

The team wanted to explore the differing assessment tools for assessing frailty to identify if one was better for renal patients and to examine a way forward for the future identification of patients who could benefit from geriatrician input. Their hope was that patients identified as being frail could then be referred for a CGA for a holistic assessment including a functional and cognitive assessment in order to better optimise their care and help with shared decision making.

All patients aged over 60 years who were attending clinic were offered frailty screening by the medical students and 65 patients so far have been screened.

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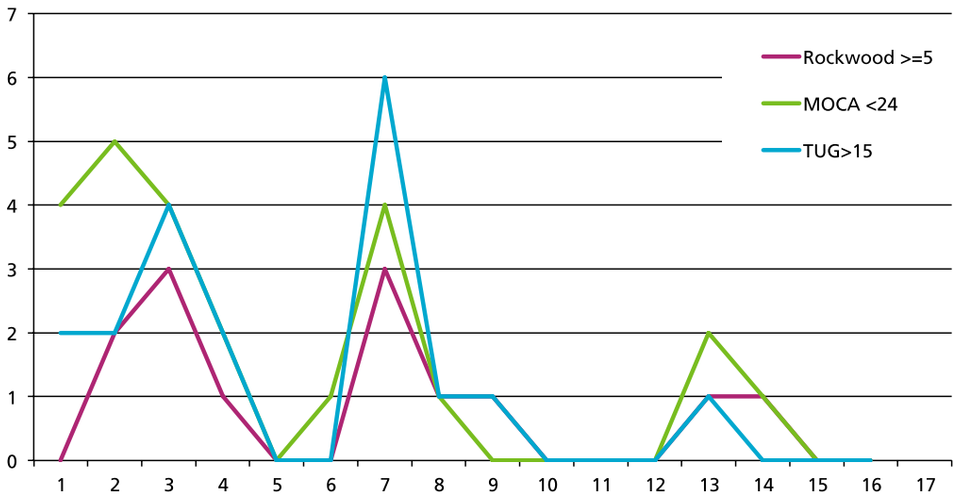
Figure 12 Number of patients screening positive for frailty on each of three scores



It became clear that the tools had a similar pick up rate of frail patients but that cognitive and functional tests proved more useful than using the Rockwood score alone when deciding which patients would benefit from a CGA.

As part of its SCFN improvement project, Royal Preston Hospital (**Lancashire Teaching Hospitals NHS Foundation Trust**) undertook a test of change to improve personal kidney/renal treatment plans for older people living with frailty. They set up a weekly MDT with frailty therapist input, a specialist renal physician, nurses from the kidney choice team, dialysis unit and in-patient ward area to explore patients of concern who may benefit from a home follow up visit from a frailty therapist. This has worked well and the therapist has identified a number of patients who could benefit from equipment, attending a balance group to support falls prevention etc.

Similarly, Heart of England Hospital (**University Hospitals Birmingham NHS Foundation Trust**) had for some time had home-based assessment services provided by community partners working across the system. Once they began to identify patients with frailty this enabled a targeted therapy response and led to support for conservative management for those who required it, advanced care planning and equipment ordering.

So what?

At **University Hospitals Birmingham NHS Foundation Trust**, to test if assigning frailty scores to patients was going to take too much time, the team measured the clinic over run time in minutes and plotted it in a run chart. They found there was no additional clinic time needed to assign frailty scores.

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Cardiac Surgery (including TAVI)

All blood leaving the heart has to pass through the aortic valve. Gradual narrowing (stenosis) of the aortic valve is age-related and is a frequent cause of morbidity (breathlessness, chest pain, syncope) and mortality in older people. Untreated, critical aortic stenosis (AS) is associated with a life expectancy of one to two years. Until about ten years ago, the only definitive treatment for AS was open-heart surgery, and over the last 40 years perioperative mortality has fallen to 1-2%. However, advancing age and associated comorbidity meant that many patients were too high-risk for surgery, and for these individuals palliative care was the only option.

In 2007 the NHS first commissioned a new percutaneous technique that allowed insertion of a replacement aortic valve without the need for a surgical operation, a procedure termed transcatheter aortic valve implantation (TAVI). Initially only patients unsuitable for surgery were referred for TAVI, partly because of uncertainty about longer-term outcomes, but as global experience increased and outcomes were encouraging, many surgeons started recommending TAVI for any patient for whom they considered the risk of surgery to be higher than TAVI.

The growth in TAVI has been considerable; 66 procedures in the UK in 2007, rising to 3996 in 2017. Case selection has improved, new valves with better performance have been developed, the procedure is now most often performed under conscious sedation (80%) rather than general anaesthetic (20%), lengths of stay in hospital after the procedure have shortened to an average of 2.7 days, and outcomes have improved (in-hospital mortality 2% and stroke 2.6% in 2017). The population undergoing TAVI have a median age of 83 years and they often have significant associated comorbidity, so these results represent a remarkable advance and allow many patients to receive definitive treatment rather than be consigned to palliative care.

However, there will always be some for whom any intervention carries unacceptable risk or may offer uncertain benefit. MDT meetings have to assess this balance of risk versus benefit, and then clinicians discuss these assessments with patients and their relatives.

Until recently, the assessment of procedural risk has included use of a generic cardiac surgical scoring system and clinical assessment of the impact of any comorbid conditions, such as renal failure. However, as evidence has emerged regarding the utility of frailty assessment in risk prediction and shared decision-making, some leading TAVI centres took up the opportunity to participate in the SCFN work. Emerging findings from HFRS analysis have confirmed the relationship between the Clinical Frailty Scale (CFS) and outcomes, lengths of stay, readmissions and costs. These findings are based on population assessments and can only be used to support clinicians and patients in making the best possible decisions regarding care, rather than used inappropriately to suggest an arbitrary threshold above which TAVI is considered 'unsuitable'. For the first time, it allows clinicians to make a formal assessment of the risk associated with frailty and, together with assessments of cognitive function, presence of comorbid conditions, and suitability of vascular access for the TAVI procedure, should help refine decision making.

The initial focus for this specialised service was on patients being considered for TAVI procedures as part of the AF pathway. However, considering frailty is also relevant across a much broader range of Cardiac services and in more recent years the SCFN has been working with specialised cardiac services more broadly than just those delivering TAVI. Analysis utilising the HFRS has identified the improvement opportunities across cardiac services to mitigate risks of longer stays in hospitals and poorer outcomes for frailer patients.

So what?

All of the TAVI sites looked at the impact of length of stay (LOS) and displayed it in a run chart (one dot per patient). **Barts Health NHS Trust** grouped patients into severity of frailty and displayed their LOS. Patients with a CFS score of 6 or 7 had an average LOS of 8 days, but this could vary up to 35 days.

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Chemotherapy

Patients with lung cancer are for the most part diagnosed with advanced disease and have a life expectancy of under one year. They are referred into oncology clinics from cancer MDTs, inpatient surgery and medicine teams, as well as from GPs. Most of oncology anti-cancer systemic therapy (broadly referred to as 'chemotherapy') is palliative and is delivered in an out-patient setting. Oncologists seeing patients in clinic interface with secondary, primary and palliative care services on a routine basis. Lung cancer represents a high proportion of all cancers diagnosed in the UK and these patients are often older and frailer with co-morbidities, which complicates treatment delivery. Community support is important, but is delivered in an inconsistent way across the country and resources are stretched. Within secondary care, oncologists have access to various specialist expertise, although generally links with geriatric services are not particularly strong.

By virtue of an ageing population, increasing numbers of older people are being referred for consideration of cancer treatment. Many of them have incurable cancer, so their main treatment option is palliative chemotherapy, aimed at extending life at best. Oncologists need to decide whether it is appropriate to offer treatment with drugs that mainly have limited benefit (the minority of treated patients respond and those who do gain benefits measured in months of life on average), potential for doing harm caused by drug-related side effects (some of which are life threatening and generate emergency hospital admissions).

Tools to help oncologists, patients and their families with decision-making around whether or not to embark on chemotherapy are relatively rudimentary. A benchmark of suitability for treatment is the need to be well enough to come to clinic. Thereafter, age and 'performance status' are crude methods of risk stratification. UK oncologists routinely use the ECOG performance status (PS) scale of 0-5, zero representing full health and five representing death. In general, a patient with ECOG PS 0-1 is fit for treatment and a patient who is ECOG PS 3-4 is not fit for treatment. ECOG PS 2 patients are 'borderline fit' for treatment. Since many advanced lung cancer patients fall into this borderline category, deciding whether to go ahead with treatment is challenging, since the risk to benefit ratio is finely balanced. ECOG PS primarily assesses physical function and is not well suited to older people beyond working age. The Clinical Frailty Scale (CFS) is more relevant to an older, less fit population, but has not been formally evaluated in a cancer population. Our over-arching strategy was to assess whether measuring and addressing frailty, including utilising the CFS, in oncology practice could benefit management of lung cancer patients being referred for consideration of chemotherapy.

So what?

At **University College London Hospitals NHS Foundation Trust**, as an impact of doing CGA, the improvement team collected the number of action points found (e.g. identified delirium) – in a single week there were seven 'new actions'. They continue to measure this weekly in a run chart.

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Cancer Surgery

The assessment of patients for whom major cancer surgery is indicated requires not only a careful evaluation of their general condition including optimising their comorbidity but also ensuring they and their carers are fully appraised of the consequences of the planned procedure not the least because it can have a significant effect on their quality of life.

Surgery is fundamental to the treatment of many cancers but it is clear that many older people are not considered for an operation. Physical suitability for treatment or patient preference alone seem unlikely to fully explain the disparity in treatments between older and younger patients. It may be that the clinical decision about whether or not to proceed with major cancer surgery is being determined by chronological age rather than the performance status of the patient.

It is essential that such decisions are based on clear evidence as the combined demographic changes and the increasing incidence of cancer in the older population are anticipated to have a significant effect on NHS expenditure over the next 10 years. The King's Fund have stated that ***"Cancer surgery and the associated costs are going to be the NHS's largest inpatient expenditure by 2030".***

There have been significant developments in the assessment of comorbidity in patients planned for major cancer surgery. Initiatives such as cardio-pulmonary exercise testing have provided information which guide decision making and discussions with patients and their families. However, these do not necessarily enable prediction of the effect of surgery on functional and cognitive outcome. The use of frailty assessment has the potential to focus not only discussion on the appropriateness of surgery particularly when other treatment options are available but also on the longer-term effects of surgery on physical function and quality of life.

Work to date has included evaluating frailty scoring in oesophago-gastric, major urological and head and neck cancer surgery. There are both common and specialty specific themes. The findings are not necessarily surprising but there are clear groups identified for whom surgery is an option who may have been denied surgery without consideration of frailty scoring. As a result, a number of specialist cancer surgical services are looking at developing the models further. The challenge will be how the combination of existing comorbidity assessments and frailty assessments can be used to provide clear information for patients and their families to support their decisions.

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Neurosurgery

Data from hospital providers has indicated that 25% of patients having emergency cranial neurosurgery are over 75 years of age; 100% of these patients has some degree of frailty based on the Hospital Frailty Risk Score (HFRS). Furthermore, on average half of these patients would be classified as severely frail and 40% moderately frail but with significant variation seen between providers. Length of stay (LOS) and mortality both increase with increasing degrees of frailty: from mild to severe frailty LOS increases from 7 days to 18 days and one year in hospital mortality from 1 to 10%.

One of the most common admissions and operations in emergency neurosurgery is for treatment of Chronic Sub-Dural Haematoma (CSDH). This is a condition associated with age and approximately 80% of this cohort of patients are over 65. Predicting outcomes from treatment is complex and depends on multiple variables including frailty. Whilst it is then widely recognised that frailty is an important factor in outcomes, its assessment and management in a neurosurgical context has historically been subjective and variable. In order to address this discrepancy and with an aim to improve the quality of care for frail patients undergoing neurosurgery, projects were commenced in four regional neurosciences centres focused around the management of CSDH in patients over 65 years.

Driver diagrams were drawn up at a national meeting and overarching principles agreed. The Clinical Frailty Scale (CFS) was to be used as an objective measure of frailty. The first challenge was that patients are first assessed and referred into neuroscience centres from multiple local district general hospitals, so there was a need to build CFS into the initial assessment and information at the time of referral. This was made possible by the electronic referral system used by many providers ('refer-a-patient') adding CFS to their mandatory fields. Each unit has then developed a series of PDSA cycles centred around a variety of areas where opportunity for quality improvement was identified, as illustrated below:

- CFS assessed within 24 hours of admission and compared with CFS from referring hospital.
- Training and raising awareness amongst trainees and consultants around CFS and managing frailty.
- Increasing patient activity levels, sleep, and nutrition (Eat, Sleep, Move), whilst on the neurosurgical ward.
- Increasing knowledge and awareness of resuscitation/ceilings of care in frail neurosurgical patients.
- Creation of virtual learning resources for staff managing frailty.
- SCFN patient experience based design approach with ongoing data collection.
- Development of patient/carer information resources around ward experience and chronic subdural haematoma'.
- Using CFS to help identify levels of care, e.g. CGA for those with moderate frailty; shared decision making about the role of surgery in those with severe frailty.
- Assessment of impact on CFS and CGA on treatment and care package and 'adding value'.

The advantages of the project are that it embeds the concept of frailty for the wider neurosurgical multidisciplinary team and enhances both the care we deliver and the patient experience. This, in turn improves the outcome measures for this cohort of patients (length of stay, discharge destination etc.) and should be applicable then to other patient cohorts within neurosurgery where frailty is also an increasing issue.

A further challenge in neurosurgery, that might also be an opportunity for improvement going forward, is the lack of any regular input from geriatric medicine, despite the high proportion of older people living with frailty and complex co-morbidities.

Our top tip for success? A motivated team with a unified aim, able to engage the wider neurosurgical MDT, who understand the concept and its importance, and are able to pursue their individual PDSAs, working towards a common goal.

So what?

The team from **Imperial College Healthcare NHS Trust** created and embedded a clear patient pathway for frail neurosurgery patients. This had a big impact on patients and relatives being informed about their condition which enabled them to participate in care decisions.

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Spinal Surgery

Spinal surgery deals with the surgical aspect of spine disorders of all age groups in acute and elective settings. The surgical intervention can be relatively low risk and easy to recover from (such as decompressive surgery for nerve root compression) or extremely complex and require a long period of rehabilitation (such as adult spine deformity surgery).

In acute settings, patients who are frail often end up with fractures due to their impaired mobility that need a whole patient assessment, even if the spine fracture is going to be managed non-operatively. Other acute conditions such as cancers and infections can affect the spine and may need surgery in someone who may not have the physical reserve to cope.

The need for spine surgery varies from protecting patients from significant weakness, paralysis and disability due to spinal cord or nerve root compression, to improving function by reducing pain and improving the overall mechanics of the skeleton and ability to walk upright and efficiently.

Specialised spine surgery deals with all aspects of emergency spine disorders and with the more complex elective spine surgery.

Elective spine disorders

Patients that undergo some of the most invasive and high complication rate surgery are those that need intervention for Adult Spine Deformity (ASD). This is an abnormal curvature of the spine with degenerative change that can result in pain, nerve root compression and an inability to stand upright and walk efficiently. Sometimes these patients require extensive surgery that lasts many hours and requires surgical implants to be placed into the spine.

For the purpose of classifying and coding these patients, specialised commissioners and the spine surgery CRG have sub-classified ASD into patients under 55 years of age and those over 55 years of age (Degenerative Spine Deformity, DSD). Although the classical group of patients associated with frailty are 75 years and over, this age grouping was decided on the basis of a higher frequency of comorbidities and complications in those over 55 years of age undergoing this surgery. Complication rates of 30-50% have been cited in the literature.

The challenges in looking after this group of patients include identifying those that have a higher frailty risk and so have a higher rate of complications or poor outcomes. Once complications occur, the impact on that patient and their carers can be significant, and further surgical attempts at resolving issues may only make matters worse.

From a healthcare point of view, as well as poor outcomes, those patients who are frail may have a prolonged critical care stay and overall length of stay. They may also have different needs at home that will need to be put in place.

Emergency spine disorders

People of all ages and all frailties can have an emergency spine disorder such as a fracture, cancer affecting the spine or infection affecting the spine. It is not unusual for frail patients to be affected by any of these disorders. Some spine fractures are more likely in older people living with frailty due to osteoporosis and falls.

One of the main challenges in looking after this group of patients is managing them comprehensively and holistically. Often a patient who is frail will be admitted to a spinal inpatient bed due to their acute diagnosis of a spine fracture, when the more pressing issues are an acute exacerbation of comorbidities, systemic infection or coping at home. A typical case in point would be an older patient who has had a fall from a standing height and sustains a C2 (peg) fracture. Often the cause of the fall and their ability to continue independently are higher priorities than the C2 fracture, which is usually managed non-operatively. Often on the surgical ward, the non-surgical priorities and individual patients' vulnerabilities are overlooked.

Other challenges in looking after this group of patients include having to consider intervention on those that have a higher frailty risk and so have a higher rate of complications or poor outcomes. Once complications occur, the impact on that patient and their carers can be significant.

From a system perspective, as well as poor outcomes, those patients who are frail may have a prolonged critical care stay and overall

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length of stay. They may also have different needs at home that will need to be put in place.

Challenges of frailty in spine surgery

The frail patient facing spine surgery faces the following challenges:

- Are all of my needs being dealt with?
- Am I being seen by the right people?
- Why do I need surgery?
- Is surgery going to be worth it for me?
- Am I going to benefit from surgery?
- Am I more likely to have problems after surgery?
- Can I do anything to make me safer for surgery?
- What sort of problems can I be left with if I have surgery or if I don't?
- How long will it take me to recovery from my injury/surgery?
- How can I be helped to get better quicker?

For the surgical team the challenges include:

- Can we identify frailty?
- Can we use frailty assessment to help our patients?
- Can we optimise frail patients?
- How can frailty assessment help us?
- Can we get more input for the patients?
- Can we plan better by assessing frailty?
- Are we going to get better outcomes?
- Can we improve the patient journey?

Identifying frailty: Greater patient frailty is associated with worse outcome in many common quality and value metrics, including greater risk of major complications, proximal junctional kyphosis, pseudarthrosis, deep wound infection, wound dehiscence, reoperation, and longer hospital stay.

The first step would be to screen for frailty across all vulnerable patient groups. Although the Clinical Frailty Scale (CFS) is a great screening tool, spine disorders may confound the score due to functional restrictions from the spine disorder that may be reversible. Hence a comprehensive assessment including comorbidities, polypharmacy and "what were you like six months ago?" is necessary. Using other disease specific scores in combination (Seattle, SpineSage, ASA) would be useful.

Shared decision making: By identifying and stratifying frailty, we can start assessing the individualised risk profile for that patient. This can help us have an open discussion with the patient and shared decision-making based on the likelihood of poor outcomes with intervention. It would empower both surgeon and patient to ask if surgery is indicated at all for that person rather than for that disorder.

Optimising outcomes: It will also help identify reversible factors (osteopaenia, sarcopaenia, exercise tolerance, nutrition, polypharmacy, cardiorespiratory optimisation, anaemia, mood) and initiate a pre-habiliation programme. A multidisciplinary pre-assessment pathway could achieve these goals. An inpatient multidisciplinary approach would optimise acute issues for frailer patients.

Right care for that patient: In both elective and acute settings, a multidisciplinary approach would be triggered to optimise the patients risks and address all of their health and social needs.

Improving patient experience: Whenever a comprehensive assessment is performed and all or most needs are met, the patient's journey (whether operative or non-operative) is likely to be enhanced. The patients are more likely to feel listened to and feel less vulnerable. Having the patient and carers engaged in decision making and goal setting will also increase the likelihood of a satisfied patient at the end of this process.

So what?

At **Salford Royal NHS Foundation Trust**, the team aspire to have 80% of patients aged over 65 years with a CFS documented and 80% of patients aged over 65 years to have a clear mobility plan documented within 24 hours of diagnosis. The impact of this is to reduce length of bed rest for this cohort of patients.

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Adult Critical Care

There has been considerable discussion about using the Clinical Frailty Scale (CFS) in critical care services in Europe. It is generally accepted that age alone is a poor prognostic indicator in critical care services. This has led to calls for admission decisions based on shared decision-making and improved prediction models, which may include frailty identification. The severity of frailty measured using the CFS is generally associated with higher hospital mortality and long-term mortality, and severely frail patients are less likely to be discharged home than fit patients. The 'CriSTAL' critical care risk score can also be used to prompt more patient centred discussions, reflecting upon likely clinical outcomes with them to help plan the right pathway for them.

Age and preoperative cognitive impairment are powerful risk factors; delirium, sedatives and analgesics may interact with each other, amplifying the effects of each individual factor. The Anticholinergic Burden Scale could be helpful in refining drugs used in the ICU setting. Interventions to attenuate delirium should include avoiding too deep anaesthesia, avoiding additional psychoactive substances including benzodiazepines and intravenous opioids, and effective pain management as well as early mobilisation, as sleep disturbance may be a driver of delirium.

Frailty may worsen procedural complications, delirium, functional decline and disability, leading to prolonged hospital length of stay, extended recovery periods, and death. Sarcopaenia is associated with difficulties weaning older people living with frailty off ventilators, further exacerbated by massive cytokine release seen in intensive care patients. Early mobilisation of patients in the ICU results in accelerated recovery and improvement in functional status and quality of life.

Optimising nutrition and hydration is also important. At follow-up, ICU patients may suffer from prolonged muscle weakness and wasting and other physical impairments, as well as fatigue. Considering all of the factors above, there is an imperative to identify older people with frailty in critical care to plan their care according to their needs and level of frailty, incorporating their wishes and the families where possible.

As part of the work undertaken during the SCFN programme, **Manchester University NHS Foundation Trust** is tested a frailty bundle for people with a CFS of ≥4 which included reduced use of opioids, consultant level care, avoidance of anti-cholinergic agents, early mobilisation and the use of regional supplemental analgesic techniques.

The **Sheffield Teaching Hospitals NHS Foundation Trust** team have plans to further study the impact on survival and quality of life for patients who are frail and develop critical illness, and **Salford Royal NHS Foundation Trust** wants to investigate frail patients' preferences in a theoretical situation where organ support is required to treat critical illness.

The work that has been undertaken and tested by critical care teams in the SCFN programme has been extremely helpful to understand how the critical care pathway might be improved for older people with frailty. We expect more processes to be developed as the programme matures and look forward to future improvements in the frailty pathway.

So what?

At **Royal Papworth Hospital NHS Foundation Trust**, as an impact of frailty identification and doing CGA, they now follow a bespoke anaesthetic pathway designed for dementia patients. This is opioid free / limiting, includes benzodiazepine avoidance and depth of anaesthesia monitoring in the perioperative period, followed by nerve blocks to avoid / limit opioid use in the post-operative period, as per recent guidelines.

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Vascular Services

As many as 50% of vascular patients have a degree of frailty and many also need major complex operations to prevent stroke, aneurysm rupture and limb loss. The Leicester team has been working with the SCFN team to try and improve things.

Prior to joining the SCFN, our ED had begun to use the CFS but this had not been widely adopted throughout the Trust. We felt that the SCFN would be a fantastic chance to re-group as a vascular surgery MDT, explore the CFS and adopt this in our working. We arranged a team comprising of vascular surgeons, geriatricians, nurses, physiotherapists, occupational therapists, pharmacists, and hospital managers. The MDT met locally to discuss our aims and objectives and attended the national sessions that provided us with tools on how to achieve this. Our aim was to approach frailty among vascular patients through a holistic approach. We wanted to empower different members of the MDT to be comfortable and accurate in performing the CFS. Once identification of frailty had occurred, our aim was to reduce length of stay, readmissions and improve the patient experience by incorporating principles of Comprehensive Geriatric Assessment in our routine practice.

The team focused on improving the identification and management of patients with frailty admitted with a lower limb condition (e.g. chronic limb-threatening ischaemia) as these patients represent the majority of inpatients and are an older, frailer, more complex cohort. Over the last year, completion and accuracy of CFS scoring has improved and roughly 50% of vascular lower limb patients score ≥5 on the CFS. Using CFS ≥5 as a threshold, trials of physiotherapy assessment and intervention, and medication review by a pharmacist (using STOPP/START criteria) within one day of admission for frail patients has proved feasible and successful. The effects of COVID-19 has delayed the full implementation of these interventions or trials of other planned interventions, however the work is ongoing.

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Summary

The principles, recommendations and guidance set out in this document are not exhaustive; they are intended to provide a checklist of activities to help you review and redesign your services to improve the journey of older people living with frailty through specialised services. By adopting the principles we have described, their pathways should be more coordinated and personalised, leading to better patient centred outcomes.

The case studies shared to illustrate the principles in this Toolkit help describe how specialised services in the first waves of the SCFN went about improving care for older people living with frailty.

There are many sources of evidence to support this redesign and a bibliography can be accessed in the next section.

To find out which pilot sites we worked with please see Appendix Four – Participating Sites.

To find out more about the programme or to access help to adopt these principles in your specialised services email networksinfo@nhselect.org.uk

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Appendix One Shared Decision Making

Commissioned services

- Ensuring shared decision-making is built into 'high value/impact' decision points along a care pathway.
- Full details of each option should be included to allow better communication with patients.
- Frailty and its interaction with each option should be considered.

Trained teams

- Local clinical leaders acting as champions encouraging the update of training opportunities.
- Skills for Health, Skills for Care and Health Education England: E-learning introduction to person centred approaches
- Association of Medical Royal Colleges and University of Cambridge risk communication toolkit.

Prepared public

- Local systems should ensure people are prepared to make decisions. Frail patients will vary in their ability to engage with treatment decisions. In particular, frailer patients are more likely to have either cognitive impairment or need assistance in shared decision-making. With this in mind it is important that carers are fully included at all stages of decision making. Information should be targeted to different audiences of differing health literacy and their advocates to cater to this, recognising the support needed to take a more active partnership role with their care professional. Multiple appointments may be required to allow time for a decision to be made.
- Two examples frameworks are:

  Ask 3 questions: What are my options? Pros and Cons? How do I get support to make decisions?

  BRAN: Choosing Wisely UK and Association of Medical Royal Colleges campaign to encourage individuals to ask four questions of the doctor or nurse to make better decisions together: Benefits? Risks? Alternatives? What if I do Nothing?

Supportive systems and processes

- Clinical leaders and commissioners can use tools to measure the impact of implementation and improvement. NICE routinely incorporates decision support tools into guidelines which can be used to support shared decision-making.A range of decision support resources are available through NICE.

Measurement tools

CollaboRATE (3 items): A patient reported measure with three brief questions completed after a consultation.

SDM Q-9/SDM-Q-DOC: A nine item questionnaire completed by the individual and health care professional following a consultation.

Simplified communication techniques: multiple resources are available to help clear communication between a health and care professional and the person they are caring for. These can all be found in the national health literacy toolkit, hosted on behalf of the system in England, by Health Education England.

Shared Decision Making Summary Guide published by NHS England

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Appendix Two Clinical Frailty Scale

A person with frailty, should be identified at their earliest contact with any health and social care professionals. We recommend the Clinical Frailty Scale is used, as many systems across the NHS understand the scores and use it to help staff identify the level of frailty an older person is living with.

The Clinical Frailty Scale (CFS) has been tested in a number of studies and found to be a reasonable predictor of adverse outcomes for older people. Importantly it is quick simple and easy to use; it can be used by doctors, nurses, health care assistants and others, typically taking only 40 seconds to complete.

Professor Rockwood's team are happy to share the CFS for non-commercial, educational, clinical and research use. To guard against copyright infringement or unlicensed commercial use, colleagues are asked to contact the team that originally developed this, before use: Sherri.Fay@nshealth.ca
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The full Rockwood Clinical Frailty Scale can be found here.

Clinical Frailty Scale

1 **Very Fit** – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.

2 **Well** – People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.

3 **Managing Well** – People whose medical problems are well controlled, but are not regularly active beyond routine walking.

4 **Vulnerable** – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being "slowed up", and/or being tired during the day.

5 **Mildly Frail** – These people often have more evident slowing, and need help in high order IADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.

6 **Moderately Frail** – People need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.

7 **Severely Frail** – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).

8 **Very Severely Frail** – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.

9 **Terminally Ill** – Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise evidently frail.

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

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Appendix Three CGA in action

Comprehensive Geriatric Assessment (CGA) is defined as

'A multidimensional, interdisciplinary diagnostic process to determine the medical, psychological, and functional capabilities of a frail older person in order to develop a coordinated and integrated plan for treatment and long-term follow-up.'

Each aspect of the definition is important:

'Multidimensional' – this highlights the importance of taking a holistic overview. In this cohort of patients, it is not sufficient to focus simply on one domain or the main problem of the patient. It is the integrated assessment of all of the domains of CGA that allows an accurate problem list to be generated.

'Interdisciplinary diagnostic process' – in a mature service, the hierarchy should be flattened such that all staff should feel empowered to constructively challenge within and without of their particular area of expertise. That this assessment is a ***process*** and not a discrete event is also key; the process should continue in an iterative manner over the course of the stay and the diagnostic elements should be sensitive to deviations from the anticipated pathway.

'Coordinated and integrated plan for treatment' – reinforces that the team caring for an individual need to know and respect each other's roles and know and understand what each is doing, and how the medical treatment will impact upon the rehabilitation goals and vice versa. For example, whilst therapists would not need to know the detailed intricacies of the management of acute heart failure, it is important that they know that intravenous diuretics might be required for the first few days that will result in polyuria, and then be able to incorporate continence needs into the rehabilitation plan. Equally, doctors will need to appreciate that just because a patient has grade five power on the MRC grading system, that does not necessarily translate into useful functional ability.

'Follow-up' – as many older people will have multiple long–term conditions, they will usually require some form of on-going care and support. For example, a two-week admission during which Parkinson's disease medications are carefully titrated and optimised in conjunction with the multidisciplinary rehabilitation process can easily be reversed if there is no on-going titration of L-Dopa once the patient returns home.

So, whilst integrating standard medical diagnostic evaluation, CGA emphasises problem solving, and a patient centred approach.

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Appendix Four Participating sites

Renal

- King's College Hospital NHS Foundation Trust
- Lancashire Teaching Hospitals NHS Foundation Trust (Royal Preston Hospital)
- Leeds Teaching Hospitals NHS Trust
- Nottingham University Hospitals NHS Trust
- University Hospitals Birmingham NHS Foundation Trust (Birmingham Heartlands Hospital)

Chemotherapy

- Cambridge University Hospitals NHS Foundation Trust
- Christie NHS Foundation Trust
- Sheffield Teaching Hospitals NHS Foundation Trust
- The Newcastle upon Tyne Hospitals NHS Foundation Trust
- University College London Hospitals NHS Foundation Trust

Spinal Surgery

- North Bristol NHS Trust
- Nottingham University Hospitals NHS Trust
- Royal National Orthopaedic Hospital NHS Trust
- Salford Royal NHS Foundation Trust
- University Hospitals Birmingham NHS Foundation Trust
- University Hospitals of North Midlands NHS Trust

Cardiac Surgery

- Barts Health NHS Trust
- Guy's and St Thomas' NHS NHS Foundation Trust
- Norfolk and Norwich University Hospitals NHS Foundation Trust
- Royal Cornwall Hospitals NHS Trust
- Royal Papworth Hospital NHS Foundation Trust
- University Hospitals of North Midlands NHS Trust

Cancer Surgery

- Imperial College Healthcare NHS Trust
- Leeds Teaching Hospitals NHS Trust
- Mid and South Essex University Hospitals Group
- Royal Cornwall Hospitals NHS Trust
- South Tees Hospitals NHS Foundation Trust
- The Christie NHS Foundation Trust and Manchester University NHS Foundation Trust
- The Newcastle Upon Tyne Hospitals NHS Foundation Trust
- University Hospitals of Leicester NHS Trust

Adult Cardiac Care

- Manchester University NHS Foundation Trust
- Royal Papworth Hospital NHS Foundation Trust
- Salford Royal NHS Foundation Trust
- Sheffield Teaching Hospitals NHS Foundation Trust

Cardiac (TAVI)

- Bart's Health NHS Trust
- Leeds Teaching Hospitals NHS Trust
- Oxford University Hospitals NHS Foundation Trust
- Royal Papworth Hospital NHS Foundation Trust

Neurosurgery

- Imperial College Healthcare NHS Trust
- Salford Royal NHS Foundation Trust
- The Walton Centre NHS Foundation Trust
- University Hospital Southampton NHS Foundation Trust

Vascular Services

- Barking Havering & Redbridge University Hospitals NHS Trust and Barts Health NHS Trust
- East Kent Hospitals University NHS Foundation Trust
- Imperial College Healthcare NHS Trust
- Norfolk and Norwich University Hospital NHS Foundation Trust
- Taunton and Somerset NHS Foundation Trust
- The Black Country Partnership
- University Hospitals Birmingham NHS Foundation Trust
- University Hospitals of Leicester NHS Trust

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Bibliography

Breitbart W, Alici Y. (2008) Agitation and delirium at the end of life: "We couldn't manage him." *JAMA* ;300:2898-910.

Cardona-Morrell M, Hillman K. Development of a tool for defining and identifying the dying patient in hospital: Criteria for Screening and Triaging to Appropriate aLternative care (CriSTAL). *BMJ* supportive & palliative care 2015;5(1):78-90.

Care NR. *NHS RightCare: Frailty Toolkit*. London: NHS England, 2019.

Carli F, Scheede-Bergdahl C. Pre-habiliation to enhance perioperative care. *Anesthesiol Clin*. 2015;33(1):17–33.

Case study 2: Developing a support package for carers of patients undergoing chemotherapy, 2013

Davison R, Sheerin NS. Prognosis and management of chronic kidney disease (CKD) at the end of life. *Postgraduate Medical Journal* 2014;90(1060):98-105.

De la Cruz M, Fan J, Yennu S, et al. (2015) The frequency of missed delirium in patients referred to palliative care in a comprehensive cancer center. *Support Care Cancer* 23:2427-33.

de Rooij SE, Abu-Hanna A, Levi M, et al. Factors that predict outcome of intensive care treatment in very elderly patients: a review. *Critical Care* (London, England) 2005;9(4):R307-14.

De Souza , a., (2008) Psychiatric issues in renal failure and dialysisIndian J Nephrol. 2008 Apr; 18(2): 47–50. doi: [10.4103/0971-4065.42337] PMCID: PMC2813124

Dimaria-Ghalili RA, Nicolo M. Nutrition and hydration in older adults in critical care. *Critical Care Nursing Clinics of North America* 2014;26(1):31-45.

Edelstein A and Alici Y (2017) Diagnosing and Managing Delirium in Cancer Patients, September 15th

Flaatten H, de Lange DW, Artigas A, et al. The status of intensive care medicine research and a future agenda for very old patients in the ICU. Intensive Care Medicine 2017;43(9):1319-28.

Fox C, Richardson K, Maidment ID, et al. Anticholinergic Medication Use and Cognitive Impairment in the Older Population: The Medical Research Council Cognitive Function and Ageing Study. Journal of the American Geriatrics Society 2011:no-no. doi: 10.1111/j.1532-5415.2011.03491.x

Gibson JA, Crowe S. Frailty in Critical Care: Examining Implications for Clinical Practices. *Critical Care Nurse* 2018;38(3):29-35.

Gilbert T, Neuburger J, Kraindler J, et al. Development and validation of a Hospital Frailty Risk Score focusing on older people in acute care settings using electronic hospital records: an observational study. *The Lancet* 2018;391(10132):1775-82. doi: 10.1016/S0140-6736(18)30668-8

Gillis C, Li C, Lee L, et al. Pre-habiliation versus rehabilitation: a randomized control trial in patients undergoing colorectal resection for cancer. *Anesthesiology* 2014;121(5):937–947.

Guenther U, Riedel L, Radtke FM. Patients prone for postoperative delirium: preoperative assessment, perioperative prophylaxis, postoperative treatment. Current Opinion in *Anesthesiology* 2016;29(3):384-90.

Haas B, Wunsch H. How does prior health status (age, comorbidities and frailty) determine critical illness and outcome? Current Opinion in *Critical Care* 2016;22(5):500-5.

Jones D, Mitchell I, Hillman K, et al. Defining clinical deterioration. *Resuscitation* 2013;84(8):1029-34.

Joseph B, Jehan FS. The Mobility and Impact of Frailty in the Intensive Care Unit. *Surgical Clinics of North America* 2017;97(6):1199-213.

Joyce MF, Reich JA. Critical Care Issues of the Geriatric Patient. *Anesthesiology Clinics* 2015;33(3):551-61.

Kallenberg MH, Kleinveld HA, Dekker FW, et al. Functional and Cognitive Impairment, Frailty, and Adverse Health Outcomes in Older Patients Reaching ESRD-A Systematic Review. *Clinical Journal of The American Society of Nephrology* 2016;11(9):1624-39.

Latronico N, Herridge M, Hopkins RO, et al. The ICM research agenda on intensive care unit-acquired weakness. Intensive Care Medicine 2017;43(9):1270-81.

Levy, n (2015) Clinical Considerations in Renal Failure, Depression & Delirium, Psychiatric times, 32 (6), June 25th

Lubelski D, Choma TJ, Steinmetz MP, et al. Perioperative Medical Management of Spine Surgery Patients With Osteoporosis. Neurosurgery 2015;77 Suppl 4:S92-7. doi: https://dx.doi.org/10.1227/NEU.0000000000000939

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Bibliography

Lurdes, T., (2015) Postoperative delirium following transcatheter aortic valve implantation: a historical cohort studyCanadian Journal of Anesthesia/ Journal canadien d'anesthésie January , Volume 62, Issue 1, pp 22–30.

Maglenski M et al.,(2017) Incidence of Postoperative Delirium and Its Impact on Outcomes After Transcatheter Aortic Valve Implantation, American journal Cardiology, Volume 120, Issue 7, Pages 1187–1192

McAdams-DeMarco MA, King EA, Luo X, et al. Frailty, Length of Stay, and Mortality in Kidney Transplant Recipients: A National Registry and Prospective Cohort Study. Annals of surgery 2017;266(6):1084-90. doi: 10.1097/SLA.0000000000002025

McAdams-DeMarco MA, Ying H, Olorundare I, et al. Individual Frailty Components and Mortality In Kidney Transplant Recipients. Transplantation 2017;101(9):2126-32. doi: 10.1097/TP.0000000000001546

McDermid RC, Bagshaw SM. ICU and critical care outreach for the elderly. Best Practice & Research Clinical Anaesthesiology 2011;25(3):439-49.

McDermid RC, Stelfox HT, Bagshaw SM. Frailty in the critically ill: a novel concept. Critical Care (London, England) 2011;15(1):301.

Miller EK, Neuman BJ, Jain A, et al. An assessment of frailty as a tool for risk stratification in adult spinal deformity surgery. 2017;43(6):E3. doi: 10.3171/2017.10.focus17472

Muscedere J, Waters B, Varambally A, et al. The impact of frailty on intensive care unit outcomes: a systematic review and meta-analysis. Intensive Care Medicine 2017;43(8):1105-22.

National Audit Office, Progress in Making NHS Efficiency Savings, 2012

NHS England, Transforming participation in health care, 2013

Packham V, Hampshire P. Critical care admission for acute medical patients. Clinical Medicine 2015;15(4):388-91.

Pugh R, Subbe CP, Thorpe C, et al. The Baby Boom and later life: is critical care fit for the future? Anestezjologia Intensywna Terapia 2017;49(5):441-44.

Pugh RJ, Ellison A, Pye K, et al. Feasibility and reliability of frailty assessment in the critically ill: a systematic review. Critical Care (London, England) 2018;22(1):49.

Rajabali N, Rolfson D, Bagshaw SM. Assessment and Utility of Frailty Measures in Critical Illness, Cardiology, and Cardiac Surgery. *Canadian Journal of Cardiology* 2016;32(9):1157-65.

RCGP, Guide to Commissioning Urgent and Emergency Care, 2011.

Rockwood K, Song X, MacKnight C, et al. A global clinical measure of fitness and frailty in elderly people.[see comment]. CMAJ Canadian Medical Association Journal 2005;173(5):489-95.

Salahudeen MS, Hilmer SN, Nishtala PS. Comparison of Anticholinergic Risk Scales and Associations with Adverse Health Outcomes in Older People. *Journal of the American Geriatrics Society* 2015;63(1):85-90. doi: 10.1111/jgs.13206

Schell JO, Germain MJ, Finkelstein FO, et al. An integrative approach to advanced kidney disease in the elderly. Advances in chronic kidney disease 2010;17(4):368-77. doi: 10.1053/j.ackd.2010.03.004

Selwyn, R., Outcomes & Efficiencies Leadership Handbook, 2012

Shi C, Yang C, Gao R, et al. Risk Factors for Delirium After Spinal Surgery: A Meta-Analysis. World Neurosurg 2015;84(5):1466-72. doi: https://dx.doi.org/10.1016/j.wneu.2015.05.057

Singer JP, Lederer DJ, Baldwin MR. Frailty in Pulmonary and Critical Care Medicine. *Annals of the American Thoracic Society* 2016;13(8):1394-404.

Soundhar, a et al., (2017) Delirium Following Transcatheter Aortic Valve Replacement: National Inpatient Sample Analysis, J Cardiothorac Vasc Anesth. 2017 Dec;31(6):1977-1984. doi: 10.1053/j.jvca.2017.03.016. Epub 2017 Mar 16.

Sterniczuk R, Rusak B, Rockwood K. Sleep disturbance in older ICU patients. Clinical Interventions In Aging 2014;9:969-77.

Van Pilsum Rasmussen S, Konel J, Warsame F, et al. Engaging clinicians and patients to assess and improve frailty measurement in adults with end stage renal disease. *BMC Nephrology* 2018;19:8. doi: 10.1186/s12882-017-0806-0

Wilhelm M, Reiman M, Goode A, et al. Psychological Predictors of Outcomes with Lumbar Spinal Fusion: A Systematic Literature Review. Physiother Res Int 2017;22(2) doi: https://dx.doi.org/10.1002/pri.1648

Yasuki-Furukori (2017) Delirium in haemodialysis predicts mortality: a single-center, long term observational study, 14 December, Volume 2017:13 : 3011-3016 accessed November 18th 2018 at https://doi.org/10.2147/NDT.S152355

PREVIOUS PAGE RESOURCES

Resources

www.pointofcarefoundation.org.uk/resource/experience-based-co-design-ebcd-toolkit/case-study-2-developing-support-package-carers-patients-undergoing-chemotherapy

Model for improvement: Langley GJ, Nolan KM, Norman CL, Provost LP, Nolan TW. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance*. New York; Jossey-Bass, 1996. 2nd edition, Wiley Desktop Editions, 2009.

www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementSettingAims.aspx

www.ihi.org/resources/Pages/Tools/PlanDoStudyActWorksheet.aspx

www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementTestingChanges.aspx

Davidge M, Measurement for improvement 10 minute video: www.youtube.com/watch?v=Za1o77jAnbw

NHS Institute for Innovation and Improvement: NHS Sustainability Model and Guide

NHS England: Shared Decision Making Summary Guide

CFS app – available in both Apple and Android versions, along with a CFS Reference Guide.

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Specialised Clinical Frailty Network

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