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

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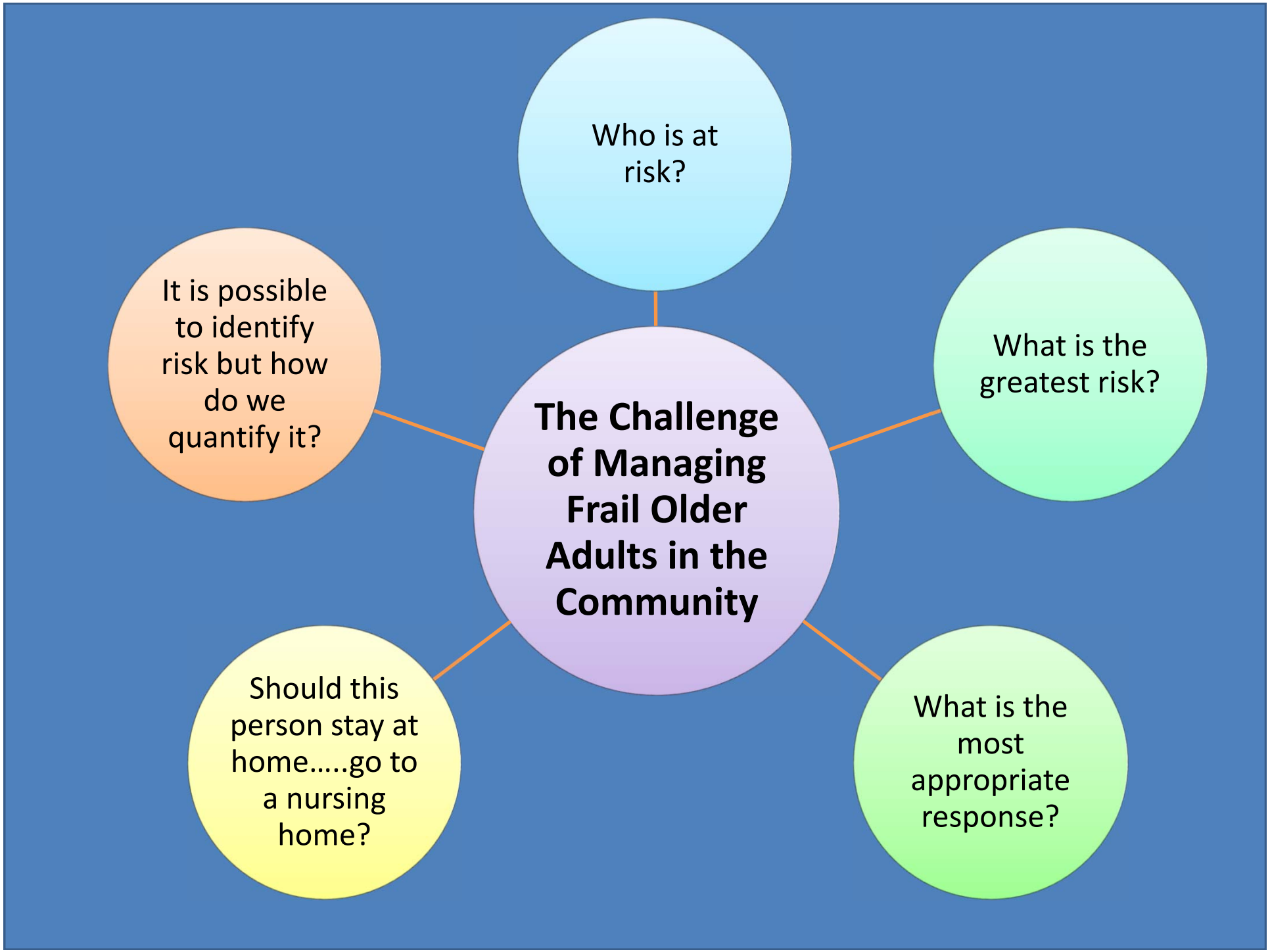
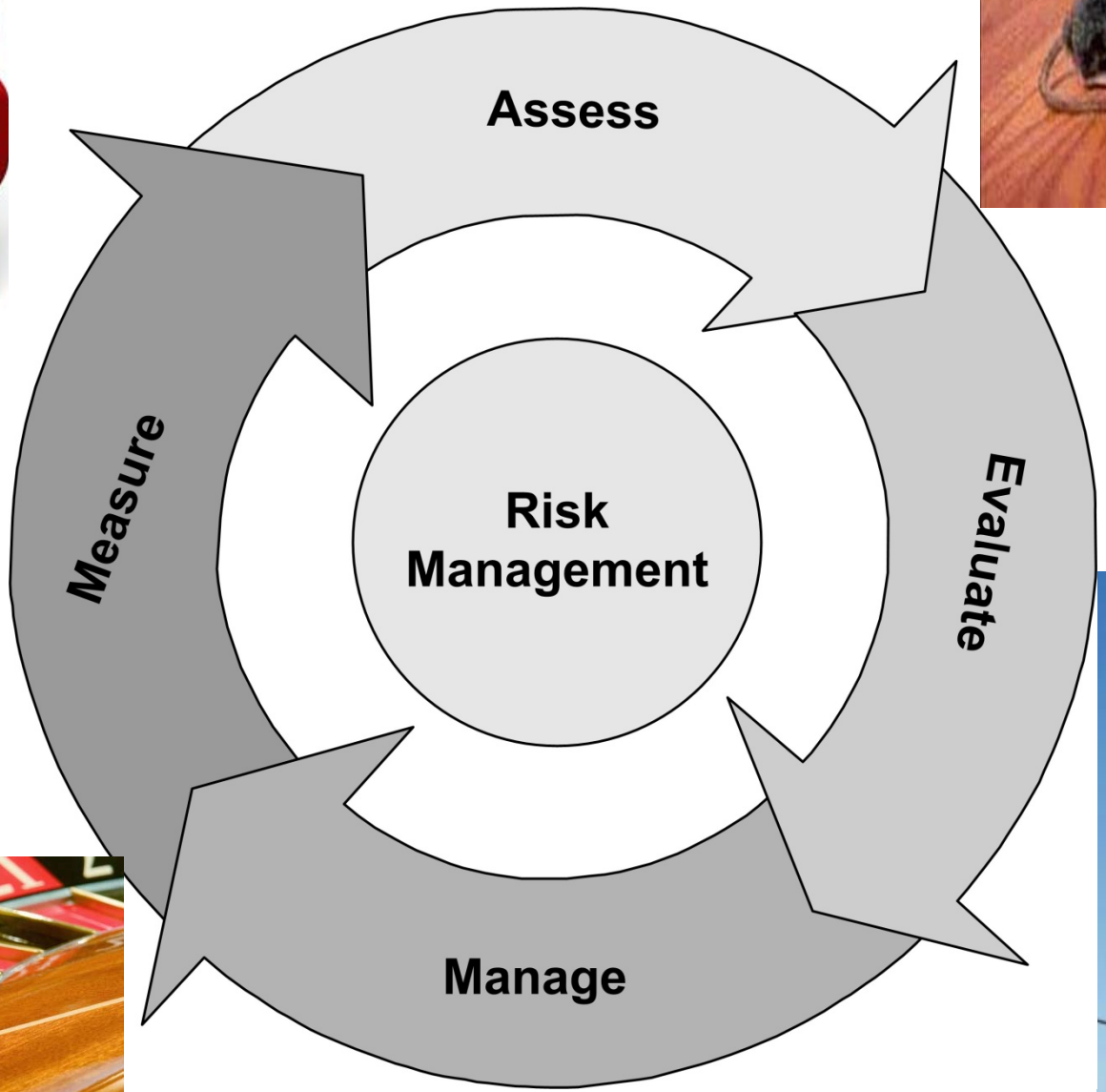
A time of limited resources…

- 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?


Who is at risk?
It is possible to identify risk but how do we quantify it?
What is the greatest risk?
The Challenge of Managing Frail Older Adults in the Community
Should this person stay at home…..go to a nursing home?
What is the most appropriate response?

What is Risk?



Understanding Risk

- Risk is the chance an event will occur in the future
- It is the amount of potential harm that can be expected to occur at a set period of time, due to a specific
- Measurement is based upon individual risk factors

Understanding Risk

Risk Matrix

	Minimal	Mild	Moderate	Severe	Extreme
Certain					Extreme Risk
Likely				High Risk	
Possible			Medium Risk		
Unlikely		Low Risk			
Rare	Minimal Risk				

Understanding Frailty

- Difficult to define
- Multi-factorial definition
- Should correlate with
- -disability
- -co-morbidity
- -self reported health
- About identifying a group with adverse outcomes.

Understanding Frailty

- "State of vulnerability defined by many factors" K Rockwood;Age & Ageing 2005.
- "physiological syndrome characterised by decreased reserve and diminished resistance to stressors resulting from a cumulative decline across multiple physiological systems, and causing vulnerability to adverse outcomes" American Geriatric Society.
- Is frailty one condition?

Understanding Frailty

- Frailty
  - Is a disorder of several inter-related physiological systems resulting in an accelerated decrease in physiological reserve & in the failure of homeostatic mechanisms
  - Leading to a state of increased vulnerability after a stressor event
    - An apparently small insult leads to a disproportionate change in health status
  - Which increases the risk of adverse outcomes, including
    - **falls, delirium, disability & death**
- Frailty is expensive
- Institutionalisation is expensive
- What can be done?

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Risk Factors

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- Age (>75 years)
- No formal education
- Living alone
- Chronic condition (CHF, Asthma, COPD, Stroke)
- Depression
- Cognitive impairment
- Sensory impairment (visual or hearing)
- Poor nutrition
- Poor mobility and ADL dependence

Ballard et al. (2013), Castell et al. 2013, Ng et al. (2014)

Risk Factors

Over 75 years

Diagnosed with COPD

Living alone

ADL dependency

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The CARTS Project

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

CARTS as Risk Paradigm

- CARTS operationalizes “risk” as a surrogate marker for “frailty”
- Frailty is heightened vulnerability
- Instead of looking at frailty, the RISC uses ***risk of three adverse outcomes*** instead.
- Practical, approach taking caregiver network into consideration so it is more holistic than single patient parameters

CARTS PROGRAM (STAT)

- Screen
- Triage
- Assess: Diagnose/Identify issues
- Treat and Evaluate effect of interventions
- Follow over time to map risk

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How CARTS Works

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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

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How CARTS Works

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RISC tool can be used in any setting e.g. community, family doctor or hospital

Single tool that communicates vital information about a patient quickly using a universal language-RISK

Integrates different parts of the system like community, family doctors and outpatients and inpatient services using this simple tool to designate risk level

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.

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The RISC Tool

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- 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

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RISC Score Sheet

Demographics

Personal Details: Name_____

Address _____

_____

_____

Living Arrangements:

Alone ☐ Spouse ☐

Child ☐

Other _____

Gender : M ☐ F ☐ DOB / / ID _____

Instructions	Step 1	Step 2	Step 3
Domain	**Concern**		**Caregiver Network**
If NO concern for a Domain, move on to the next Domain. Complete all 4 domains	Is there concern about issues in this domain? (Circle Yes or No) Then complete Step 2	Circle the present severity of the concern (Circle:1,2,3) **1. Mild. 2. Moderate. 3. Severe.** Then complete Step 3	Is the caregiver network able to manage (Circle:1,2,3,4 or 5) **1.Can manage 2.Carer strain 3.Some gaps 4.Cannot manage 5.Absent/liability**
1. Mental State	N Y ↓ →	1 2 3	1 2 3 4 5
2. ADLs	N Y ↓ →	1 2 3	1 2 3 4 5
3. Medical/Physical State	N Y ↓ →	1 2 3	1 2 3 4 5
4. Other specify_____	N Y ↓ →	1 2 3	1 2 3 4 5

Global Risk Score (circle 1,2,3,4 or 5)

A. Institutionalisation Overall risk of admission to long-term care (nursing home) in the next year.	**1** Minimal / rare	**2** Low / unlikely	**3** Moderate / possible	**4** High / likely	**5** Extreme / certain
B. Hospitalisation Risk of hospitalisation including prolonged admission or readmission in the next year.	**1** Minimal / rare	**2** Low / unlikely	**3** Moderate / possible	**4** High / likely	**5** Extreme / certain
C. Death Risk of death in the next year.	**1** Minimal / rare	**2** Low / unlikely	**3** Moderate / possible	**4** High / likely	**5** Extreme / certain

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.

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.

* 1. Canadian Study on Health & Aging, Revised 2008.
2. K. Rockwood et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489-495.

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The CARI Tool

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- 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

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CENTRE FOR GERONTOLOGY AND REHABILITATION

CARI Score Sheets©

Demographics: Personal Details: Name_____Gender M□ F□ DOB / / MRN_____

Reason for referral: _____Date of assessment_____

Educational Level: Primary □ Secondary □ 3rd level □Other □____

Living Arrangements: Alone □Living with_____

Location: Own Home □ Others` home□ Sheltered Housing □Nursing home□ Other □_____

Support: Informal: Yes □No□ hrs/day__days/week___ Family/partner□ Friend □ Neighbour □Other □_____

Formal: Yes □No□ hrs/day__ days/week___PHN□ Day care□ Home help □ Meals on wheels □Respite□ Other□____

Carer burden : Primary carer_____

Carer Burden Score- Mild (0-10) □ Mod (11-20)□ Severe(21-30)□

Medical History: Primary diagnosis_____

Other diagnoses_____

Healthcare use: No. A&E attendances (in the last year)____No of admissions (in the last year)____N/A □

Medication: Prescription meds___ Over the counter meds___

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

Instructions	Step 1	Step 2		Step 3
Domain	Concern	Status		Care Network
Mental State	Is there concern about issues in this domain?(Circle Yes or No)	**Circle the present severity of the concern** 1. Mild. 2. Moderate. 3. Severe.		Can the caregiver network manage this concern for this domain? 1.Can manage 2.Carer strain 3.Some gaps 4.Cannot manage 5.Absent/liability
	N ☐ Y ☐ ↓ →	If NO concern, move on to the next Domain, 2. If YES complete each section A,B,C below		
A. Thinking & Reasoning	If NO concern, move on to next section until domain is complete			
Cognition	N ☐ Y ☐ ↓ →	1 2 3	Mild cognitive impairment (memory loss without functional loss (typically SMMSE of >24). Established early-mild dementia (typically SMMSE of 24-20). Moderate to severe dementia, (typically SMMSE of < 20).	
Insight & Executive Function	N ☐ Y ☐ ↓ →	1 2 3	Some loss of insight, difficulty planning Greater loss of awareness, diminished capacity. No insight or capacity (cognitive/functional), unaware of self/ health.	
B. Behaviours				
Agitation (restlessness)	N ☐ Y ☐ ↓ →	1 2 3	Agitation has occurred in the past but not evident presently. Agitation present but manageable / Infrequent Agitation present, wandering/restless, difficult to manage.	1 2 3 4 5 ↓
Aggression (Physical)	N ☐ Y ☐ ↓ →	1 2 3	Aggression has occurred in the past but not evident presently Aggression present, but can be managed/ isolated episode(s). Aggression difficult to manage- frequent outbursts.	
Risky Behaviours including Self neglect	N ☐ Y ☐ ↓ →	1 2 3	Behaviours have occurred in the past but not recently. Behaviours noted recently but can be managed. Behaviours ongoing / difficult to manage.	
C. Psychiatric				
Anxiety /Depression	N ☐ Y ☐ ↓ →	1 2 3	Past history/Some mild anxiety-depression symptoms. Symptoms causing distress /social withdrawal. Symptoms interfering with function.	
Delusions /Hallucinations /paranoia	N ☐ Y ☐ ↓ →	1 2 3	History of delusions/ hallucinations. None recently. Evidence of delusions/hallucinations/ but no distress. Symptoms causing distress and/or interfering with function.	
D. Other	N ☐ Y ☐	Specify _____ 1 2 3		

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Domain 2. Issues	Step 1 Concern	Step 2 Status		Step 3 Care Network
ADLs Activities of daily living	Is there concern about issues in this domain?(Circle Yes or No)	**Circle the present level of function** **1. Supervision or Set up.** **2. Assist.** **3. Dependent.**		Can the caregiver network manage the concern for this domain? **1.Can manage** **2.Carer strain** **3.Some gaps** **4.Cannot manage** **5.Absent/liability**
	N☐ Y☐ ↓ →	If NO concern, move on to next Domain, 3. If YES complete each section A, B below.		
A. Basic ADLs	If NO concern, move on to next section until domain is complete.			
Bladder	N☐ Y☐ ↓ →	1 2 3	Occasional incontinence e.g. once per week /situational. Frequently incontinent / wears pads. Completely incontinent, needs physical help with pads or toilet.	
Bowel	N☐ Y☐ ↓ →	1 2 3	Occasional incontinence e.g. once per week /situational. Frequently incontinent / wears pads. Completely incontinent, needs physical help with pads or toilet.	
Transfer	N☐ Y☐ ↓ →	1 2 3	Minor help/ standby assistance of one person/requires raised toilet seat or handrails. Major help / assistance of one to two people. Hoist / bed bound.	
Mobility	N☐ Y☐ ↓ →	1 2 3	Uses aid (stick/frame) or standby assistance one person. Major help / assistance of one to two people. Immobile.	
Dressing	N☐ Y☐ ↓ →	1 2 3	Can dress with supervision or set up/ Rarely changes cloths. Can dress upper half (but not lower half). Full assistance (upper & lower half) or resistive or refusing.	
Bathing	N☐ Y☐ ↓ →	1 2 3	Supervision in shower /bath but wash themselves/ Not washing. Needs assistance with set up. Full assistance or unable as resistive or refusing.	
Stairs/steps (No stairs/ not used ☐)	N☐ Y☐ ↓ →	1 2 3	Needs supervision on stairs but can use stairs/ requires handrails. Physical assistance of one to two people up & down. Unable/needs stair-lift/unwilling to move downstairs but unsafe.	
Feeding	N☐ Y☐ ↓ →	1 2 3	Supervision /encouragement eating /set up. Needs some assistance e.g. cutting up food but patient can feed themselves. Hand fed/ not eating or refusing food / peg feeding.	1 2 3 4 5 ↓
B.Instrumental				
Technology use	N☐ Y☐ ↓ →	1 2 3	Difficulty learning how or cannot use new appliances Can use with assistance/passive user (e.g. can answer phone but cannot initiate). Unable / using inappropriately (calling at night).	
Shopping	N☐ Y☐ ↓ →	1 2 3	Needs someone to plan shopping with them / help with bags. Needs someone to plan/physically assist them with shopping. Unable to shop, would need shopping delivered.	
Food preparation	N☐ Y☐ ↓ →	1 2 3	Can only make simple meals (sandwiches/breakfast etc.). Reheats meals prepared by carer/meals on wheels/makes tea. Needs meals served to them / Unsafe (hazard) in kitchen.	
Housekeeping/ Laundry	N☐ Y☐ ↓ →	1 2 3	Assistance needed for heavy housework only (hoovering). Assistance needed for light housework (dishes, laundry). Unable to do any housework / laundry/ unsanitary conditions	
Transportation (**Not** referring to driving ability)	N☐ Y☐ ↓ →	1 2 3	Can arrange own transport out of house (call taxi, lift). Needs someone to accompany them outside the house. Cannot travel outside house even with assistance/housebound.	
Medications	N☐ Y☐ ↓ →	1 2 3	Needs prompting to take medications./ needs meds organised. Needs to be given some (e.g. subcut insulin) /all medications. Poor compliance / Inappropriate administration / refusing.	
Finances	N☐ Y☐ ↓ →	1 2 3	Directs people but cant manage complex banking. Needs assistance with bills, money, poor concept of value. Taken care of by other/no concept of money/ financial abuse.	
C. Other	N☐ Y☐	Specify _____ 1 2 3		

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Domain 3.	Step 1	Step 2	Step 3
Issues	Concern	Status	Care Network
Medical State	Is there concern about issues in this domain?(Circle Yes or No)	**Circle the present level of function** **1. Mild.** **2. Moderate.** **3. Severe.**	Can the caregiver network manage the concern for this domain? **1.Can manage** **2.Carer strain** **3.Some gaps** **4.Cannot manage** **5.Absent/liability**
	N ☐ Y ☐ ↓ →	If NO concern, complete the Global Risk Score. If YES complete each section below.	
A. Med issues	If NO concern, move on to next section until domain is complete.		
Chronic medical condition(s) **Exclude mental state issues**	N ☐ Y ☐ ↓ →	1 Asymptomatic /condition(s) controlled / no recent exacerbation. 2 Symptoms but not affecting function / recent exacerbation. 3 Frequent exacerbations / affecting function.	
Symptoms/ Palliative care issues (e.g.pain)	N ☐ Y ☐ ↓ →	1 Mild chronic symptoms/terminal condition: asymptomatic or symptoms well controlled. 2 Ongoing symptoms needing specialist input. 3 Active symptoms (e.g. pain) ongoing despite specialist input/actively dying.	
B. Physical			
Hearing	N ☐ Y ☐ ↓ →	1 Reduced hearing /uses hearing aid to help. 2 Difficulty hearing (+/- despite hearing aid). 3 Profoundly deaf, marked difficulty communicating.	
Vision	N ☐ Y ☐ ↓ →	1 Reduced visual acuity but normal eyesight (wears glasses). 2 Visually impaired / (+/- despite glasses). 3 No vision and interfering with function.	1 2 3 4 5 ↓
Communication	N ☐ Y ☐ ↓ →	1 Expressive dysphasia, difficulty communicating but intelligible. 2 Mixed dysphasia, marked difficulty communicating. 3 Aphasic or non-communicating.	
Swallow	N ☐ Y ☐ ↓ →	1 History / concern of aspiration but not evident at present. 2 Episodes of aspiration, needs diet modified. 3 Aspirating/non compliance with diet/ swallow absent /needs or using peg.	
Nutrition	N ☐ Y ☐ ↓ →	1 History/ concern of malnutrition/ BMI upper/lower limits of norm. 2 Malnourished, abnormal BMI. 3 Evidence of serious malnutrition, severe anorexia or obesity.	
Gait / Falls	N ☐ Y ☐ ↓ →	1 History of fall in the last year (none recently)/fear of falling/difficulty walking or with balance. 2 Abnormal gait pattern/recent falls. 3 Gait grossly abnormal/frequent falls/no safety awareness.	
Environment/ socioeconomics	N ☐ Y ☐ ↓ →	1 Concern raised over home environment/ social isolation/disadvantaged area. 2 Poor sanitation or structural housing conditions/marked social isolation. 3 Dangerous sanitary, structural housing or social conditions.	
C. Other	Y N	Specify _____ 1 2 3	

Global Risk Score

	1	2	3	4	5
A. Institutionalization Overall risk of admission to long-term care (nursing home) in the next year.	**Minimal** **Rare** ☐	**Low** **Unlikely** ☐	**Moderate** **Possible** ☐	**High** **Likely** ☐	**Extreme** **Certain** ☐
B. Hospitalization Risk of hospitalization including prolonged admission or readmission in the next year.	**Minimal** **Rare** ☐	**Low** **Unlikely** ☐	**Moderate** **Possible** ☐	**High** **Likely** ☐	**Extreme** **Certain** ☐
C. Death Risk of death in the next year.	**Minimal** **Rare** ☐	**Low** **Unlikely** ☐	**Moderate** **Possible** ☐	**High** **Likely** ☐	**Extreme** **Certain** ☐

Comments:_____

Signed:_____**Role/position:** _____**Years of experience:**___**Date:** / /

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Instrument Testing

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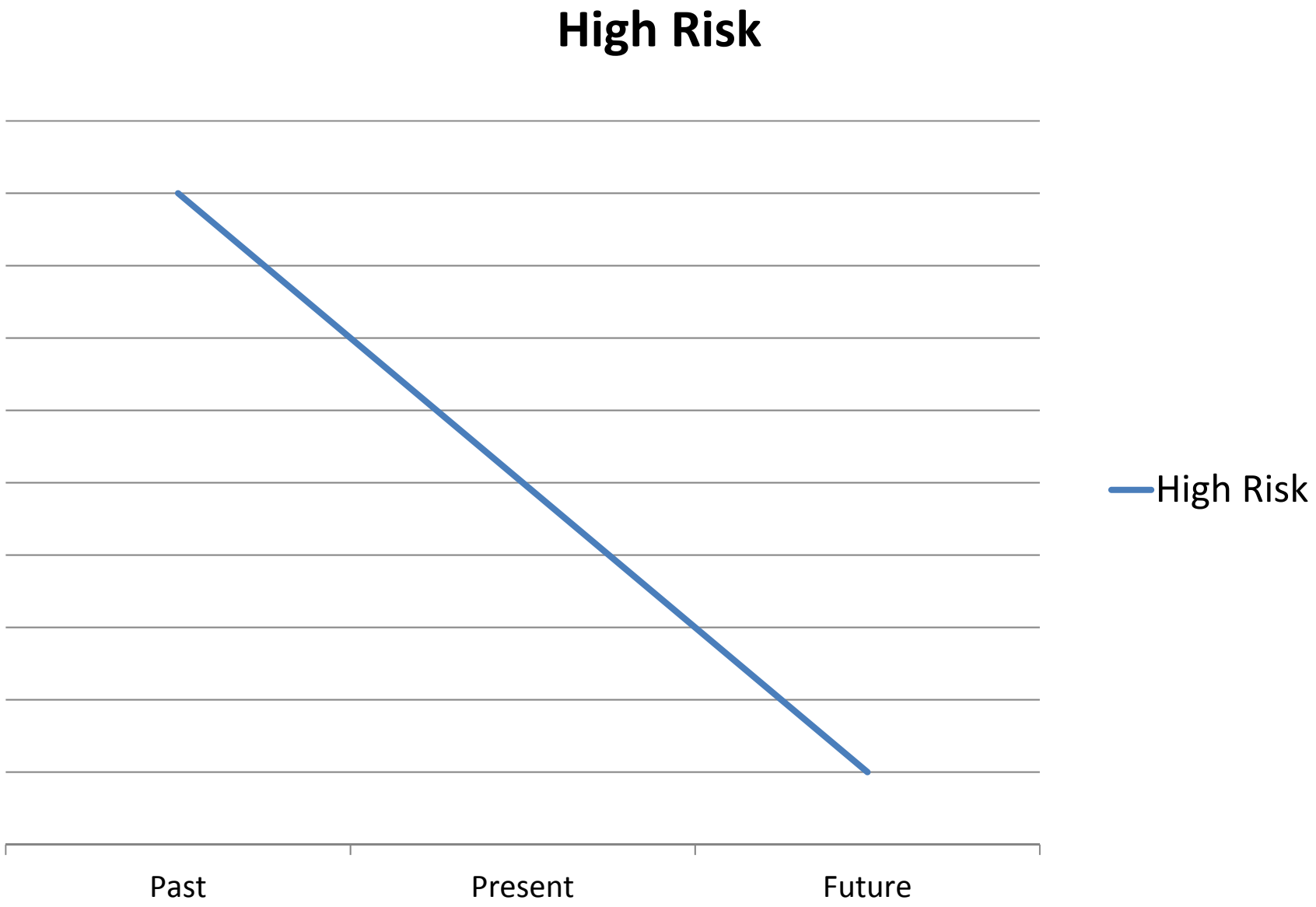
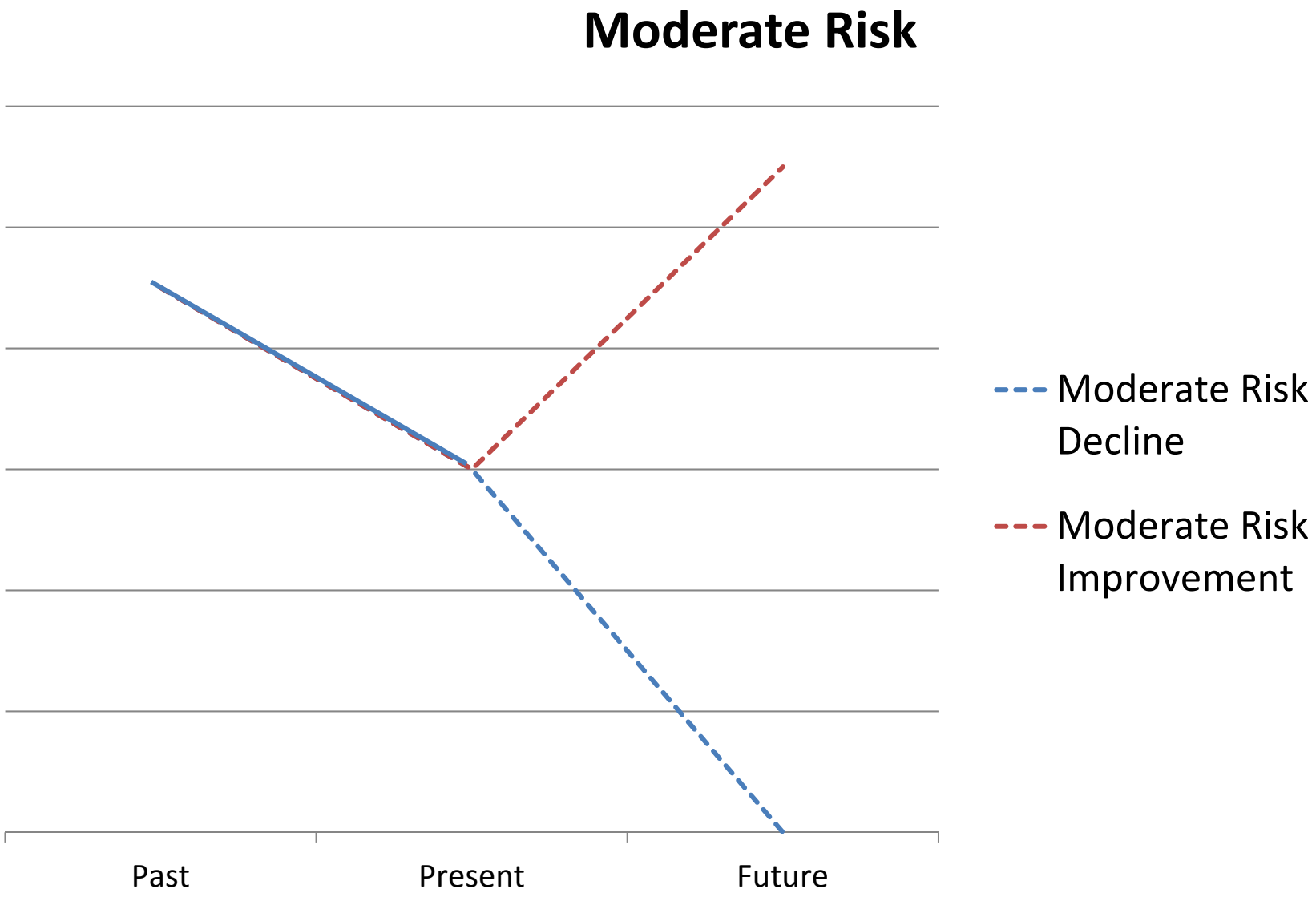
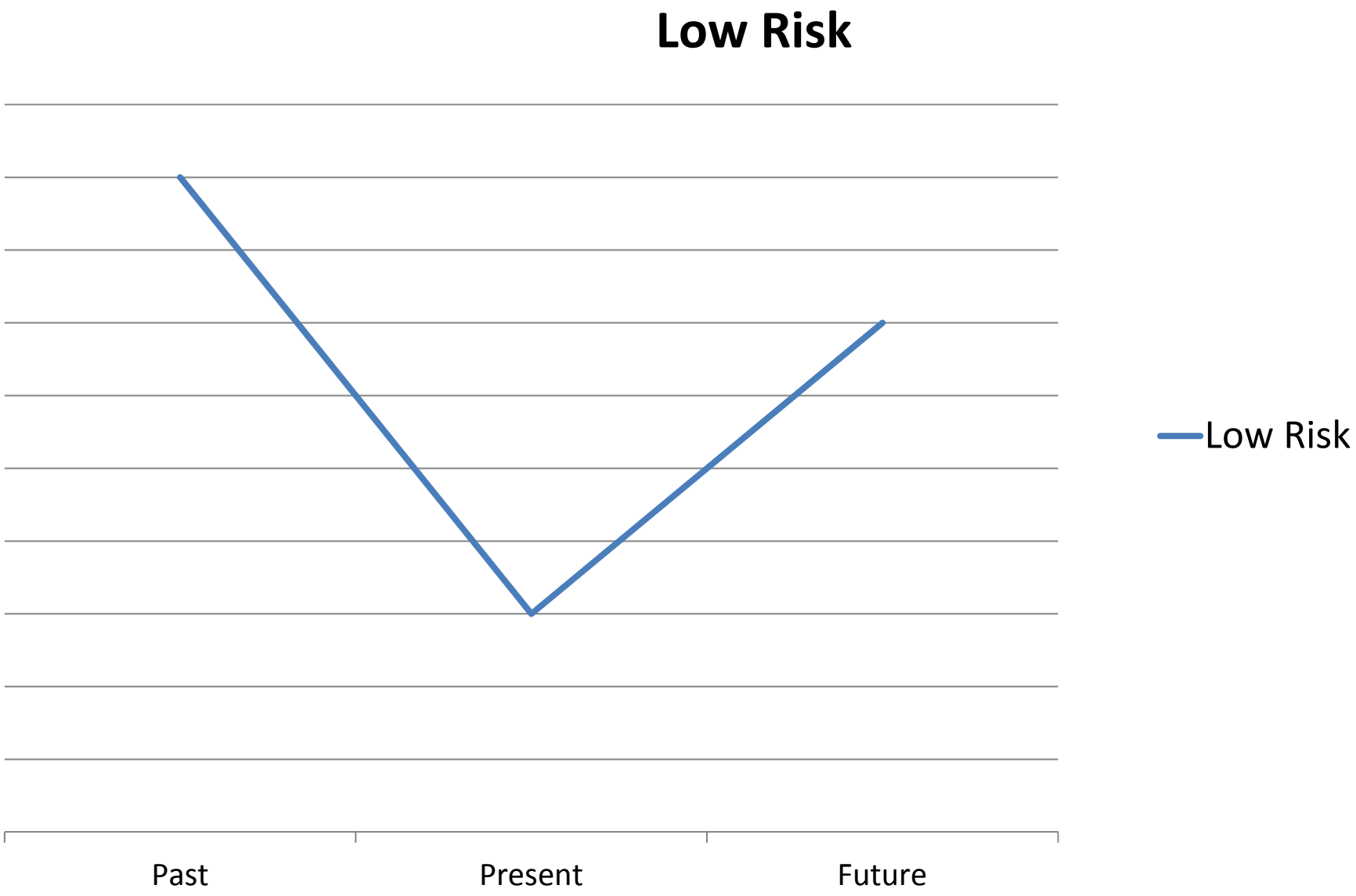
- The CARTS instruments have been used with community-dwelling older adults in Portugal (n=5,500), Australia (n=500), Spain (n=350) and Ireland (n=800).
- Results to date indicate that the RISC has good predictive validity (for hospitalisation, institutionalisation and death); high internal consistency and inter-rater reliability.
- Unlike other risk/frailty instruments, the RISC takes into account the ability of the caregiver network to manage any concerns.


High Risk
Past
Present
Future
High Risk


Moderate Risk
Past
Present
Future
Moderate Risk Decline
Moderate Risk Improvement

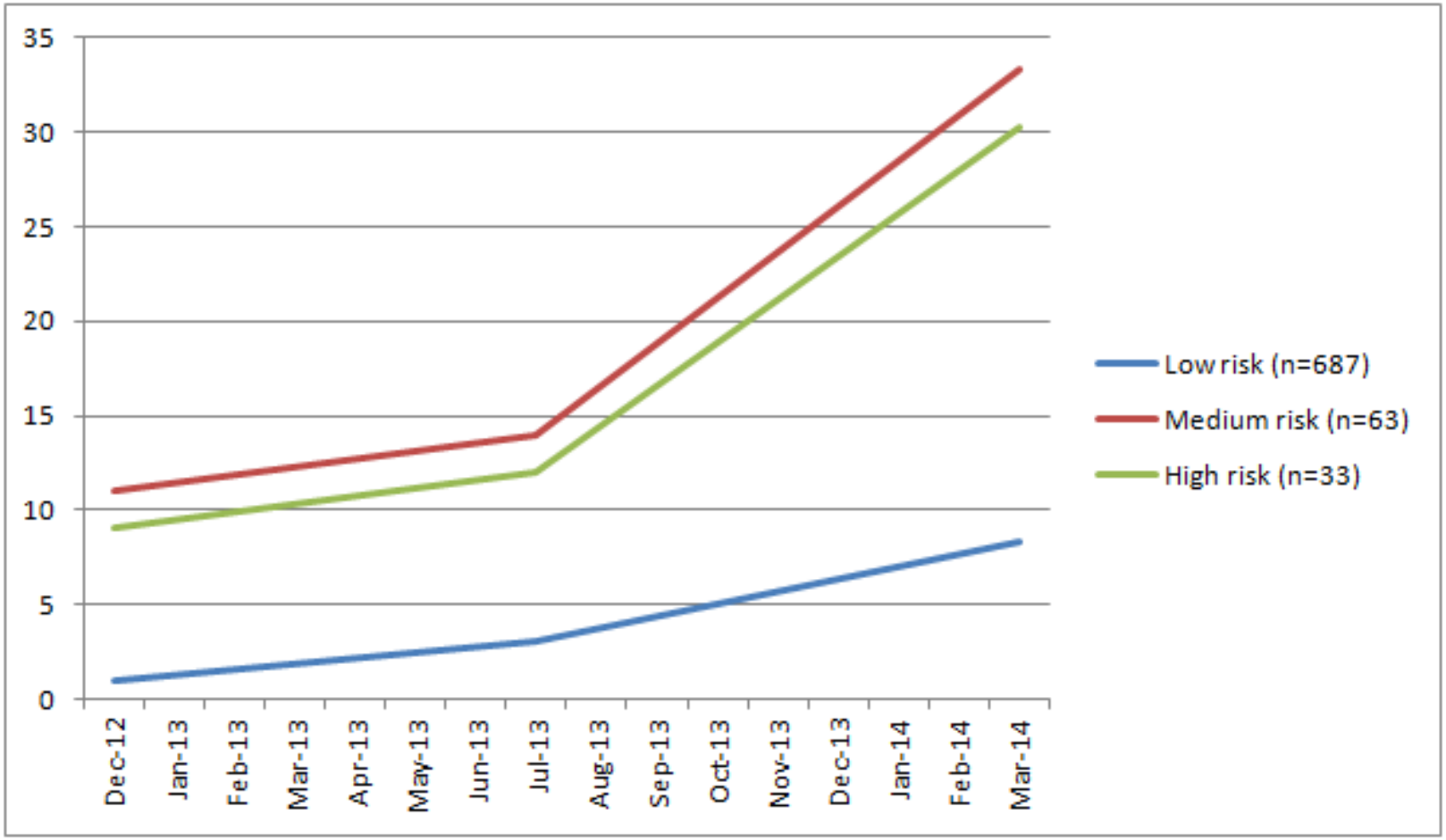

Low Risk
Low Risk
Past
Present
Future

RISC Predictive Validity

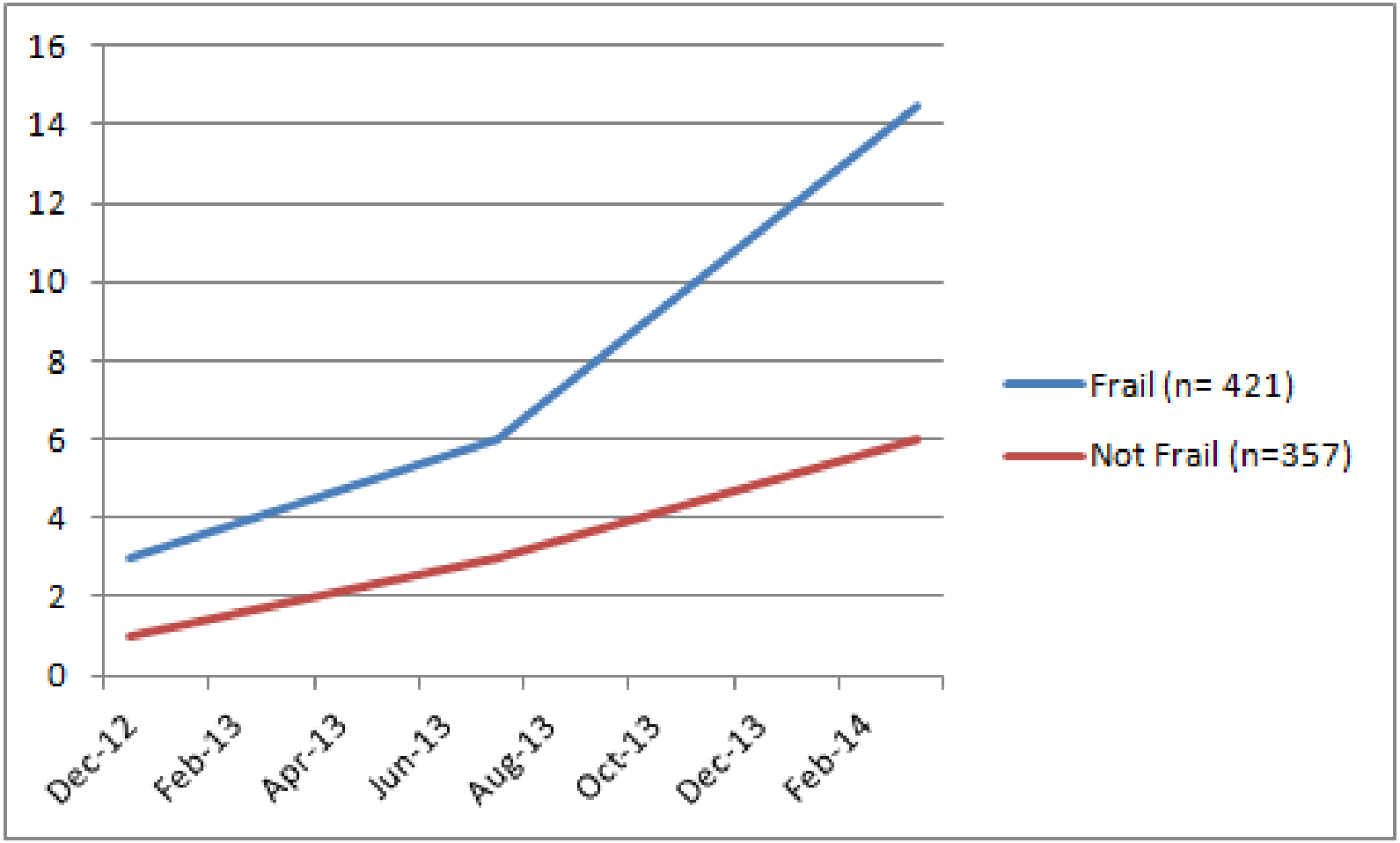
- ***Baseline***
- Screened 803 March-August 2013

- ***Follow up***
- August 2013 to March 2014

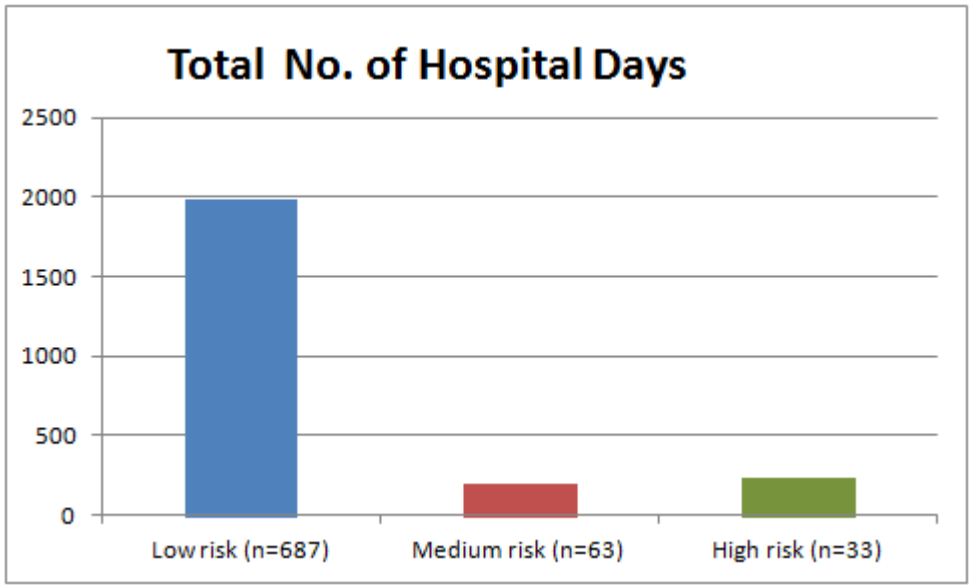
Risk and Actual Rate (%) of Institutionalisation

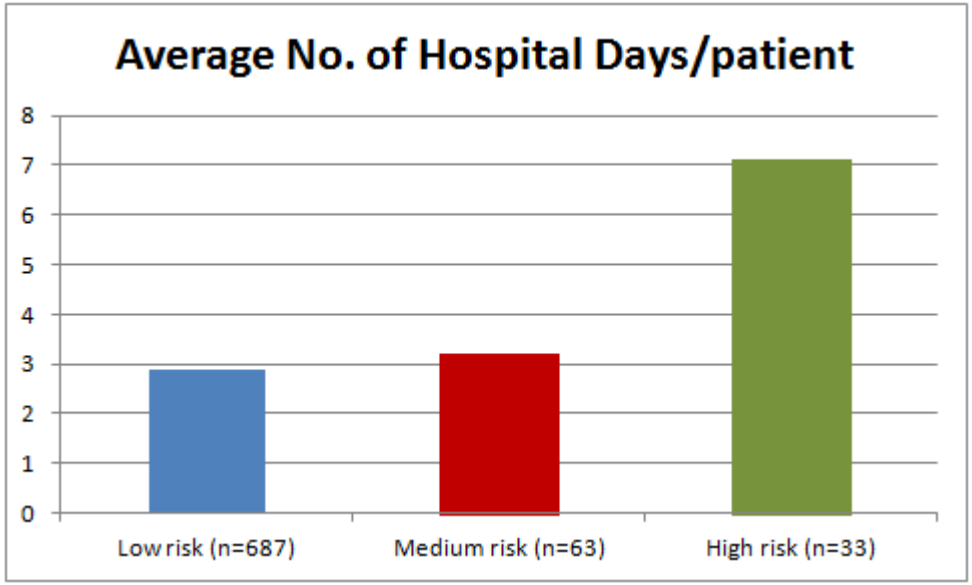


Rate (%) of Institutionalisation based on Clinical Frailty Scores (Frail ≥ 5 CFS) & Non-frail (< 5 CFS)

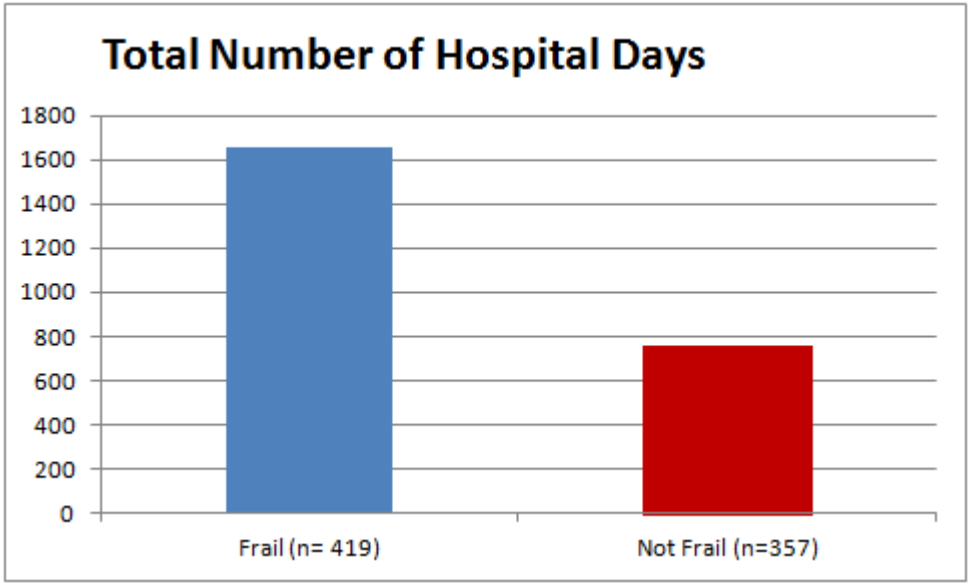


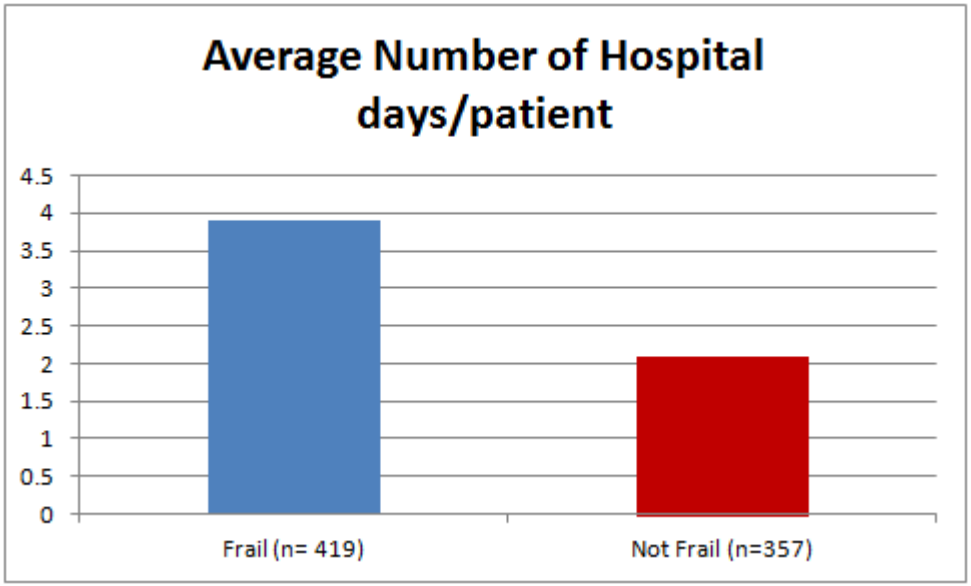
Risk of Hospitalisation and Actual No. of Hospital Days



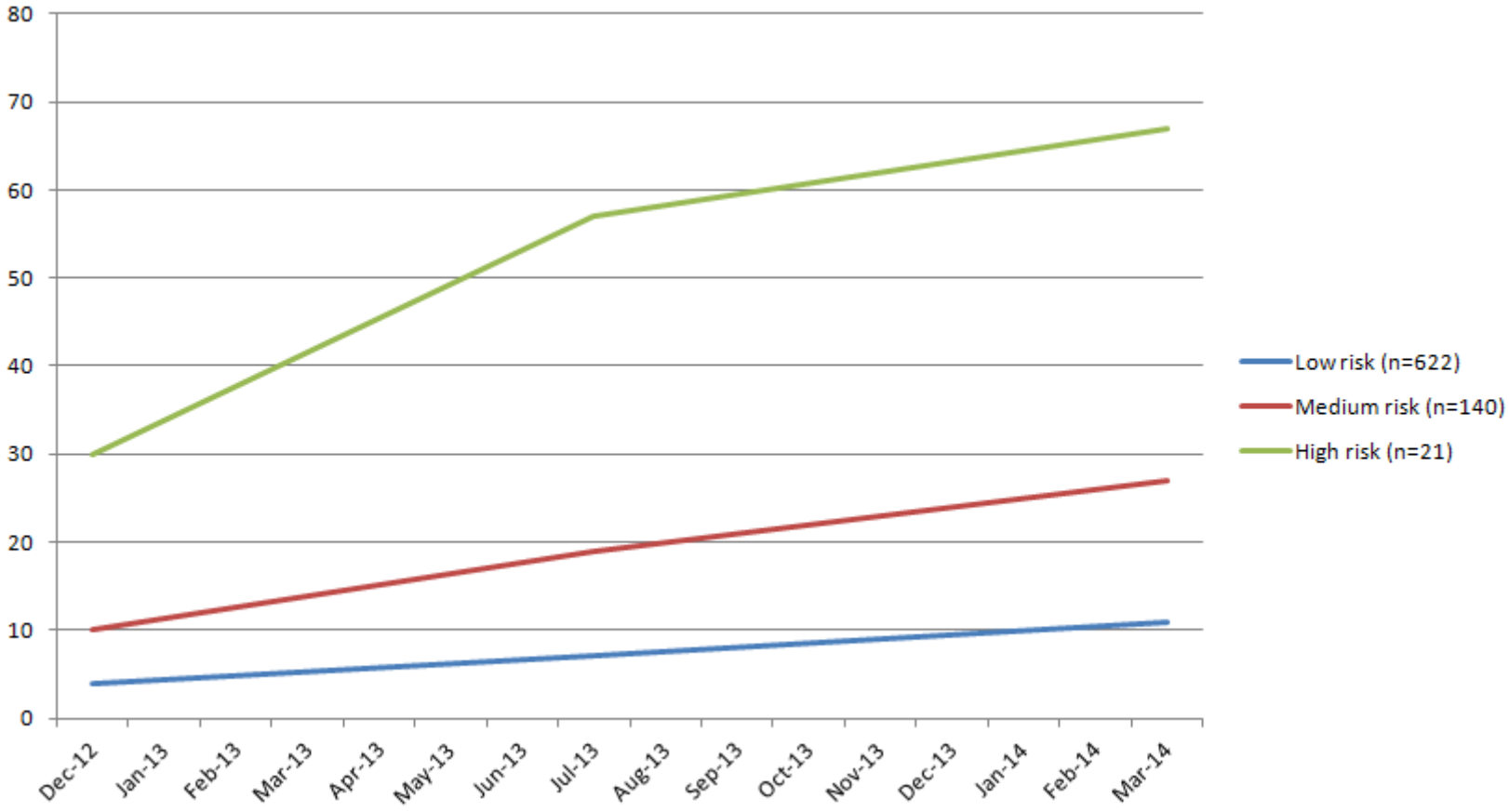


Hospitalisation (days) based on Clinical Frailty Scores (Frail ≥ 5 CFS) & Non-frail (< 5 CFS)

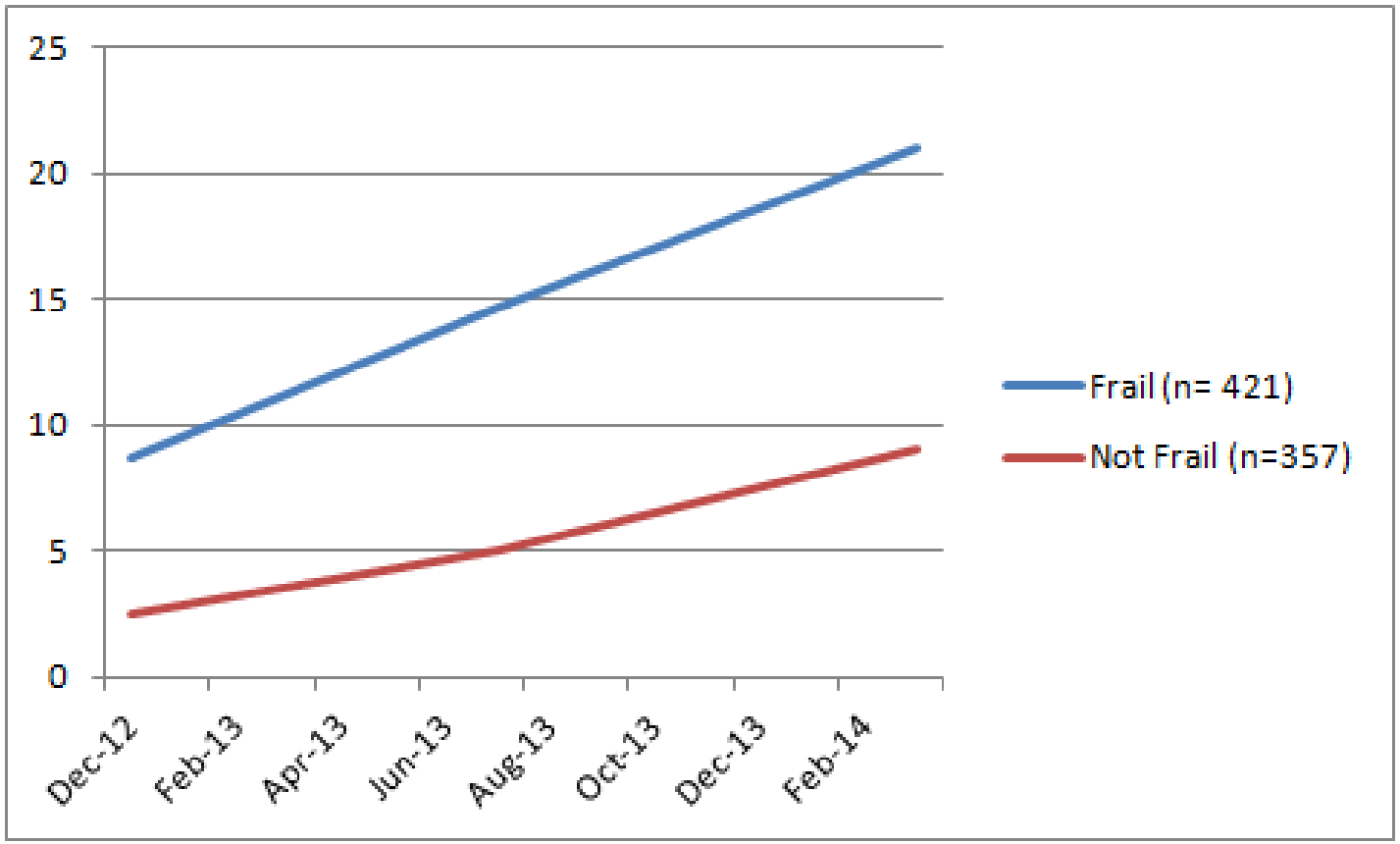




Risk and Actual Rate (%) of Death



Rate (%) of Death based on Clinical Frailty Scores (Frail ≥ 5 CFS) & Non-frail (< 5 CFS)



Natural History of Risk using the RISC

Global Risk Score (Institutionalisation)	1-2 (Low)	3 (Moderate)	4-5 (High)
No. of Patients at Baseline (T0)	687	63	33
Institutionalised by T6 months	10 (1%)	6 (11%)	3 (9%)
Institutionalised by T12 months	21 (3%)	9 (14%)	4 (12%)
Institutionalised by T21 months	57 (8%)	21 (33%)	10 (30%)
Global Risk Score (Death)			
No. of Patients at Baseline (T0)	622	140	21
Deaths by T6 months	23 (4%)	15 (10%)	7 (30%)
Deaths by T12 months	41 (7%)	26 (19%)	12 (57%)
Deaths by T21 months	67 (11%)	38 (27%)	14 (67%)
Global Risk Score (Hospitalisation)			
No. of Patients at Baseline (T0)	687	63	33
Total No. of Days in Hospital	1979	202	235
Average No. of Days in Hospital per patient	2.9	3.2	7.1

n= 783 of 803 patients with complete data

Outcomes of AO based on baseline clinical frailty scores

Institutionalisation Rate	Frail (≥ 5 CFS) (n=421)	Not Frail (<5 CFS) (n=357)
T6 months	14 (3%)	5 (1%)
T12 months	24 (6%)	11 (3%)
T21 months	61 (14.5%)	21 (6%)
Death Rate		
T6 months	37 (8.7%)	9 (2.5%)
T12 months	62 (14.7%)	18 (5%)
T21 months	89 (21%)	32 (9%)

n =778 of 803 patients with valid Clinical Frailty Scores

Hospitalizations Based on baseline Clinical Frailty Scale scores

Hospitalisation	Frail (≥ 5 CFS) (n=419)	Not Frail (<5 CFS) (n=357)
Total No. of Days in Hospital	1654	765
Average No. of Days in Hospital per patient	3.9	2.1

Comparison of RISC data between Ireland and Portugal

Global Risk Score (Institutionalisation)	1-2 (Low)	3 (Moderate)	4-5 (High)
Risk of Instiutionalisation (Ireland)	687 (88%)	63 (8%)	33 (4%)
Risk of Institutionalisation (Portugal)	34 (33%)	15(14%)	55(53%)
Global Risk Score (Hospitalisation)			
Risk of Hospitalisation (Ireland)	525 (67%)	172 (22%)	86 (11%)
Risk of Hospitalisation (Portugal)	36(35%)	26(25%)	42(40%)
Global Risk Score (Death)			
Risk of Death (Ireland)	622 (79%)	140 (18%)	21(3%)
Risk of Death (Portugal)	40 (38%)	32 (31%)	32 (31%)

Ireland: n= 783, mean age 80 years, 36% male and 64% female
Portugal n= 104, mean age 82 years, 35% male and 65% female

Table 1: Receiver operating characteristic (ROC) curve area under the curve scores and 95% confidence intervals (CI) for the global risk score and components of the Risk Instrument for Screening in the Community (RISC) scores including mental state, activities of daily living (ADL), and medical state domains, the primary caregiver, and primary cohabitant (who the patient is living with), for predicting one-year risk of institutionalisation, hospitalisation, and death.

Variable	Actual outcomes		
	Institutionalization	Hospitalization	Death
RISC global risk score (CI)	0.70 (0.62–0.76)***	0.61 (0.55–0.66)***	0.70 (0.64–0.75)***
Mental state			
Mental state *concern*	0.62 (0.55–0.69)***	0.52 (0.47–0.58)	0.56 (0.50–0.61)*
Mental state *severity* of concern	0.64 (0.57–0.71)***	0.53 (0.47–0.58)	0.56 (0.51–0.62)*
Mental state *caregiver network*	0.64 (0.57–0.71)***	0.53 (0.47–0.58)	0.56 (0.50–0.61)
ADLs			
ADLs *concern*	0.60 (0.54–0.66)**	0.55 (0.50–0.60)	0.56 (0.50–0.61)*
ADLs *severity* of concern	0.66 (0.60–0.72)***	0.54 (0.49–0.59)*	0.63 (0.58–0.69)***
ADLs *caregiver network*	0.68 (0.62–0.74)***	0.57 (0.52–0.63)**	0.59 (0.53–0.65)**
Medical state			
Medical state *concern*	0.54 (0.48–0.61)	0.52 (0.47–0.58)	0.53 (0.48–0.59)
Medical state *severity* of concern	0.62 (0.55–0.69)***	0.57 (0.52–0.62)*	0.62 (0.56–0.67)***
Medical state *caregiver network*	0.63 (0.56–0.69)***	0.54 (0.49–0.59)	0.56 (0.50–0.61)*

*Statistically significant with P value <0.05.
**Statistically significant with P value <0.01.
***Statistically significant with P value <0.001.

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Caregiver network

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- The ability of the caregiver network to manage a person's care is vital in risk of adverse healthcare outcomes such as hospitalisation, transfer to nursing home and death

- According to prior research:
  - The ability of the caregiver network to manage is a significant predictor of adverse healthcare outcomes

    (O'Caoimh et al, J Aging Research, 2015)
  - Providing emotional and instrumental support to caregivers can reduce hospitalisation

    (Longacre et al, Research in Gerontological Nursing, 2014)

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Understanding Risk

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Funding

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- 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).

Publications to Date

O'Caoimh et al. (2014) Screening for markers of frailty and perceived risk of adverse outcomes using the Risk Instrument for Screening in the Community (RISC). *BMC Geriatrics* 14: 104.

Clarnette et al. (2014) The Community Assessment of Risk Instrument: Investigation of inter-rater reliability of an instrument measuring risk of adverse outcomes. *Journal of Frailty and Aging* (early online publication).

O'Caoimh et al. (2015) Which part of a short, global risk assessment, the Risk Instrument for Screening in the Community (RISC), predicts adverse healthcare outcomes? *Journal of Aging Research* (in press).

O'Caoimh et al. (2015) Risk prediction: a systematic review of personalised screening for adverse outcomes in community-dwelling older adults . *Maturitas* (accepted).

Leahy-Warren et al. (2015) Components of the Risk Instrument for Screening in the Community (RISC) that predict Public Health Nurses' perception of risk. *Journal of Frailty and Aging* (in press).

O'Caoimh et al. (2015) The Risk Instrument for Screening in the Community (RISC): A New Instrument for Predicting Risk of Adverse Outcomes in Community Dwelling Older Adults. *BMC Geriatrics* (in press).

Leahy-Warren et al. (2015) Multidisciplinary Health Care Professionals' experiences of using the Risk Instrument for Screening in the Community (RISC): A cross cultural perspective. *Journal of Research in Nursing* (under review).

- 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)

O'Caoimh et al. BMC Geriatrics 2014, 14:104
http://www.biomedcentral.com/1471-2318/14/104

BMC Geriatrics

RESEARCH ARTICLE Open Access

Screening for markers of frailty and perceived risk of adverse outcomes using the Risk Instrument for Screening in the Community (RISC)

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Abstract

Background: Functional decline and frailty are common in community dwelling older adults, increasing the risk of adverse outcomes. Given this, we investigated the prevalence of frailty-associated risk factors and their distribution according to the severity of perceived risk in a cohort of community dwelling older adults, using the Risk Instrument for Screening in the Community (RISC).

Methods: A cohort of 803 community dwelling older adults were scored for frailty by their public health nurse (PHN) using the Clinical Frailty Scale (CFS) and for risk of three adverse outcomes: i) institutionalisation, ii) hospitalisation and iii) death, within the next year, from one (lowest) to five (highest) using the RISC. Prior to scoring, PHNs stated whether they regarded patients as frail.

Results: The median age of patients was 80 years (interquartile range 10), of whom 64% were female and 47.4%

THE COMMUNITY ASSESSMENT OF RISK INSTRUMENT: INVESTIGATION OF INTER-RATER RELIABILITY OF AN INSTRUMENT MEASURING RISK OF ADVERSE OUTCOMES

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Abstract: *Background:* Frailty is increasingly common in community dwelling older adults and increases their risk of adverse outcomes. Risk assessment is implicit in the Aged Care Assessment Teams process, but few studies have considered the factors that influence the assessor's decision making or explored the factors that may contribute to their interpretation of risk. *Objective:* to examine the inter-rater reliability of the Community Assessment of Risk Instrument (CARI), which is a new risk assessment instrument. *Design:* A cohort study was used. *Setting and participants:* A sample of 50 community dwelling older adults underwent comprehensive geriatric assessment by two raters: a geriatrician and a registered nurse. *Procedure and measurements:* Each participant was scored for risk by the two raters using the CARI. This instrument ranks risk of three adverse outcomes, namely i) institutionalisation, ii) hospitalisation and iii) death within the next year from a score of 1, which is minimal risk to 5, which is extreme risk. Inter-rater reliability was assessed with Gamma, Spearman correlation and Kappa statistics. Internal consistency was assessed with Cronbach's alpha. *Results:* There were 30 female (mean age 82.23 years) and 20 male (mean age 81.75 years) participants. Items within domains showed good-excellent agreement. The gamma statistic was >0.77 on 6/7 Mental State items, 14/15 items in the Activities of Daily Living domain. In the Medical domain, 6/9 items had Gamma scores >0.80. The global domain scores correlated well, 0.88, 0.72 and 0.87. Caregiver network scores were 0.71, 0.73 and 0.51 for the three domains. Inter-rater reliability scores for global risk scales were 0.86 (institutionalisation) and 0.78 (death).

Which Part of a Short, Global Risk Assessment, the Risk Instrument for Screening in the Community, Predicts Adverse Healthcare Outcomes?

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COMPONENTS OF THE RISK INSTRUMENT FOR SCREENING IN THE COMMUNITY (RISC) THAT CORRELATE WITH PUBLIC HEALTH NURSES' PERCEPTION OF RISK

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Abstract: *Background:* Functional decline and frailty are common in community-dwelling older adults, leading to an increased risk of adverse outcomes. *Objective:* To examine the factors that public health nurses perceive to cause risk of three adverse outcomes: institutionalisation, hospitalisation, and death, in older adults, using the Risk Instrument for Screening in the Community (RISC). *Design:* A quantitative, correlational, descriptive design was used. *Setting and Participants:* A sample of 803 community-dwellers, aged over 65 years receiving regular follow-up by public health nurses. *Procedure and Measurements:* Public health nurses (n=15) scored the RISC and the Clinical Frailty Scale (CFS) on patients in their caseload. We examined and compared correlations between the severity of concern and ability of the caregiver network to manage these concerns with public health nurses' perception of risk of the three defined adverse outcomes. *Results:* In total, 782 RISC scores were available. Concern was higher for the medical state domain (686/782,88%) compared with the mental state (306/782,39%) and activities of daily living (595/782,76%) domains. Concern was rated as severe for only a small percentage of patients. Perceived risk of institutionalisation had the strongest correlation with concern over patients mental state,(r=0.53), while risk of hospitalisation,(r=0.53) and death,(r=0.40) correlated most strongly

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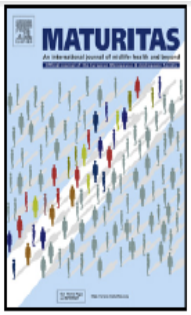

Review

Risk prediction in the community: A systematic review of case-finding instruments that predict adverse healthcare outcomes in community-dwelling older adults

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ABSTRACT

Few case-finding instruments are available to community healthcare professionals. This review aims to identify short, valid instruments that detect older community-dwellers risk of four adverse outcomes:

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Thank You

ANY QUESTIONS??

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