Perioperative Care for Older Patients Living with Frailty

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Perioperative medicine for Older People undergoing Surgery (POPS)
Guy’s and St Thomas’ NHS Trust
Exponential increase in interest in frailty...

Increase in
- Publications
- Conference sessions / webinars
Frailty is bad for you across all outcome measures and surgical subspecialties …

- Clinician reported outcomes
  - Mortality
  - Morbidity

- Patient reported outcomes
  - Dependency
  - Experience
  - Quality of life

- Process related outcomes
  - LOS, readmissions
  - Financial cost - formal and informal
Because increasing numbers of older people have surgery...

...and frailty is associated with ageing

Fowler et al, BJS 2019: 1012-1018

Theou JAGS 2014
So, what should we do for people living with frailty undergoing surgery?
Most frail individuals are also multimorbid (7 of 10)
Few multimorbid adults have frailty (2 of 10)

Fried 2001, Vetrano I J Gerontology 2019, Partridge Age and Ageing
Tool = eFl/CFS/EFS

Guideline for Perioperative Care for People Living with Frailty Undergoing Elective and Emergency Surgery

Frailty Pathway

Emergency admission

Primary care referral for elective surgery

Surgical and perioperative assessment outpatient services

In theatre and recovery

Surgical wards providing care for emergency and elective patients

Transfer of care to the community

Underpinning principles

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. occasionally running or playing tennis.

3. Managing Well - People whose medical problems are well controlled, but do not regularly engage in routine walking.

4. Vulnerable - Not independent 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, mildly frail 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, standing) 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/answer 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.


Edmonton Frailty Scale

<table>
<thead>
<tr>
<th>Frailty Category</th>
<th>0 points</th>
<th>1 point</th>
<th>2 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognition</td>
<td>No errors</td>
<td>Mistakes</td>
<td>Usually</td>
</tr>
<tr>
<td>General health status</td>
<td>In the past year, how many times have you been admitted to a hospital?</td>
<td>0</td>
<td>1-2</td>
</tr>
<tr>
<td>Functional independence</td>
<td>How many of the following activities do you require help with: meal preparation, shopping, transportation, telephone, housekeeping, laundry, managing money, taking medications?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Social support</td>
<td>When you need help, can you count on someone who is willing and able to meet your needs?</td>
<td>Always</td>
<td>Sometimes</td>
</tr>
<tr>
<td>Medication use</td>
<td>Do you take or need different prescription medications on a regular basis?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Have you recently lost weight such that your clothing has become loose?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Mood</td>
<td>Do you often feel sad or depressed?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Continence</td>
<td>Do you have a problem with incontinence at all times when you don’t want to?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Functional performance</td>
<td>Timed up and go</td>
<td>10-15 s</td>
<td>15-30 s</td>
</tr>
</tbody>
</table>

Total: 0-17

JAGS 00:1-6, 2021
## After screening/diagnosis, then what?

<table>
<thead>
<tr>
<th>Frailty</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Important health problem/recognised</td>
<td>+</td>
</tr>
<tr>
<td>Treatment should be available</td>
<td>+/-</td>
</tr>
<tr>
<td>Defined target population</td>
<td>+</td>
</tr>
<tr>
<td>Latent stage of disease</td>
<td>+</td>
</tr>
<tr>
<td>Available test/examination acceptable</td>
<td>+</td>
</tr>
<tr>
<td>Natural history of disease understood</td>
<td>+</td>
</tr>
<tr>
<td>Promote equity &amp; access to screening for the entire target population</td>
<td>+</td>
</tr>
<tr>
<td>Benefits outweigh the harm</td>
<td>+</td>
</tr>
</tbody>
</table>
The literature draws on sarcopenia/related disorders...

**SARCOPENIA**
A syndrome characterised by progressive loss of skeletal muscle mass and strength associated with adverse outcomes [23, 82, 83]

**CACHEXIA**
A complex metabolic syndrome associated with underlying illness and characterised by loss of muscle +/- fat [84]

**FRAILTY**
Decreased physiologic reserve across multiple organ systems with impaired homeostatic reserve, reduced capacity to withstand stress and resultant adverse health outcomes [28, 85]

Exercise

Complexity!

Nutrition

↓ grip strength & gait speed

Imbalance between pro & anti-inflammatory cytokines (TNF-α, IL-1, IL-6)
Frailty is a distinctive health state related to the ageing process in which **multiple** body systems gradually lose their in-built reserves.
...means it needs a multidomain approach, including ‘medicine’ (CGA)

- Hx and examination
- Objective scores
- Existing & new diagnoses/issues
- Multidisciplinary assessment/treatment

Multidisciplinary interventions
- Medications
- Lifestyle
- Exercise
- Psychological
- Home adaptions
Can this work in practice?

The POPS Model

- Referral based on:
  - Surgical complexity
  - Multimorbidity
  - Geriatric syndromes (e.g., frailty, cognitive disorders)
  - Limited functional status
  - Difficult decision making

- Nurse delivered preoperative assessment clinic
- Preoperative Anesthetist Clinic
- Surgical Outpatient Clinic

- POPS Preoperative clinic
  - Multidisciplinary CGA and optimisation
  - Prediction of perioperative complications
  - Perioperative management plan
  - Liaison with surgeons, anaesthetics, primary care and all AHPs involved in pathway

- Surgical Admission
  - Joint POPS – surgical ward rounds
  - POPS CGA and optimisation
  - Ward Based MDTMs
  - Rehabilitation goal setting
  - Discharge Planning
  - Family meetings

- Emergency Department
  - Surgical Assessment

- Screening through:
  - CEPOD handover
  - Board round
  - Structured ward round
  - Referrals

- Discharge home/rehabilitation unit/care home
  - Signposting to primary care / other services

- Discharge to Amputee rehabilitation unit
  - POPS ward round and MDTMs
For ‘Jim’…

- 79 year old man
  - Elective presentation
    - LUTS/haematuria
  - Emergency presentation
    - Acute urinary retention 2y to haematuria/clot retention
  - Diagnosis – BPH (planned for TURP)

- Screening
  - Elective – **CFS 6**, eFl, Gait speed <0.8m/s, EFS 10/17
  - Emergency - **CFS 6**, Board round – can’t get out of bed
### Issue | Diagnosis | Inves/optimisation
--- | --- | ---
Slow gait speed | Idiopathic Parkinson’s disease | CT brain & DAT scan Sinemet, movicol Bone; Dexa, vit D, ca, bisphosphonates, Falls & balance classes/PT
Falls Constipation |  | 
Obs, TGUG Exertional breathlessness | Decompensated ischaemic cardiac failure with anaemia | ECG, echo Diuretics, BB, plan for SGLT₂, aldosterone antagonism Hold ACEi with AKI IV iron
Nutritional assessment Weight loss | Poor nutrition secondary to impaired functional status | Supplements (protein, vits) OT input – meals Physio input – mobility
…to inform the intra- and postoperative phases

Shared decision making (*Choosing wisely, BRAN*)

Planned approach with anticipation of complications (PD, constipation, disability)

Evidence based approaches throughout the pathway to recovery
And we now know what preoperative CGA entails

<table>
<thead>
<tr>
<th>Component of care</th>
<th>Proportion of patients (n=500)</th>
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<tbody>
<tr>
<td>Assessment</td>
<td>2/3 new diagnosis</td>
</tr>
<tr>
<td>Optimisation</td>
<td>1/2 lifestyle advice</td>
</tr>
<tr>
<td></td>
<td>3/4 meds changed</td>
</tr>
<tr>
<td></td>
<td>1/4 therapy interventions (diet/exercise)</td>
</tr>
<tr>
<td>Communication</td>
<td>1/5 multispecialty discussion</td>
</tr>
<tr>
<td></td>
<td>4/5 anticipation of postoperative complications</td>
</tr>
<tr>
<td>Referral</td>
<td>1/7 preoperative investigations</td>
</tr>
<tr>
<td></td>
<td>1/10 anaesthetic input</td>
</tr>
<tr>
<td></td>
<td>1/20 organ specialty advice</td>
</tr>
<tr>
<td>Anticipatory care planning</td>
<td>1/10 anticipatory care planning</td>
</tr>
<tr>
<td>Long term condition mx</td>
<td>1/3 LTC management referral</td>
</tr>
<tr>
<td>SDM</td>
<td>Documented in 98%</td>
</tr>
</tbody>
</table>

Shahab & Lochrie, JAMDA 2022
15% of patients do not proceed with the surgery initially proposed

23% of our AAA population

TEPs and ACPs

Acknowledgement – Modarai & Tyrell, GSTT
The evidence, preoperative CGA...

**Year** | **What happened?**
--- | ---
2003 | Start of charity funded project
2005 | (BP) Mainstream funding for POPS service
2008 | (BP) Funding for additional CNS and consultant (2009)
2010 | Used remaining grant funding to secure 1 year research SpR
2011 | Research grant for POPS Vascular RCT
2012 | FY2 became deanery funded, rebadged money for OOPE
2013 | (BP) 3 PAs for the amputee rehab unit
2014 | (BP) Funding for 4 PAs = WTE Gynae POPS CNS
2014 | (BP) 7 Pas for vascular POPS consultant (2015)
2015 | FY programme (with funding for 2 cons but 2 OOPE, 1 cons)
2016 | Vanguard funding for translation to DVH
2018 | (BP) 3 PAs for orthogeriatrics expansion
2019 | (BP) 5PAs for cardiac surgery
2019 | Funding for POPS@EKHUT
...and postoperative CGA...

The impact of pre-operative comprehensive geriatric assessment on postoperative outcomes in older patients undergoing scheduled surgery: a systematic review

- Delirium
- Cardiac complications
- Infective complications
- Benefits also demonstrated

Cochrane Library

Comprehensive geriatric assessment for older people admitted to a surgical service (Review)

Eamer G, Taheri A, Chen SS, Daviduck Q, Chambers T, Shi X, Khadaroo RG
Organisational factors and mortality after an emergency laparotomy

Postoperative geriatric medicine review was associated with substantially lower mortality in older patients

OR 0.35; 95% CI: 0.29-0.42

...supported by big data studies in emergency surgery
It does work in practice for emergency and elective surgery

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CPOC – BGS perioperative frailty guideline

Guideline for Perioperative Care for People Living with Frailty Undergoing Elective and Emergency Surgery

Emergency admission
- Assess and document frailty (CFS).
- Consider atypical presentations of surgical pathology associated with frailty.
- Obtain timely collateral history.
- Establish presence of ACD, ADRT, DNAR decisions and LPA for health and welfare, and agree treatment escalation plan.
- Refer to perioperative frailty team/other services for optimisation, or use frailty intervention tool.
- Assess, document and modify risk factors for delirium.
- Undertake SDM and consider involving relatives and/or carers.
- Follow emergency care pathways.

Primary care referral for elective surgery
- Start SDM including discussion about non-surgical options.
- Make Every Contact Count: medical and lifestyle optimisation.
- Refer to include:
  - frailty score (CFS/efi)
  - presence, severity and management of comorbidities
  - presence of ACD, ADRT, DNAR decisions and LPA for health and welfare.

Surgical and preoperative assessment out-patient services
- Use information from primary care.
- Reassess and document frailty.
- Refer to perioperative frailty team/other services for optimisation, or use frailty intervention tool.
- Establish and review existing ACD, ADRT, DNAR decisions and LPA for health and welfare, and agree treatment escalation plan.
- Undertake SDM including discussion about non-surgical and palliative surgical options.
- Consider involving relatives and/or carers.
- Plan admission and discharge.

In theatre and recovery
- Consultant surgeon and anaesthetic involvement for high-risk cases.
- Identify frailty and co-existing conditions at the WHO team briefing.
- Employ strategies for positioning and moving conscious of frailty.
- Ensure physiological homeostasis cognisant of frailty.
- Informed by frailty status and agreed treatment escalation plans, anticipate postoperative care requirements and setting, and review again at the end of surgery.

Surgical wards providing care for emergency and/or elective patients
- Assess and document frailty.
- Anticipate, prevent, and treat:
  - delirium
  - pain
  - medical and surgical complications
  - hospital acquired deconditioning.
- Review treatment escalation plans.
- Promote recovery and timely discharge:
  - review discharge plans
  - regular multidisciplinary team meeting
  - proactive communication with patients and consider involving relatives and carers.

Transfer of care to the community
- Ensure timely and comprehensive written discharge information to patient and GP, including:
  - diagnoses
  - treatment (operative and/or non-operative)
  - complications
  - continuing medical and/or functional impairments
  - medication changes
  - follow-up plans and referrals
  - safety-net advice and points of contact
  - patient and carer education
  - agreed escalation and advance care plans.

Underpinning principles
- Iterative Shared Decision Making: Streamlined communication and documentation: Comprehensive Geriatric Assessment and optimisation: Multispecialty, multidisciplinary working.
Clinical lead for perioperative frailty
Perioperative frailty team with CGA expertise
Assess for frailty
Assess for conditions commonly associated with frailty (cognition, delirium risk)
Use CGA methodology perioperatively
All staff need frailty, delirium and dementia training
Recommendations for all stakeholders in the pathway
With provision of useful metrics

Guideline for Perioperative Care for People Living with Frailty
Undergoing Elective and Emergency Surgery

Recommendations for quality improvement and metrics

The clinical lead for (perioperative) frailty should support implementation of this guideline, through local quality improvement programmes. This will require:

- patient and public involvement in co-design/co-production
- identification of local key performance indicators based on the metrics below
- collaboration with local data analysts/informatics to support robust data collection (ideally through linkage with existing datasets, for example Getting it Right First Time, Perioperative Quality Improvement Programme, National Hip Fracture Database, National Emergency Laparotomy Audit)
- local measurement using a time series approach (e.g., statistical process control charts)
- local collaborative, interdisciplinary audit/morbidity/mortality meetings to review the data and inform quality improvement programmes.

To support measurement for improvement the following metrics may be used:

**Metrics to support development of clinical pathway**

- Number/proportion of patients with documentation of frailty
- Number/proportion of patients with frailty referred to perioperative frailty services for Comprehensive Geriatric Assessment and optimisation (CGA) or pharmacy services
- Number/proportion of patients with frailty, in whom a non-operative approach is taken, who are referred to perioperative frailty services or palliative care for ongoing conservative treatment
- Number/proportion of patients with frailty in whom an assessment of cognition is documented
- Number/proportion of patients living with frailty who have documentation of shared decision making
- Number/proportion of patients living with frailty who have documentation of treatment escalation plans and advance care plans.

**Metrics to measure process**

- Hospital guideline for prevention and management of delirium applicable to the perioperative setting.
- Length of hospital stay in patients with CFS≥5
- Percentage of patients with LOS > 21 days with CFS≥5 (superstranded)
- Place of discharge from hospital
With provision of useful metrics

- Proportion of patients in whom frailty is assessed perioperatively
- Proportion of patients living with frailty who have a TEP/ACP documented?
- Availability of a POPS team
- LoS, place of discharge
- Satisfaction with SDM
- Decisional regret

Guideline for Perioperative Care for People Living with Frailty Undergoing Elective and Emergency Surgery
So, its time for knowledge mobilisation...
...using resources...

New guidelines for the perioperative care of people living with frailty undergoing elective and emergency surgery - a commentary

Journal: Age and Ageing
Manuscript ID: AA-22-1150.R1
Manuscript Category: Guideline
Keywords: frailty, perioperative medicine, comprehensive geriatric assessment, delirium, surgery
Subject Section: Perioperative Care of Older People Undergoing Surgery, Frailty in Urgent Care Settings, Dementia and Related Disorders

Key points:
- Frailty status should be documented at referral, preoperative assessment and admission using the Clinical Frailty Scale (CFS).
- All patients with CFS≥3 should undergo Comprehensive Geriatric Assessment and optimisation (CGA) prior to surgery.
- All patients with CFS≥3 should have an assessment of cognition documented using a validated tool prior to surgery.
- All hospitals should have a perioperative frailty team with expertise in CGA providing clinical care throughout the pathway.
- All hospitals should appoint a clinical lead for perioperative frailty.

Promoting visibility
- The multi-organisational working group provides a platform to promote the guideline across public and professional groups.

Supporting infrastructure
- Accessible clinical and educational tools and resources for professionals and patients.
- Supporting national networks including RHS, Alect Specialised Clinical Frailty Network and POGP network providing expert coaching and mentoring for teams.
- Recommendations for commissioners and service providers to facilitate sustainable implementation with funding and workforce.

Measurement for change
- Providing standardised metrics against which units can measure process, outcomes, and workforce development.
- Signposting to national audits such as NHPD, NELA, SiRFT and PQIP to reduce data burdens.
...supported by NHS Elect POPS network

Provision of
- Toolkit (all resources)
- Coaching and mentoring
- Support with measurement for improvement

Focus on
- Establishing early adopters
- Developing regional centres
- Ensuring sustainability
- Providing forum for health services research

<table>
<thead>
<tr>
<th>Cohort 1</th>
<th>Cohort 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Addenbrooke’s Hospital, Cambridge</td>
<td></td>
</tr>
<tr>
<td>2. Darent Valley Hospital, Dartford</td>
<td></td>
</tr>
<tr>
<td>3. Frimley Park Hospital, Frimley</td>
<td></td>
</tr>
<tr>
<td>4. Northwick Park Hospital, London</td>
<td></td>
</tr>
<tr>
<td>5. University Hospital of Wales, Cardiff</td>
<td></td>
</tr>
<tr>
<td>6. Wirral University Teaching Hospital, Birkenhead</td>
<td></td>
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<tr>
<td>1. King’s College Hospital, London</td>
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<tr>
<td>2. Morriston Hospital, Swansea</td>
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<tr>
<td>3. Royal Devon and Exeter Hospital, Exeter</td>
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<tr>
<td>4. University College Hospital, London</td>
<td></td>
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<tr>
<td>5. University Hospital Lewisham, London</td>
<td></td>
</tr>
<tr>
<td>6. West Suffolk Hospital, Bury St Edmunds</td>
<td></td>
</tr>
<tr>
<td>7. Whipps Cross University Hospital, London</td>
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</tr>
</tbody>
</table>
So, what can you do?

- Take note- you will be looking after older people with multimorbidity and geriatric syndromes
- Make sure your preop assessment documents include CFS
- Do an online module on frailty – [www.bgs.org.uk](http://www.bgs.org.uk)
- Look at your data and use it to inform your services
- Talk to your geriatrician colleagues
- Talk to CPOC/POPS/BGS
- Take part in the next cohort of NHS Elect POPS network
Resources

- CPOC (@CPOCnews www.cpoc.org.uk)
- British Geriatrics Society POPS SIG www.bgs.org.uk
- NHS Elect POPS network Judith.partridge@gstt.nhs.uk
- POPS eLearning module – via BGS
- UCL Perioperative Medicine MSc
- NHS Elect POPS network
- NHFD, NELA
- POPS, CPOC, EBPOM, RCoA conferences