The Community Assessment of Risk and Treatment Strategies (CARTS) Project

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Centre for Gerontology and Rehabilitation
Background

• In Europe, the proportion of people aged >65yrs will grow to over 23% by 2030 (*Boeckxstaens et al., 2011*)

• Frail older people with multiple co-morbidities and complex needs living longer in the community

• Demand for limited healthcare services
Frailty

• Difficult to define because it is multifaceted.
• Frailty may be reversed when it is independent of disease and disability
• “State of vulnerability defined by many factors” (Rockwood; Age & Ageing 2005).
• Linked to increased risk of adverse healthcare outcomes (e.g. being hospitalised, transferred to a nursing home, or death)
The Challenge of Managing Frail Older Adults in the Community

- Who is at risk?
- What is the greatest risk?
- What is the most appropriate response?
- Should this person stay at home.....go to a nursing home?
- It is possible to identify risk but how do we quantify it?
A time of limited resources...

- Who gets them?
  *Risk/benefit analysis is basis for distribution of scarce resources...*

- Need to screen triage and prioritize those at greatest risk who will receive the greatest benefit...

- How do we screen and treat to prevent frailty..

- Where do we start?
The CARTS Project

**Aim:** To screen for frailty, triage those at medium-high risk of adverse healthcare outcomes and perform comprehensive assessments with person-centered treatment strategies.
Screening Tools

- Short screening and assessment tools:
  - Risk Instrument for Screening in the Community (RISC)
  - Community Assessment of Risk Instrument (CARI)

- These instruments assess a person’s physical, cognitive, and medical condition, and the ability of their caregiver network (i.e. family, friends, home help etc.) to manage any deficits in their care.
The RISC Tool

• Assesses risk of adverse outcomes within a defined time period (i.e. one year).

• Measures **care needs** (mental state, medical state and ADLs) & **care deficits** (ability of the caregiver network to manage any issues)

• Quick, objective and reproducible

• Predicts hospitalisation, institutionalisation and death
  – Triage those at higher risk to rapid assessment

• Enhances the integrated care agenda
  – A common language between primary and secondary care
## RISC Score Sheet

### Demographics

<table>
<thead>
<tr>
<th>Personal Details: Name:</th>
<th>Living Arrangements:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alone □ Spouse □</td>
</tr>
<tr>
<td></td>
<td>Child □</td>
</tr>
<tr>
<td></td>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Gender:</th>
<th>M □ F □ DOB / / ID</th>
</tr>
</thead>
</table>

### Instructions

If NO concern for a Domain, move on to the next Domain. Complete all 4 domains.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Concern</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Caregiver Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental State</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADLs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical/Physical State</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Global Risk Score

**(circle 1,2,3,4, or 5)**

<table>
<thead>
<tr>
<th>A. Institutionalisation</th>
<th>1 Minimal / rare</th>
<th>2 Low / unlikely</th>
<th>3 Moderate / possible</th>
<th>4 High / likely</th>
<th>5 Extreme / certain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Death</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Global Risk Score Definitions

1. **Minimal**: Little or no serious consequence related to the risk / **Rare**: The event will almost never occur.
2. **Low**: Small impact from the risk, unlikely to cause serious harm / **Unlikely**: Low probability of the event occurring.
3. **Moderate**: Significant risk present / **Possible**: The event may occur but is infrequent or unlikely to occur soon.
4. **High**: Serious impact likely from the risk / **Likely**: High probability of the event occurring.
5. **Extreme**: Severe consequences likely / **Certain**: The event will almost certainly occur.
The CARI Tool

• More detailed risk assessment
• Collects demographic data and records the presence and magnitude (low, medium, high) of concern within and across three domains:
  – Mental state (7 items)
  – ADLs (15 items)
  – Medical state (9 items)
• 10 minutes to complete as part of a comprehensive geriatric assessment
# CARIT Score Sheets

### Demographics
- **Name:**
- **Gender:** M/F
- **DOB:**
- **MRN:**

### Reason for referral:
- Date of assessment:

### Educational Level:
- Primary
- Secondary
- Other:

### Living Arrangements:
- Alone
- Living with:

### Location:
- Own Home
- Others' home
- Sheltered Housing
- Nursing home:

### Support:
- Informal:
  - Yes
  - No
- Hrs/day/week:
  - Family/Partner
  - Friend
  - Neighbour

### Carer burden:
- Primary carer:

### Medical History:
- Primary diagnosis:

### Other diagnoses:
- Healthcare use:
- No. A&E attendances (in the last year):
- No of admissions (in the last year):

### Medication:
- Prescription meds:
- Over the counter meds:

### Frailty:
- (Your overall impression):
  - Frail - Yes
  - No:

### Instructions
#### Domain
##### Step 1
- **Concern:**
- **Status:**

#### Step 2
- **Mental State**
- Circle the present severity of the concern:
  - 1. Mild
  - 2. Moderate
  - 3. Severe

#### Step 3
- **Care Network:**
- Can the caregiver network manage this concern for this domain?
  - 1. Can manage
  - 2. Can't manage
  - 3. Can't manage

### A. Thinking & Reasoning
- **Cognition:**
  - 1. Mild cognitive impairment (memory loss without functional loss (typically MMSE of >24))
  - 2. Established early/mild dementia (typically MMSE of 24-20)
  - 3. Moderate to severe dementia, (typically MMSE of < 20)

- **Insight & Executive Function:**
  - 1. Some loss of insight, difficulty planning
  - 2. Greater loss of awareness, diminished capacity
  - 3. No insight or capacity (cognitive/functional), unaware of self/health

### B. Behaviours
- **Agitation (restlessness):**
  - 1. Agitation has occurred in the past but not evident presently
  - 2. Agitation present but manageable/Infrequent
  - 3. Agitation present, wandering/restless, difficult to manage

- **Aggression (Physical):**
  - 1. Aggression has occurred in the past but not evident presently
  - 2. Aggression present, but can be managed/isolated episode(s)
  - 3. Aggression difficult to manage/frequent outbreaks

### C. Psychiatric
- **Anxiety/Depression:**
  - 1. Past history
  - 2. Symptoms causing distress/social withdrawal

- **Delusions/Hallucinations:**
  - 1. History of delusions/hallucinations. None recently
  - 2. Evidence of delusions/hallucinations, but no distress

### D. Other
- **Specify:**
  - 1
  - 2
  - 3

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### Notes:
- [UCC Logo]
- [Centre for Gerontology and Rehabilitation Logo]
### Domain 2. Issues (Activities of daily living)

<table>
<thead>
<tr>
<th>Step 1 Concern</th>
<th>Step 2 Status</th>
<th>Step 3 Care Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there concern about issues in this domain? (Circle Yes or No)</td>
<td>Circle the present level of function</td>
<td>Can the caregiver manage the concern for this domain?</td>
</tr>
</tbody>
</table>

#### A. Basic ADLs

<table>
<thead>
<tr>
<th>Activity</th>
<th>Step 1 Concern</th>
<th>Step 2 Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bladder</td>
<td>N O Y D</td>
<td>Occasional incontinence e.g., once per week / situational. 1.</td>
</tr>
<tr>
<td>Bowel</td>
<td>N O Y D</td>
<td>Occasional incontinence e.g., once per week / situational. 1.</td>
</tr>
<tr>
<td>Transfer</td>
<td>N O Y D</td>
<td>Minor help/standby assistance of one person/requires raised toilet seat or handrails. 1.</td>
</tr>
<tr>
<td>Mobility</td>
<td>N O Y D</td>
<td>Uses aid (stick/frame) or standby assistance one person. 1.</td>
</tr>
<tr>
<td>Dressing</td>
<td>N O Y D</td>
<td>Can dress with supervision or set up / Rarely changes clothes. 1.</td>
</tr>
<tr>
<td>Bathing</td>
<td>N O Y D</td>
<td>Supervision in shower / bath but wash themselves/ Not washing. 1.</td>
</tr>
<tr>
<td>Stairs/steps</td>
<td>N O Y D</td>
<td>Needs assistance on stairs but can use stairs/ requires handrails. 1.</td>
</tr>
<tr>
<td>Feeding</td>
<td>N O Y D</td>
<td>Supervision/ encouragement eating / set up. 1.</td>
</tr>
</tbody>
</table>

#### B. Instrumental

<table>
<thead>
<tr>
<th>Activity</th>
<th>Step 1 Concern</th>
<th>Step 2 Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology use</td>
<td>N O Y D</td>
<td>Difficulty learning how or cannot use new appliances. 1.</td>
</tr>
<tr>
<td>Shopping</td>
<td>N O Y D</td>
<td>Needs someone to plan shopping with them / help with bags. 1.</td>
</tr>
<tr>
<td>Food preparation</td>
<td>N O Y D</td>
<td>Can only make simple meals (sandwiches/breakfast etc.). 1.</td>
</tr>
<tr>
<td>Housekeeping/Laundry</td>
<td>N O Y D</td>
<td>Assistance needed for heavy housework only (hoovering). 1.</td>
</tr>
<tr>
<td>Medications</td>
<td>N O Y D</td>
<td>Needs prompting to take medications./ needs meds organised. 1.</td>
</tr>
<tr>
<td>Finances</td>
<td>N O Y D</td>
<td>Directs people but cannot manage complex banking. 1.</td>
</tr>
</tbody>
</table>

#### C. Other

<table>
<thead>
<tr>
<th>Activity</th>
<th>Step 1 Concern</th>
<th>Step 2 Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specify</td>
<td>N O Y D</td>
<td>1.</td>
</tr>
</tbody>
</table>
### Domain 3. Step 1

<table>
<thead>
<tr>
<th>Issues</th>
<th>Concern</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical State</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic medical condition(s)</td>
<td>Y</td>
<td>Asymptomatic/condition(s) controlled / no recent exacerbation.</td>
</tr>
<tr>
<td>Exclude mental state issues</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Symptoms/ Palliative care issues (e.g. pain)</td>
<td>Y</td>
<td>Mild chronic symptoms/terminal condition: asymptomatic or symptoms well controlled.</td>
</tr>
<tr>
<td>A. Physical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hearing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vision</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swallow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gait / Falls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment/ socioeconomics</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>C. Other</td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>

### Global Risk Score

<table>
<thead>
<tr>
<th>A. Institutionalization</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall risk of admission to long-term care (nursing homes) in the next year.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Hospitalization</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of hospitalization including prolonged admission or readmission in the next year.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Death</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of death in the next year.</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Comments:

Signed: ___________  Role/position: _______  Years of experience: ___________  Date: __/__/
How CARTS Works

Public Health Nurses assess and score older adults in the community using the RISC tool

Those at medium-high risk are referred for further assessment using the CARI

Tailored treatment strategies prescribed and delivered by primary care team
BENEFITS OF THE CARTS PROJECT

1. Early intervention to minimise, delay or prevent frailty
2. Proactive, integrated community-based approach
3. Prioritisation of limited resources
4. Enhanced decision-making processes in the community
5. Reduced incidence of adverse healthcare outcomes with associated cost savings
6. Improved quality of life
Work to Date

- The CARTS instruments have been used with community-dwelling older adults in Portugal (n=5,500), Australia (n=500), Spain (n=350) and Ireland (n=800).

- Results to date indicate that the RISC has good predictive validity (for hospitalisation, institutionalisation and death); high internal consistency and inter-rater reliability.

- Unlike other risk/frailty instruments, the RISC takes into account the ability of the caregiver network to manage any concerns.
Publications to Date


- International Association of Gerontology and Geriatrics – European Region Congress (April 2015)
- National Homecare and Assisted Living Conference in Dun Laoghaire in May 2015 (invited speaker)
- ICT4Ageing Conference in Lisbon in May 2015 (Prof Molloy keynote speaker)
- GSA Conference in Orlando, USA in November 2015 (Symposium and abstracts submitted)
Funding

• European H2020
  – Applied for H2020 in 2014 – successful Stage 1, unsuccessful Stage 2
  – Resubmit for H2020 2016/2017 calls
  – The RISC tool is currently being integrated into 5 H2020 proposals (3 for PHC-21 and 2 for PHC-25)

• Other National/International
  – Health Research Board 2015 Definitive Intervention Call (submitted)
  – Funded in Spain, Portugal and Australia for their studies underway
  – Health Service Executive implementation across Cork and Kerry to screen 3000, triage and pilot interventions (€300,000 funding from 2015-2017).
Thank You

ANY QUESTIONS??