

Perioperative medicine for Older People undergoing Surgery (POPS)

A guide to designing, developing and embedding POPS services

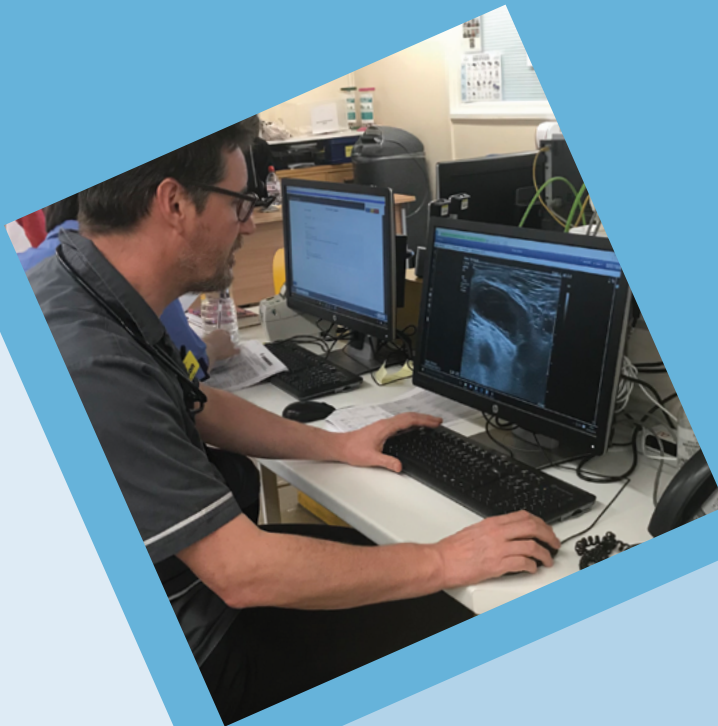


[GET STARTED](#) 

Introduction

This interactive PDF, together with the accompanying reference guide, provides comprehensive guidance on how to design and implement POPS services.

Specifically, this document makes available the resources that have been developed by GSTT to set up and sustain POPS services over the last 15 years. In sharing these resources we hope to establish a network of POPS services to promote consistency and excellence in perioperative care for older people and facilitate a joined-up education, training and research programme across the UK



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1.0

Why do we need **POPS** services?

Increasing numbers of older people are undergoing surgery, but we know that adverse clinician-reported, patient-reported and process-related outcomes are common within this patient group. The POPS@GSTT service has improved outcomes by integrating geriatricians into the care pathway of older surgical patients. Increasingly, surgical, medical and anaesthetic communities all advocate such collaborative models of care.

1.1 What's the problem? >

1.2 What's the solution? >

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1.1 What's the **problem?**



The UK population is ageing. By 2035 there will be more than 16 million people aged over 65 years

18.7 million adults were admitted to hospital in 2017. Two fifths of these patients were aged over 65 years

11 million procedures were performed by the NHS in 2016. Nearly 5 million of these were in those aged over 65 years.

Postoperative morbidity and mortality increases with advancing age. 90 day mortality after emergency laparotomy is four times higher for those aged over 60 years, compared to those under 60 years

Due to complications and slower recovery older patients stay in hospital for longer. On average, those aged over 65 years stay 30% longer than those under 65 years

1.2 What's the **solution?**

We're going to be operating on increasing numbers of older people...

...and we know the risks of morbidity and mortality increase significantly with age.

However, older people have much to gain from surgery in terms of symptom control and improved life expectancy.

Integrating geriatricians into the surgical pathway improves outcomes...

...POPS provides a working example of this collaborative model of care.



1.3 Drivers for change

A number of national UK reports and audits advocate new collaborative models of care.



The **National Confidential Enquiry into Patient Outcome and Death** report, **An Age Old Problem**, noted widespread deficiencies in care received by older surgical patients and recommended routine daily input from geriatricians.



Key care pathways, such as those developed through the **National Hip Fracture Database** and the **National Emergency Laparotomy Audit**, list access to specialist geriatric care as a national standard.



This is in keeping with the **Royal College of Anaesthetist's perioperative medicine** vision which advocates the involvement of the relevant expert at the right time for the right patient.



These principles are echoed by the **Royal College of Surgeons** and the **Royal College of Physicians**, all advocating the development of collaborative models of care.

2.0

POPS@GSTT

POPS@GSTT is an established geriatrician-led multidisciplinary team (MDT) providing perioperative care for complex, older surgical patients. The programme started in 2003 and showed that preoperative Comprehensive Geriatric Assessment (CGA) and optimisation reduced postoperative complications and length of stay in older people undergoing elective orthopaedic surgery. Since then POPS@GSTT has expanded to provide pre and postoperative care to the majority of elective and emergency surgical subspecialties at Guy's and St Thomas' NHS Foundation Trust. This section describes the service in more detail and provides links to key resources.



2.1 Who's in the team? >

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2.4 The emergency pathway >

2.5 How did POPS@GSTT evolve? >

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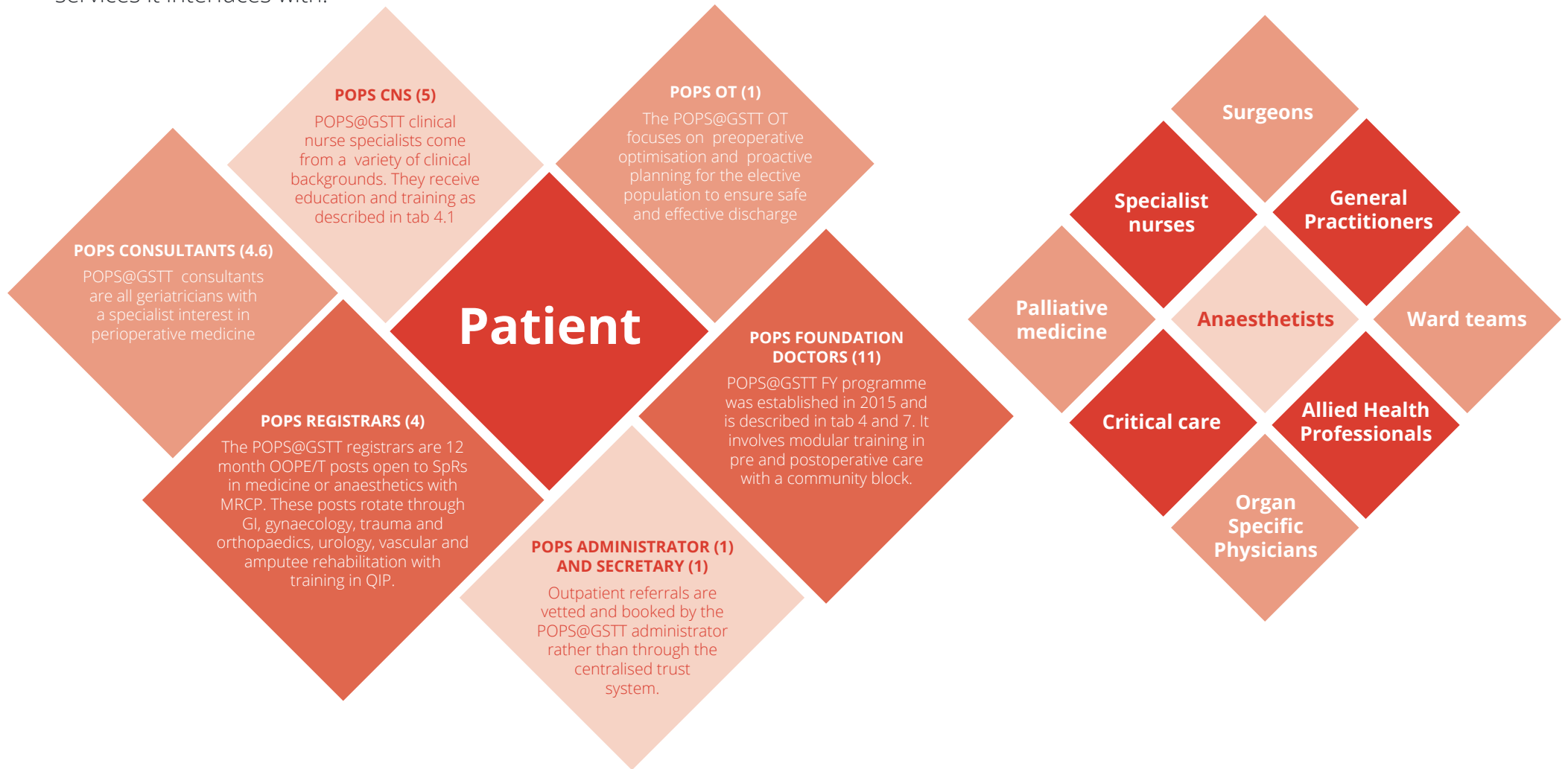
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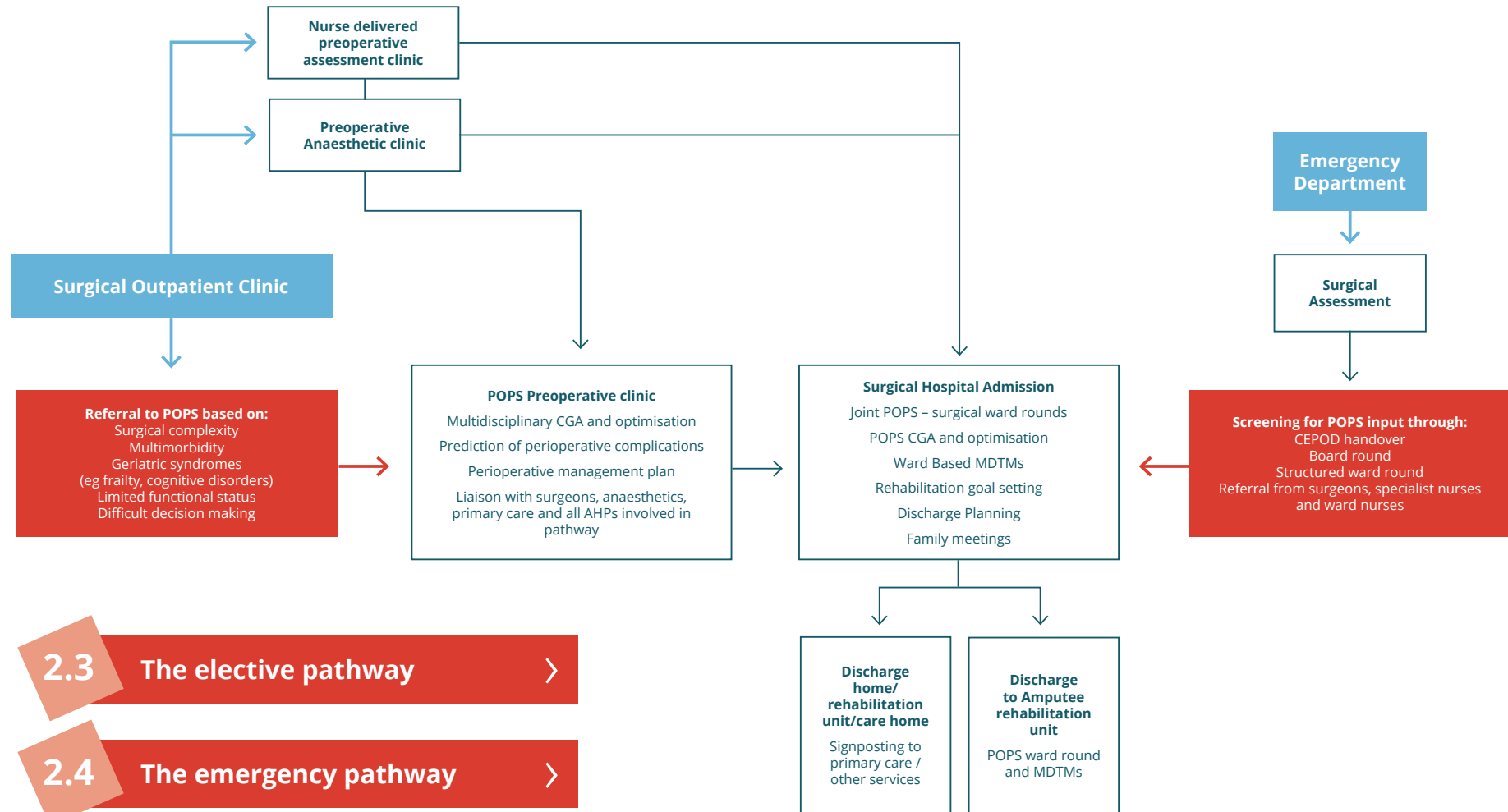
2.1 Who's in the team?

This page describes the POPS@GSTT team and the services it interfaces with.



2.2 The POPS pathway

POPS provides care for elective and emergency surgical patients.



2.3 The elective pathway >

2.4 The emergency pathway >

2.3 The elective pathway

How are patients referred to POPS?

Most referrals are from surgeons, but referrals from anaesthetists, preoperative assessment clinic nurses, and GPs are encouraged. The key triggers for referral are:

1. Multimorbidity (more than two co-existing medical conditions requiring assessment or optimisation)
2. Frailty (defined as a reduced ability to adapt to stressors in the perioperative period)
3. Functional dependency (requiring support in activities of daily living)
4. Complex decision making (difficulties with capacity or consent or uncertainty regarding the most appropriate intervention)
5. Specific complex procedures in older patients (e.g. cystectomy, pelvic exenteration, open AAA repair)

2.3.5 Referral criteria

2.3.6 Referral form

What happens in clinic?

Patients are seen by a nursing assistant, POPS doctor/CNS, and OT as appropriate. Comprehensive Geriatric Assessment (CGA) facilitates a systematic approach to:

1. Assessment and optimisation across medical, functional, social and psychological domains
2. Evaluation of perioperative risk
3. Promotion of shared decision making
4. Provision of an individually tailored management plan aiming to mitigate perioperative risk and improve longer term outcomes

2.3.4 CGA proforma

2.3.3 OT Assessment

What happens after clinic?

- The POPS team liaise with key stakeholders (including patients, carers, surgeons, anaesthetists, ward teams, AHPs, GPs and other primary care staff) in order to agree individualised management plans and goals.
- These plans are disseminated by letter to all relevant providers. The POPS letter, summarising the CGA and optimisation, is a core component of the elective service. An example POPS letter and standard clinic letter texts are available here.

2.3.7 Example POPS letters

2.3.1 Blank Letter Proforma

2.3.2 Standard clinic letter texts

What happens on the ward?

- All elective patients seen in POPS clinic are regularly reviewed postoperatively. Medical issues, rehabilitation, and discharge planning needs are addressed by the team.



2.4 The emergency pathway

How are emergency patients identified by POPS?

- Active case-finding by the POPS team occurs at ward level through nursing handover, joint medical/surgical board rounds, multi-disciplinary team meetings, and joint POPS/surgical ward rounds.
- Triggers for POPS review include complex decision making (whether to operate or not) multimorbidity, acute medical issues, cognitive impairment or delirium, frailty, functional deterioration etc.

What does the POPS team do on the ward?

Through case review, ward rounds and multi-disciplinary team meetings, POPS aims to:

- Prevent anticipated medical complications
- Deliver consistent evidence-based management of medical complications
- Reduce ward consults by on call medical teams
- Gatekeep referrals to other medical specialties
- Define rehabilitation goals with therapists
- Promote safe, effective discharge planning
- Facilitate communication with families and carers e.g. relatives clinic

2.4.1 CGA Proforma for Ward

2.4.2 MDM Form

Are different approaches used in different surgical specialties?

- Daily board rounds work well in specialties with short length of stay (e.g. urology) whereas weekly multi-disciplinary team meetings are more appropriate in specialties where multimorbidity or social issues result in a longer length of stay (e.g. intestinal failure or major amputation).



2.5 How did POPS@GSTT evolve?

Since its inception in 2003, POPS has continually developed, adapted and expanded. This has required the submission of several business plans securing funding from different directorates, together with the use of research grants. The diagram below summarises the chronological development of the service.

For further details see our [2.5.1 Reference guide](#)

2003
Guy's and St
Thomas' Charity
funded research
project

2005
Business plan for
mainstream funding for
POPS service to support
elective orthopaedic
surgery (medical
directorate)

2008
Business plan for
funding additional
CNS and Consultant to
support expansion into
elective general surgery
(medical directorate)

2011
Further research funding
(Research into Ageing/Age UK/
British Geriatrics Society and
GSTT Charity) funded 2 additional
years of research fellowship

2010
Remaining GSTT
Charity grant used
to secure 1 year
research fellowship

2012
Application for FY2
post to be deanery
funded if successful.
Existing SHO funding
used for establishment
of Out of Programme
Experience/Training
(OOPE/T) specialist
registrar (SpR)

2013
Business plan to provide
3 PAs of medical support
to a newly established
Amputee Rehabilitation
Unit (community
directorate)

2014
Results of grant funded
project demonstrated
impact of POPS in vascular
surgical patients. Business
plan for 7 PAs (consultant
geriatrician (cardiovascular
directorate)).



2.5 How did **POPS@GSTT** evolve?

2014

Successful business plan to provide POPS service to elective gynaecology surgery (4 PAs) (gynaecology directorate)

Unable to recruit 0.4 WTE consultant geriatrician. Funding used to employ Band 7 clinical nurse specialist

2015

POPS Foundation Year Programme established following transfer of FY doctors from surgical rotations to POPS.

Abridged business plan for 2 consultants to support 6 FY1s and 4 additional FY2s (medical directorate)

Failure to appoint to 1 consultant role, money used to fund 1 consultant and 2 additional OOPE/T SpRs

2016

Vanguard Funding for translation to DGT (1PA for 15 months)

2017

POPS@DGT substantively funded
1.4 WTE consultants,
1 CNS and 0.6 WTE OT.

2021

4.4 WTE consultants
4 CNS, 1 ANP
4 clinical fellows
11 Fys
1 OT
1 Band 3

3.0



Setting up **POPS** Services

There is an increasing appetite for establishing POPS@ services nationally and internationally. The following resources can be used to support the development of POPS@ services at other centres.

3.1 Core components of POPS@GSTT >

3.2 Building a business case for POPS@ services >

3.3 Delivering POPS@ services >

3.4 POPS services in the UK >

3.5 POPS services internationally >

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3.1 Core components of POPS@GSTT

This logic model describes the core components of POPS@GSTT. In order to achieve the same outcomes seen at GSTT, it is important to maintain fidelity to the original POPS concept whilst adapting the model to the local context.

Inputs	Core components	Mechanism (process changes)	Contextual factors (which enable or hinder implementation)	Short Term Outcomes	Long Term Outcomes	Long Term impacts of POPS service
MDT POPS team Consultant with expertise in CGA in perioperative setting CNS OT Administrator Other key stakeholders Trust executive / board Surgeons Anaesthetists Other AHPs Surgical pathway coordinators Evaluator Patients and relatives Resources Funding Clinic Space Office space Equipment Supporting proformas (in paper or electronic format) Clinical reference guide Clinical guidelines/protocols Education resources Doctor/CNS curriculum/competency framework Teaching schedules Teaching materials (e.g. slide-packs)	Deliver preoperative CGA and optimisation through multidisciplinary working	Preoperative CGA and optimisation outpatient clinic Effective screening and referral criteria Evidence based perioperative medicine 'Hands on' delivery of clinical optimisation plan	'Buy-in' from board, surgeons, anaesthetists and other key stakeholders Skills and engagement of medical and AHP staff equipped to deliver CGA and optimisation in the perioperative period IT infrastructure, technical support and physical space Funding	Improved quantification of perioperative risk Improved shared decision-making Improved identification of underlying medical issues Improved medical optimisation Improved identification and management of barriers to early discharge Reduced variation in patient care	Patient outcomes: Embedding of multi-disciplinary and patient-centred shared decision-making in clinical practice Provision of timely surgical care Avoidance of inappropriate procedures Reduced postoperative morbidity and harm Improved patient reported outcomes (short and long term) Service outcomes: Improved quality of care Reduced length of stay Reduced same day cancellation of surgery Reduced readmissions Reduced financial cost Implementation outcomes: Acceptability of service to providers, patients, and carers Maintenance of fidelity whilst adapting service to the local context Development of 'big data' through collation of audit and quality improvement work at POPS sites Development of a workforce equipped to deliver perioperative medicine services for complex older patients	Improved health literacy with consequent improved patient navigation of health services Integrated health care Improved health outcomes Development of evidence base in perioperative medicine through big data Influence on policy and funding streams for perioperative medicine services
	Provide postoperative CGA on the surgical ward	CGA and optimisation conducted using scheduled ward rounds, board rounds, multidisciplinary team meetings Proactive communication between healthcare professionals, patients and families	'Buy in' from ward teams Staff attitudes and behaviours Skills and engagement of medical and AHP staff equipped to deliver CGA and optimisation in the perioperative period IT infrastructure, technical support and physical space Funding	Fewer acute postoperative complications Improved early identification of postoperative complications with standardised management Safe and effective discharge planning		
	Ensure ownership of patient care	Fostering an environment that promotes shared-decision making with the patient at the centre	Professional jurisdictions, norms and codes of behaviour Readiness for change within the clinical team and the organisation (open to new ways of delivering collaborative patient-centred care)	Reduced number of specialist referrals Single point of access: improved communication with patient and primary care to facilitate patient navigation of perioperative pathway Improved shared decision-making Improved delivery of holistic care, with focus on perioperative and longer-term outcomes		
	Facilitate proactive liaison with other teams	Joint ward rounds, board rounds, clinic consults between surgery, medicine and anaesthetics Joint audit meetings/teaching sessions between surgery, medicine and anaesthetics	Buy-in from all stakeholders Promotion of collaborative working (on individual, team, organisational level) Trusted informal and formal peer review and accountability with willingness to engage with feedback processes Avoidance of silo working and poor communication (whether due to IT or other systems)	Informed and therefore improved clinical-decision making Reduced silo culture Positive influence on behaviours and attitudes of junior medical and nursing staff		
	Provide education and training to POPS team and key stakeholders	Predefined curriculum Structured teaching programme	Scheduled protected teaching sessions	An 'upskilled' workforce able to provide care for complex older patients Improved knowledge and skills in perioperative medicine (doctors and AHPs) Creation of teaching and mentoring opportunities		
	Establish governance structure and evaluation processes	Structured quality improvement programme underpinned by robust clinical governance meetings	Support from informatics Access to expertise in quality improvement	Ensure fidelity to the POPS model of care Reduced unwarranted variation in patient care Improved quality of care Development of an evidence base in issues relevant to complex older surgical patients		

3.2 Building a business case for POPS@ services

In establishing a new POPS service, the following steps should be undertaken.

Describe the need for a POPS service

Before considering a new service, the following steps should be undertaken:

- Characterise the local surgical population demographically (e.g. age, type of surgery, geographical distance pt lives from hospital)
- Gather outcome data (e.g. clinician reported, patient reported and process outcomes)
- Map the patient pathway, to identify stakeholders and potential challenges

Engage stakeholders

In parallel with scoping work, stakeholder analysis is needed to understand the need for, support for, and potential resistance to the service from different perspectives.

- Engage managerial, clinical, and citizen stakeholder groups
- Use educational sessions, audit meetings, grand round presentations, individual meetings, coffee mornings, and questionnaires

Write a business case

A business case must build on the scoping work and describe the anticipated impact of the proposed service.

- Consider patient-reported, clinician-reported, and process-related outcomes
- Balance impact against predicted costs required to deliver the service

Links to POPS business cases

[3.2.1 Business Plan GSTT](#)

[3.2.2 Business Case DGT](#)

Links to POPS job descriptions

[3.2.3a Consultant POPS job descriptions](#)

[3.2.3b Consultant POPS job descriptions](#)

[3.2.4 SpR POPS job descriptions](#)

[3.2.5a CNS Band 6 POPS job descriptions](#)

[3.2.5b CNS Band 7 POPS job descriptions](#)

[3.2.5c CNS POPS job descriptions](#)

[3.2.6 OT job description](#)

Links to POPS job adverts

[3.2.7 Consultant POPS job advert](#)

[3.2.8 SpR POPS job advert](#)

[3.2.9 CNS POPS job adverts](#)

[3.2.10 OT POPS job advert](#)

3.3 Delivering POPS@ services

Starting up

- When implementing a new preoperative CGA and optimisation clinic you will need:
 - » Workforce (e.g. Consultant, CNS, OT)
 - » Physical space (e.g. clinic space and office space)
 - » Equipment (e.g. bladder scanner, 24 hour tape recorders)
 - » Supporting resources (e.g. referral process, letter proforma)

3.3.1 Referral Criteria

3.3.2 EPR Referral Form

3.3.3 Outpatient CGA Proforma

- When implementing a postoperative POPS service consider:
 - » Establishing ward level multidisciplinary meetings or board rounds
 - » Engaging existing staff i.e. junior doctors, therapists, outreach nurses, acute pain team.
 - » Establishing a structure for improving ward level communication with patients and families, e.g. relatives clinic

3.3.4 MDM Form

3.3.5 CGA proforma for Ward

3.3.6 Example letter

3.3.8 Standard clinic letter text

3.3.7 Proforma outline - draft POPS letter

Building the team and co-designing the service

- Build a resilient team:
 - » Prioritise your team's education and training (see section 4.0)
 - » Develop a learning community (active What's App groups, MDMs, poster competitions)
 - » Foster team spirit! (make coffee, lunch together, have nights out)
- Use patient engagement events to co-produce services.

3.3.9 Patient Event Invitation Letter

3.3.10 Patient Event Report

3.3.11 Patient Event Workshop Guide

Ensuring sustainability

- Publicise your new service throughout the implementation process. Present at every opportunity and contact your Communications department to help produce supporting resources.
- Use quality improvement methodology to support continual service development. See Section 5 Quality Improvement for examples.

3.3.12a Social Media Facebook

3.3.13 Example newsletter article

3.3.12b Social Media Twitter

3.3.14 Example poster for publicity

3.3.12c Social Media Intranet

4.0



Education and training

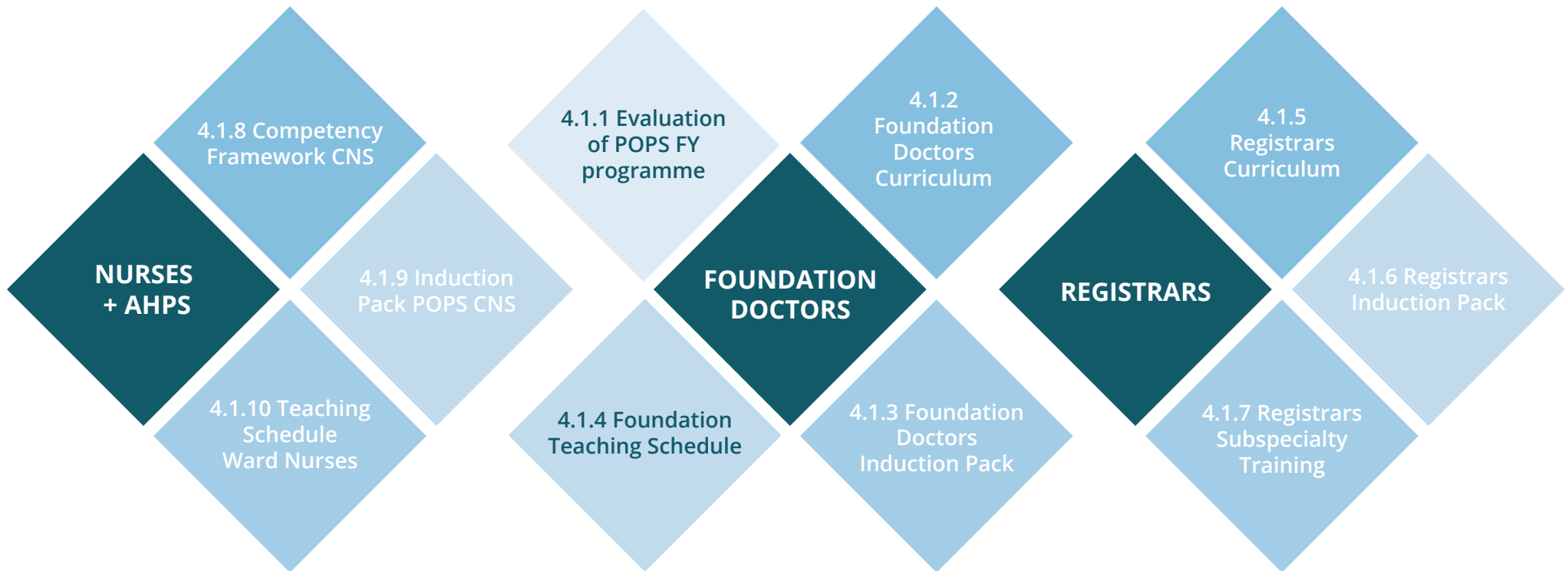
The POPS vision is to support the national development of sustainable POPS@ services through collaborative education and training. POPS@GSTT has developed local and national education and training opportunities and resources for doctors, nurses and allied health professionals to facilitate the dissemination of relevant knowledge, skills and attitudes.

4.1 Local resources >

4.2 National resources >

4.1 Local resources

POPS@GSTT have developed the following education and training resources



4.2 National resources

- **Sharing best practice**

- » Site visits to POPS@GSTT
- » Timetables
- » British Geriatrics Society POPS
- » Centre for Perioperative Care

- **E-learning**

- » MSc in Perioperative Medicine – includes module on perioperative medicine in older people

- **Other resources:**

- » AAGBI Perioperative Care of the Elderly 2014
- » AGS guidelines
- » Age Anaesthesia
- » British Geriatrics Society
- » Evidence Based Perioperative Medicine
- » POPS@GSTT
- » National Emergency Laparotomy Audit
- » The National Hip Fracture Database
- » Royal College of Anaesthetists
- » Royal College of Surgeons in England



5.0



Quality Improvement (QI)

All staff are supported to participate in quality improvement and/or research projects.

5.1 Quality Improvement (QI) >

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5.1 Quality Improvement (QI)

Quality improvement

Use the following pointers to make quality improvement count:

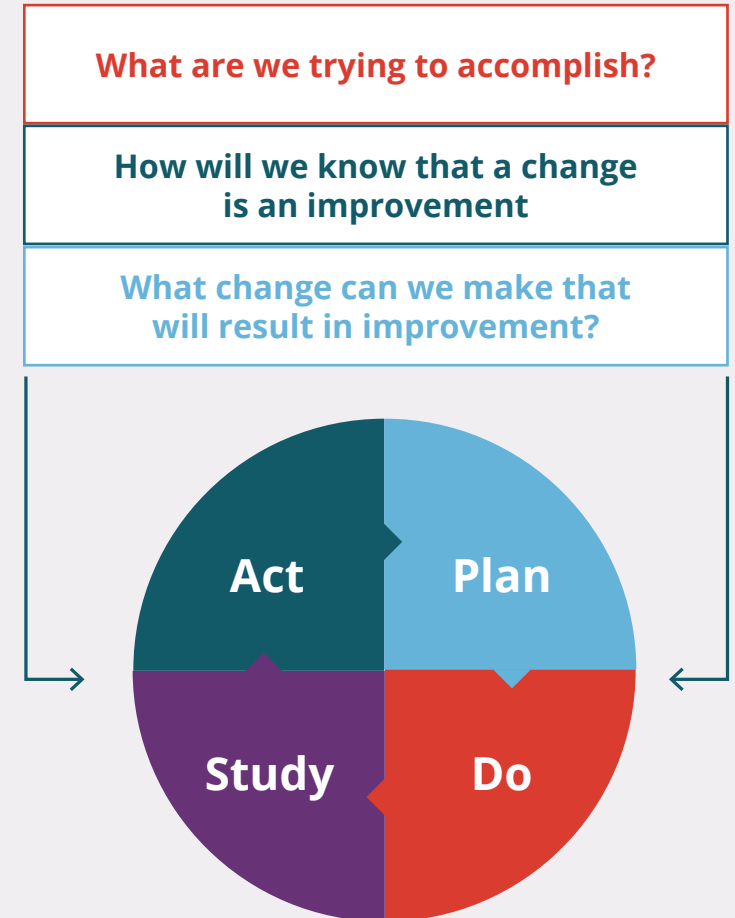
Know the basics

We recommend you follow the 'model for improvement' in your project. Using this approach, you can work collaboratively as a team with your stakeholders to make sustainable change.

The Model for Improvement (MFI) provides a framework for developing, testing and implementing changes leading to improvement. The model provides an easily understandable scientific method which acts to moderate the impulse to take immediate action with the wisdom of careful study (Institute for Healthcare Improvement)

You can find out more about the model for improvement [here](#)

Model for improvement



5.1 Quality Improvement (QI)

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 expected 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.

Use local resources

- Engage service users and the Patient Engagement team.
- Link in with the local Quality Improvement team

Examples of quality improvement work undertaken by POPS@GSTT and POPS@DGT include:

5.1.1 Example QI Poster

5.1.2 Patient Event Poster

5.1.3 Example of cross-specialty guideline

6.0

Measurement for Improvement



It is 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.

A reliable approach to choosing the right measures for your project is needed and then collecting and displaying the data. The NHS Elect Measurement Guide takes you through just such a process and is available on the POPS website.

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6.0 Measurement for Improvement

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 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 2 and 3 Choose and Define measures:

All sites are encouraged to clearly define the outcome/impact, process and balancing measures that you are going to collect.

Creating a driver diagram will help you 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). An example of a driver diagram tool developed by NHS Improvement can be accessed [here](#).

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 the SPC Generator from the POPS website.



6.0 Measurement for Improvement

Steps 6 and 7 Review and Repeat

What measures might you use?

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

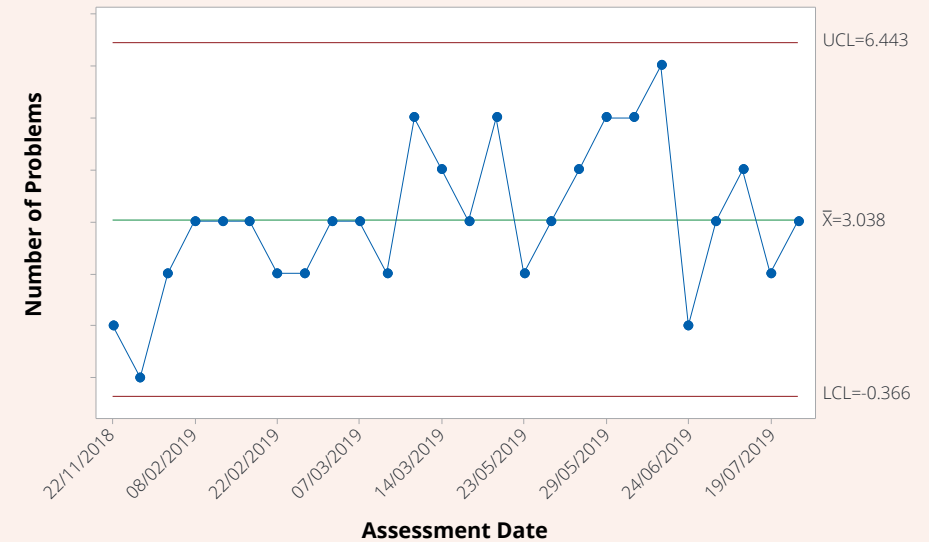
Firstly, there is the local or **Micro-level**. This is bespoke measurement to inform local, internal quality improvement initiatives or to inform PDSA cycles. Measurement here needs to be tailored to the aim of the specific project. This means that your results will almost certainly not be comparable 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 through your surgical service. It is at this level that we showed the example of using the seven steps approach above. As this data may not currently be captured in routinely collected hospital data, it is usually necessary to measure the relative impact of service changes at the hospital level using data items or codes for historic data. Once you have a reliable identification process in place for your patient group, you may be able to place a flag in your hospital system that will enable you to analyse your data at a local level.

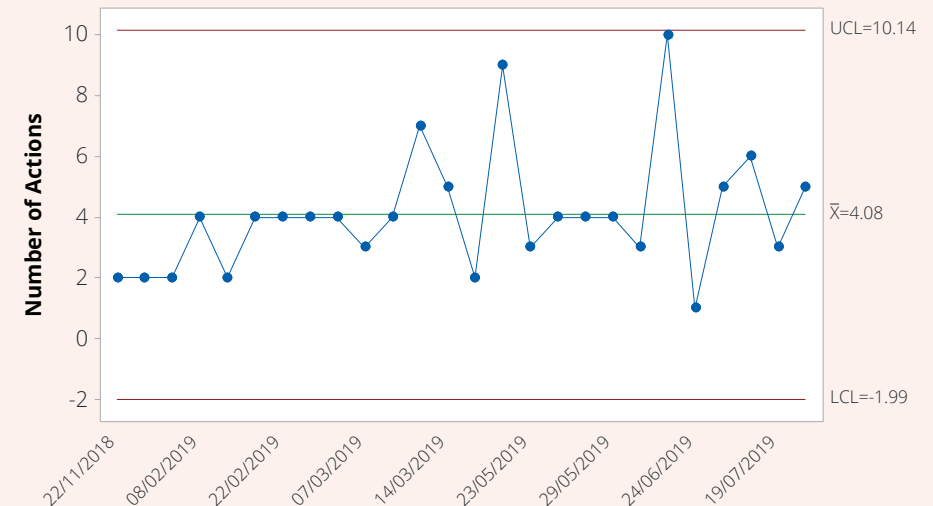
Finally, there is the system or **Macro-level**. This is useful for examining patient flows across pathways or undertaking benchmarking exercises between different settings. Tools such as the electronic Frailty Index (for primary care) or the Hospital Frailty Risk Score (for secondary care) can be very helpful here.

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 seen in a project undertaken by renal services in Lancashire Teaching Hospitals NHS FT.

Problems Found Per Person



Actions Recommended Per Person



7.0



Summary

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

The resources mentioned in this document can be located at the POPS web pages.

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