Ageing Well
Quality Healthcare in Later Life

The Electronic Frailty Index

Martin Vernon
National Clinical Director Older People
Routine timely frailty identification

- Routine frailty identification in primary care has 2 potential merits:
  
1. Population risk stratification

2. Targeted individualised interventions for optimal outcomes
What does NHS England mean by frailty?

- A long-term condition characterised by lost biological reserves across multiple systems and vulnerability to decompensation after a stressor event
- ‘The most problematic expression of human ageing facing the NHS today’ (Clegg)
What do people with frailty look like?

- People aged >60: 14% & those >90: 65%
- More common in women (16% v 12%)
- In England 1.8m people >60 and 0.8M people >80 live with frailty
- 93% frail people have mobility problems
- 63% need a walking aid
- 71% frail people receive help

*Bear in mind: those with mild frailty may simply be ‘slowing down’ a bit…*
Are you exhibiting frailty?

PRISMA 7 Self-completed questionnaire

1. Are you more than 85 years?
2. Male?
3. In general do you have any health problems that require you to limit your activities?
4. Do you need someone to help you on a regular basis?
5. In general do you have any health problems that require you to stay at home?
6. In case of need can you count on someone close to you?
7. Do you regularly use a stick, walker or wheelchair to get about?

3 or more YES answers suggests frailty requiring further assessment

www.england.nhs.uk
**Timed Up and Go Test (TUGT): Instructions**

1. Person should sit on a standard chair, back against chair, resting arms, walking aid nearby for use if needed, usual footwear
2. Say ‘GO’: Stand, walk to line 3 metres away, turn around, walk back to chair and sit down
3. Start timing on ‘GO’ and stop when sat down again
4. Test ends when firmly sat down

Greater than 10 seconds to complete TUGT suggests frailty
How can you recognise frailty?

Gait Speed: Instructions

1) Measure and mark a standard distance, e.g. 4 metres

2) Instruction: ‘walk at a comfortable pace’

3) Repeat x3 and calculate average time

Gait speed = distance/time = ____ m/s

Greater than 5 seconds to cover 4 metres gait speed <0.8 m/s) suggests frailty
Routine timely frailty identification

- Routine frailty identification in primary care has 2 potential merits:
  1. Population risk stratification
  2. Targeted individualised interventions for optimal outcomes
Electronic Frailty Index (eFI)

20 Disease states
e.g.,
• Hypertension
• Arthritis
• Chronic Kidney Disease
• Ischaemic Heart Disease
• Diabetes
• Thyroid Disease
• Urinary System Disease
• Respiratory System Disease

1 Abnormal Laboratory Value
• Anaemia and haematinic deficiency

36 Frailty deficits of eFI

8 Symptoms / signs
• Polypharmacy
• Dizziness
• Dyspnoea
• Falls
• Sleep Disturbance
• Urinary Incontinence
• Memory & cognitive problems
• Weight loss & anorexia

7 Disabilities
• Visual Impairment
• Hearing Impairment
• Housebound
• Social Vulnerability
• Requirement for care
• Mobility & transfer problems
• Activity limitation

www.england.nhs.uk

# eFl Risk Prediction

<table>
<thead>
<tr>
<th>1 year outcome (HR)</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>1.92</td>
<td>3.1</td>
<td>4.52</td>
</tr>
<tr>
<td>Hospitalisation</td>
<td>1.93</td>
<td>3.04</td>
<td>4.73</td>
</tr>
<tr>
<td>Nursing home admission</td>
<td>1.89</td>
<td>3.19</td>
<td>4.76</td>
</tr>
</tbody>
</table>

Population sub-segmentation

Reduction in proportion alive over time (days) to 5 yrs.

- **Fit**
- **Mild frailty**
- **Moderate frailty**
- **Severe frailty**

www.england.nhs.uk
Importantly not all older people are frail.

...and not all frail people are old
Validation following population risk-stratification

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.


© 2007-2009. Version 1.0. All rights reserved. Geriatric Medicine Research, Dalhousie University, Halifax, Canada. Permission granted to copy for research and educational purposes only.
In-hospital Risk Prediction

• Severe frailty adversely impacts mortality in acute care

• Severe frailty, acute illness, delirium and dementia all lead to longer LOS
Frailty is expensive when severe

Average Cost per patient
Actual and Standardised to whole KID 65+ population

Attempt at standardisation for age and gender. Used average cost/patient within each eFI category and calculated each using standardised population of whole KID 65+ population.

Standardised results demonstrate increase in cost between frailty categories alone, without the effect modifier of age.
Costs distribute differently as frailty progresses

Percent total spend by category within eFI band
Patients 65+ KID Jan - Oct 2017 activity data

- **Fit**
  - GP Prescription: 13.8%
  - GP: 13.0%
  - MH Inpatient: 3.5%
  - MH Community Care: 2.4%
  - Acute cost/patient: 50.0%
  - Community Care: 12.7%
  - Social Care Ave/Pt: 2.4%
  - Total: 100%

- **Mild**
  - GP Prescription: 15.2%
  - GP: 9.6%
  - MH Inpatient: 3.6%
  - MH Community Care: 2.1%
  - Acute cost/patient: 45.8%
  - Community Care: 18.5%
  - Social Care Ave/Pt: 5.2%
  - Total: 100%

- **Moderate**
  - GP Prescription: 11.1%
  - GP: 8.2%
  - MH Inpatient: 7.7%
  - MH Community Care: 2.2%
  - Acute cost/patient: 46.1%
  - Community Care: 23.2%
  - Social Care Ave/Pt: 10.5%
  - Total: 100%

- **Severe**
  - GP Prescription: 8.4%
  - GP: 6.2%
  - MH Inpatient: 10.5%
  - MH Community Care: 1.3%
  - Acute cost/patient: 47.7%
  - Community Care: 24.2%
  - Social Care Ave/Pt: 6.2%
  - Total: 100%
Bending the fitness curve

Also, consider inequalities carefully:

Lowest economic quartile frailty commences earlier in the life course and progresses more rapidly, contributing to reduced life expectancy.
Preventing frailty progression: Potential Cost impact

Adjusting for age, gender and deprivation:

- If **10% of the severely frail had remained moderately frail** the gross savings in Kent would be **£1.6m over 10 months**

- If **10% of the mildly frail had remained fit**, gross savings would be **nearly £9m** (owing to higher patient numbers)

- **NB: Gross estimates- these figures do not account for the costs of interventions to prevent frailty progression**

<table>
<thead>
<tr>
<th>EFI stage</th>
<th>Per patient</th>
<th>For 10% of Kent cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>£1,117</td>
<td>£8,878,776</td>
</tr>
<tr>
<td>Moderate</td>
<td>£1,228</td>
<td>£3,682,197</td>
</tr>
<tr>
<td>Severe</td>
<td>£1,982</td>
<td>£1,644,832</td>
</tr>
</tbody>
</table>
Where are we up to with...

**Routine timely frailty identification?**

- Routine frailty identification in primary care has 2 potential merits:

  1. Population risk stratification
  2. Targeted individualised interventions for optimal outcomes
GMS GP Contract 2017/18

- Practices will use an appropriate tool e.g. Electronic Frailty Index (eFI) to identify patients aged 65 and over who are living with moderate and severe frailty
<table>
<thead>
<tr>
<th>Definition</th>
<th>Cumulative Q3 total</th>
<th>Cumulative Q3 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count 65+ with frailty assessment</td>
<td>2,302,355</td>
<td>23.48% 65+</td>
</tr>
<tr>
<td>65+ without frailty assessment</td>
<td>7,501,842</td>
<td>76.52% 65+</td>
</tr>
<tr>
<td>Total moderately frail</td>
<td>569,828</td>
<td>5.8% 65+</td>
</tr>
<tr>
<td>Total severely frail</td>
<td>295,180</td>
<td>3% 65+</td>
</tr>
<tr>
<td><strong>Total moderate and severely frail</strong></td>
<td><strong>865,008</strong></td>
<td><strong>8.82% 65+</strong></td>
</tr>
<tr>
<td>Severe frailty w/medication review</td>
<td>151,130</td>
<td>51.2% (severe frailty)</td>
</tr>
<tr>
<td>Moderate or severe frailty w/fall</td>
<td>71,142</td>
<td>8.22% (moderate/severe frailty)</td>
</tr>
<tr>
<td>Moderate or severe frailty w/falls clinic</td>
<td>18,024</td>
<td>2.1% (moderate/severe frailty)</td>
</tr>
<tr>
<td>Moderate or severe frailty w/consent to SCR</td>
<td>91,813</td>
<td>10.61% (moderate/severe frailty)</td>
</tr>
</tbody>
</table>
Population sub-stratification: Prevention

Adult life span
- **Maintained functional ability & wellbeing** throughout life
- Emphasis on **activation and self help**
- **Timely, well planned & proportionate** service support for needs
- **Lower level support** towards end of life

**Ageing Well Pathway**

**Prevention**
- Fit/Mild Frail
- Prevention

**Intervention**
- Services

**Services**
- ACP
- EOLC

**Death**
- LTC

**IMPROVED**
- Resilience

**WORSENED**
- Resilience
Population sub-stratification: Intervention

- Earlier declining function & need for service support
- Timely identification of risk and managed escalating need
- Early opportunity to trigger planning & decisions
- Timely support towards end of life
- With declining function, maintained wellbeing key is a key outcome

Established frailty Pathway

Prevention → Intervention → Services

Functional Ability

ACP

LTC

Death

Wellbeing

Resilience

Worsened

Improved

Adult life span

www.england.nhs.uk
A testable eFI based currency (example)

Preventing (where possible) while managing frailty progression

Moderate frailty cohort

Cohort size (Q3 2017/18): 569,828 (5.8% 65+ England)

- Mean/STP: ~12950 patients per STP
- Mean/CCG: ~2700 patients per CCG

FMO-01: Moderate – recoverable (CFS=6 at time zero and <6 at time T)
FMO-02: Moderate – Stable (CFS=6 at time zero and time T)
FMO-03: Moderate – Progressive (CFS=6 at time zero and >6 at time T)

Recoverable

Stable

ACP

Progressive

Suggested metrics:
- Number recoverable = n_{1t} - n_1
- Number stable = n_{2t} - n_2
- Number progressive = n_{3t} - n_3
- Number community contacts
- Number outpatient attends
- Days spent in hospital in time t
- Days spent in own home in time t
- Patient wellbeing index change

ACP

EOLC
Frailty data to commission a new integrated care offer to include EOL for those NOT ageing well

BAU

NEW OFFER
ACP EOLC

SLIDO Event code: #W674
Proactive & Reactive Community MDT care
Integrated care system offer provides the alternative to hospital care

General and acute beds open overnight - 2010/11 onwards

Build community capability & capacity

8% reduction in general and acute beds since 2010: NHSB 2017

SLIDO Event code: #W674
What we’re doing nationally

- Regional meetings
- Core Capabilities framework
- Economic modelling
- A suite of national frailty products
- Research & Innovation

england.clinicalpolicy@nhs.net

www.england.nhs.uk/ourwork/ltc-op-eolc