SMALL stroke BIG problem (Moving beyond NIHSS)

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Question
Question

• What is he going to talk about?
• Is this going to be relevant?
• Will he keep to time?
Jim’s story

- 69 year old man
- COPD, osteoarthritis, diabetes
- Right hemisphere stroke
- Visual inattention, mild left hemiparesis
- NIH 3
Question

• Is this minor stroke?

• Would you give tPA?

• What do you expect the outcome to be at 3/12?
NIHSS

- LoC: 0-7 (3,2,2)
- Gaze: 0-2
- Fields: 0-3
- Facial paresis: 0-3
- Arm & leg paresis: 0-4 (arm, leg, R, L)
- Limb ataxia: 0-2
- Sensory: 0-2
- Speech: 0-5 (3,2)
- Extinction/inattention: 0-2
NIHSS

- Very severe
- Severe
- Moderate Severe
- Mild

- Return home
- Need for rehab’
- Need for care-home

NIHSS?
NIHSS

- Very severe
- Severe
- Moderate Severe
- Mild

- NIHSS > 25
- Return home
- Need for rehab'
- Need for care-home
NIHSS

- Very severe
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- Mild
- Return home
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- Need for care-home

- NIHSS > 25
- NIHSS 15-24
NIHSS

- Very severe
- Severe
- Moderate Severe
- Mild

- Need for rehab’
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NIHSS

- Very severe
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- NIHSS >25
- NIHSS 15-24
- NIHSS 5-14
- NIHSS <5
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- Need for rehab’
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- NIHSS >25
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- NIHSS >25
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- NIHSS 5-14
- NIHSS <5
- NIHSS <5
- NIHSS 6-13
NIHSS

- Very severe
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NIHSS

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Effect of Alteplase vs Aspirin on Functional Outcome for Patients With Acute Ischemic Stroke and Minor Nondisabling Neurologic Deficits
The PRISMS Randomized Clinical Trial

Pooja Khatri, MD, MSc; Dawn O. Kleindorfer, MD; Thomas Devlin, MD; Robert N. Sawyer Jr, MD; Matthew Starr, MD; Jennifer Mejilla, DO; Joseph Broderick, MD; Anjan Chatterjee, MD; Edward C. Jauch, MD, MS; Steven R. Levine, MD; Jose G. Romano, MD; Jeffrey L. Saver, MD; Achala Vagal, MD, MS; Barbara Purdon, PhD; Jenny Devenport, PhD; Andrey Pavlov, PhD; Sharon D. Yeatts, PhD; for the PRISMS Investigators
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Figure 2. Modified Rankin Scale Score Distributions at 90 Days by Treatment Group

- Intravenous alteplase + oral placebo (n = 156)
- Intravenous placebo + oral aspirin (n = 157)
Jim’s story

• 69 year old man
• COPD, osteoarthritis, diabetes
• Still plays piano professionally

• Right hemisphere stroke
• Visual inattention, mild left hemiparesis
• NIH 3

• Evidence based therapy

• 3/12 follow up:
Jim’s story

- 69 year old man
- COPD, osteoarthritis, diabetes
- Still plays piano professionally

- Right hemisphere stroke
- Visual inattention, mild left hemiparesis
- NIH 3

- Evidence based therapy

- 3/12 follow up: modified Rankin 3 (poor outcome)
Zero on the NIHSS Does NOT Equal the Absence of Stroke

Clinical Study

Stroke Survivors Scoring Zero on the NIH Stroke Scale Score Still Exhibit Significant Motor Impairment and Functional Limitation

Brittany Hand,¹ Stet

¹Occupational Therapy Divi.
453 West Tenth Avenue, Suite
2School of Health and Rehab
Suite 406, Columbus, OH
Question

• Is this a problem with NIHSS?

• Is this a problem with our outcomes?

• Is this not related to the stroke?
Question

• Is this a problem with NIHSS?

• Is this a problem with our outcomes?

• Is this not related to the stroke?
Lots of assessment scales

<table>
<thead>
<tr>
<th>Outcome Measure</th>
<th>Number of Trials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modified Rankin Scale</td>
<td>81 (64.3%)</td>
</tr>
<tr>
<td>Barthel Index</td>
<td>51 (40.5%)</td>
</tr>
<tr>
<td>Nat. Institutes of Health Stroke Scale</td>
<td>35 (27.8%)</td>
</tr>
<tr>
<td>Scandinavian Stroke Scale</td>
<td>11 (8.7%)</td>
</tr>
<tr>
<td>Glasgow Outcomes Scale</td>
<td>8 (6.3%)</td>
</tr>
<tr>
<td>Frenchay Activities Index</td>
<td>6 (4.7%)</td>
</tr>
<tr>
<td>Timed Walk/ 6 Minute Walk</td>
<td>6 (4.7%)</td>
</tr>
<tr>
<td>EuroQOL</td>
<td>4 (3.1%)</td>
</tr>
<tr>
<td>Fugl-Meyer Motor</td>
<td>4 (3.1%)</td>
</tr>
<tr>
<td>Wolf Motor Functional Test</td>
<td>4 (3.1%)</td>
</tr>
<tr>
<td>Rivermead Mobility Index</td>
<td>3 (2.4%)</td>
</tr>
<tr>
<td>Short Form 36</td>
<td>3 (2.4%)</td>
</tr>
<tr>
<td>Stroke Impact Scale</td>
<td>3 (2.4%)</td>
</tr>
<tr>
<td>Berg Balance Scale</td>
<td>2 (1.6%)</td>
</tr>
<tr>
<td>Canadian Stroke Scale</td>
<td>2 (1.6%)</td>
</tr>
<tr>
<td>Tinetti Balance Assessment Tool</td>
<td>2 (1.6%)</td>
</tr>
</tbody>
</table>

126 stroke trials in high impact journals

48 different outcome measures

In some papers up to 9 scales used

Quinn TJ. et al
Day 0: Patient assessed in ED with impairment scales: GCS, MRC powers scale and NIHSS; these guide decision to offer intravenous thrombolysis.

Day 1: Further assessment with GCS and NIHSS to assess recovery/deterioration.

Day 4: Nursing staff perform baseline assessments with Barthel Index and Montreal Cognitive Assessment.

Day 7: To inform discharge planning, the occupational therapy team assess Nottingham E-ADL.

Day 30: Home visit, nurses perform global assessment with mRS.

Day 40: Due to upper limb problems, response to physiotherapy is assessed with modified Ashworth Scale (spasticity) and Action Research Arm Test (function).

Day 90: Stroke survivor is assessed by clinical psychology using Hospital Anxiety and Depression Screen; Addenbrookes' Cognitive Examination and Euro-QOL.

Day 120: Local driving assessment center performs assessment of visual impairment and stroke driver screening assessment battery.
<table>
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<tr>
<th>NIHSS Item</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>LoC</td>
<td>0-7</td>
</tr>
<tr>
<td>Gaze</td>
<td>0-2</td>
</tr>
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<td>Fields</td>
<td>0-3</td>
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<td>Limb ataxia</td>
<td>0-2</td>
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<tr>
<td>Speech</td>
<td>0-5</td>
</tr>
<tr>
<td>Extinction/inattention</td>
<td>0-2</td>
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<tr>
<td>NIHSS</td>
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<td>0-2</td>
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</table>
Cube-root lesion volume for right and left hemisphere strokes compared with baseline NIHSS score. Shaded areas represent 95% confidence intervals.
NIHSS

- LoC
- Gaze
- Fields
- Facial paresis
- Arm & leg paresis
- Limb ataxia
- Sensory
- Speech
- Extinction/inattention
- Anything else?
What is NIHSS not measuring?

Turner GM et al
Eur J Neur 2016;23:1642
What is NIHSS not measuring?

Turner GM et al
Eur J Neur 2016;23:1642
What is NIHSS not measuring?

Turner GM et al
Eur J Neur 2016;23:1642
1. What are the best ways to improve cognition after a stroke
2. What are the best ways to help people come to terms with long term consequences of stroke
3. What are the best ways to help people recover from aphasia
4. What are the best treatments for arm recovery
5. What are the best ways to treat visual problems after a stroke
6. What are the best ways to manage of prevent fatigue
7. What are the best treatments for balance, gait and mobility
8. How can stroke survivors & families cope with aphasia
9. What are the best ways of improving confidence after stroke
10. Are exercise and fitness programmes beneficial
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7. What are the best treatments for balance, gait and mobility
8. How can stroke survivors & families cope with aphasia
9. What are the best ways of improving confidence after stroke
10. Are exercise and fitness programmes beneficial
Question

• Should we add NIHSS to SSCA?

• Are you screening for cognitive / psychological issues acutely?

• If so are you worried about being charged?
EDITORIAL

EXPLORING OPTIONS WHEN PREVIOUSLY FREE OPEN ACCESS COGNITIVE SCREENING TOOLS SUCH AS THE MMSE AND MOCA BECOME PROPRIETARY AND CHARGE FOR USE AND/OR TRAINING

Dr. Frank Molnar MSc, MDCM, FRCP
Editor-in-chief, Canadian Geriatrics Society CME Journal

The opinions expressed below represent those of the author alone who accepts full responsibility. The opinions do not reflect the opinions of the Canadian Geriatrics Society nor of the Canadian Geriatrics Society Journal of CME both of whom are indemnified. The purpose of this editorial is to stimulate informed in-depth scholarly discussion.
There is no perfect screening test
<table>
<thead>
<tr>
<th>Test (threshold)</th>
<th>Sensitivity (95%CI)</th>
<th>Specificity (95%CI)</th>
<th>Positive Likelihood Ratio (95%CI)</th>
<th>Negative Likelihood Ratio (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE-R (&lt;88/100)</td>
<td>0.77 (0.45-0.93)</td>
<td>0.93 (0.02-0.99)</td>
<td>11.42 (0.02-51.7)</td>
<td>0.24 (0.11-0.53)</td>
</tr>
<tr>
<td>MMSE (&lt;25/30)</td>
<td>0.72 (0.60-0.81)</td>
<td>0.82 (0.77-0.86)</td>
<td>4.17 (3.17-5.34)</td>
<td>0.33 (0.24-0.49)</td>
</tr>
<tr>
<td>MoCA (&lt;26/30)</td>
<td>0.95 (0.89-0.98)</td>
<td>0.45 (0.34-0.57)</td>
<td>1.73 (1.43-2.10)</td>
<td>0.10 (0.04-0.23)</td>
</tr>
<tr>
<td>R-CAMCOG (&lt;33/49)</td>
<td>0.81 (0.57-0.93)</td>
<td>0.92 (0.87-0.95)</td>
<td>10.18 (6.41-16.18)</td>
<td>0.20 (0.07-0.52)</td>
</tr>
</tbody>
</table>
3,000 stroke admissions p.a  
most (all) strokes come to hospital  

Assume 1 year occurrence (incident and prevalent)  
multidomain cognitive impairment  40%  

If we use MoCA <26 as only screening test  
60 patients with impairment will be told they are OK  
990 cognitively OK will be told they have impairment  

For MoCA <22  
180 patients with impairment will be told they are OK  
432 cognitively OK will be told they have impairment
Patients admitted to stroke rehabilitation units n=86

Eligible patients admitted to stroke rehabilitation n=75

Patients recruited into study n=51

Completing all three tests n=14**
Unable to complete any tests n=8

Patients not included n=24
No capacity and no representative n=13
Refused assessment n=6
Team felt inappropriate to approach n=2
Discharged before test complete n=2
Limited spoken English n=1

Patients requiring assistance n=33*
Impairments affecting assessments
Motor n=22
Communication n=13
Visual n=14
Hearing n=4
Medically unwell n=1
**VISUOSPATIAL / EXECUTIVE**

<table>
<thead>
<tr>
<th>Points</th>
<th>Contour</th>
<th>Numbers</th>
<th>Hands</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Copy rectangle**

Draw CLOCK (Five past four) (3 points)

---

**NAMING**

![Animals](image)

[ ] Giraffe [ ] Bear [ ] Hippo

---

**MEMORY**

Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.

<table>
<thead>
<tr>
<th>1st trial</th>
<th>2nd trial</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TRUCK</th>
<th>BANANA</th>
<th>VIOLIN</th>
<th>DESK</th>
<th>GREEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No points</td>
</tr>
</tbody>
</table>

---

**ATTENTION**

Read list of digits (1 digit/sec.). Subject has to repeat them in the forward order - [ ] 3 2 9 6 5

Subject has to repeat them in the backward order - [ ] 8 5 2

Read list of letters. The subject must tap with his hand at each letter. No points if ≥ 2 errors.

```
FBACMNAJKBFAKDEAAAAJAMOFAB
```

Serial 7 subtraction starting at 90:

<table>
<thead>
<tr>
<th>83</th>
<th>76</th>
<th>69</th>
<th>62</th>
<th>55</th>
</tr>
</thead>
</table>

4 or 5 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt

---

**LANGUAGE**

Repeat: A bird can fly into closed windows when it's dark and windy. [ ]
The caring grandmother sent groceries over a week ago. [ ]

Fluency / Name maximum number of words in one minute that begin with the letter S [ ] (N ≥ 11 words)

---

**ABSTRACTION**

[ ] Similarity between e.g. banana - orange = fruit [ ] diamond - ruby [ ] cannon - rifle

---

**DELAYED RECALL**

Has to recall words:

<table>
<thead>
<tr>
<th>WITH NO CUE</th>
<th>TRUCK</th>
<th>BANANA</th>
<th>VIOLIN</th>
<th>DESK</th>
<th>GREEN</th>
</tr>
</thead>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Points for UNCUED recall only

---

**ORIENTATION**

[ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City

---
**Direct Strategy: Montreal**

**Cognitive Assessment**

- **VISUOSPATIAL / EXECUTIVE**
  - Copy rectangle

- **NAMING**
  - Draw a picture of a giraffe

- **MEMORY**
  - Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.

- **ATTENTION**
  - Read list of digits (1 digit/sec.). Subject has to repeat them in the forward order: 3 2 9 6 5
  - Subject has to repeat them in the backward order: 5 2 8 5 3

- **LANGUAGE**
  - Serial 7 subtraction starting at 90: 83 76 62 55
  - Fluency / Name maximum number of words in one minute that begin with the letter S

- **ABSTRACTION**
  - Similarity between e.g. banana - orange = fruit

- **DELAYED RECALL**
  - Has to recall words with no cue: TRUCK [ ], BANANA [ ], VIOLIN [ ], DESK [ ], GREEN [ ]

**Optional**

- Category cue
- Multiple choice cue

**ORIENTATION**

- Date [ ]
- Month [ ]
- Year [ ]
- Day [ ]
- Place [ ]
- City [ ]
Direct Strategy: Montreal

**VISUOSPATIAL / EXECUTIVE**
- Copy rectangle
- Draw clock (five past four) (3 points)

**MEMORY**
- Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.
- Read list of digits (1 digit/sec.). Subject has to repeat them in the forward order: 3 2 9 6 5
- Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors.

**ATTENTION**
- Read list of digits (1 digit/sec.). Subject has to repeat them in the backward order: 8 5 2
- Serial 7 subtraction starting at 90: 83 76 62 55
  - 4 or 5 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt

**LANGUAGE**
- Repeat: A bird can fly into closed windows when it's dark and windy.
- The caring grandmother sent groceries over a week ago.

**ABSTRACTION**
- Similarity between e.g., banana - orange = fruit [ ]
- Diamond - ruby [ ]
- Cannon - rifle [ ]

**DELAYED RECALL**
- Has to recall words with no cue
  - Truck [ ]
  - Banana [ ]
  - Violin [ ]
  - Desk [ ]
  - Green [ ]

**ORIENTATION**
- Date [ ]
- Month [ ]
- Year [ ]
- Day [ ]
- Place [ ]
- City [ ]
Direct Strategy: Montreal

Cognitive Assessment

VISUOSPATIAL / EXECUTIVE

- Copy rectangle
- Draw clock (five past four) (3 points)

- Begin
- End

NAMING

- Giraffe
- Bear
- Hippo

MEMORY

- Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.
- 1st trial
- 2nd trial

ATTENTION

- Read list of digits (1 digit/sec.). Subject has to repeat them in forward order
- Subject has to repeat them in backward order

- Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors

MEMORY

- Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.
- 1st trial
- 2nd trial

ATTENTION

- Read list of digits (1 digit/sec.). Subject has to repeat them in forward order
- Subject has to repeat them in backward order

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors

LANGUAGE

- Repeat: A... when it's dark and windy.
- Fluency / Name maximum number of items that begin with the letter S

ABSTRACTION

- Similarity between:
  - [ ] diamond - ruby
  - [ ] cannon - rifle

DELAYED RECALL

- Has to recall words
- Category cue
- Multiple choice cue

ORIENTATION

- Date
- Month
- Year
- Day
- Place
- City
STROKE

Pre-stroke assessment screen (informant & medical records)
- Cognition: IQCODE
- Mood: History mood disorder
- Other: Educational level
- Function: Frailty measure, mRS

Hyperacute assessment
- Cognition: mini-MoCA
- Mood: PHQ-2
- Delirium: CAM-ICU
- Function: NIHSS
- Other: Sensory assessment

Stroke Unit Assessment
- Cognition: MoCA plus
- Mood: PHQ-9
- Function: Barthel Index

Diagnosis (for dementia not before 6/12 post ictus)

Rehabilitation unit or specialist clinic
- Cognition: NINDS-CSN battery
- Mood: CES-D, SCID
- Function: Lawton E-ADL
- Others: Fatigue, Apathy, HR-QoL, Carer burden

Ongoing screening in primary care as part of regular stroke review
Question

- Is this a problem with NIHSS?
- Is this a problem with our outcomes?
- Is this not related to the stroke?
Question

• How should we measure stroke recovery?
• Who should measure stroke recovery?
  • Doctor?
  • Nurse?
  • Patient?
Measuring Stroke Recovery
Measuring Stroke Recovery

mortality

Rest In Peace
Measuring Stroke Recovery

mortality

REST IN PEACE
Measuring Stroke Recovery

mortality

Rest In Peace

[Image of brain scan]

[Image of elderly person with assistance]

[Image of ruler]

[Image of tombstone]
Measuring Stroke Recovery

mortality

Rest In Peace
Modified Rankin Scale

- First described in 1950s (Stobhill Hospital)
- “Global” scale with emphasis on walking
- Modified for use in first multi-centre neurology trial: UK-TIA trial
- Now the most prevalent functional assessment scale
## Modified Rankin Scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No symptoms at all</td>
</tr>
<tr>
<td>1</td>
<td>No significant disability despite symptoms; able to carry out all usual duties and activities</td>
</tr>
<tr>
<td>2</td>
<td>Slight disability; unable to carry out all previous activities, but able to look after own affairs without assistance</td>
</tr>
<tr>
<td>3</td>
<td>Moderate disability; requiring some help, but able to walk without assistance</td>
</tr>
<tr>
<td>4</td>
<td>Moderately severe disability; unable to walk without assistance, unable to attend to needs without assistance</td>
</tr>
<tr>
<td>5</td>
<td>Severe disability; bedridden, incontinent and requiring constant nursing care and attention</td>
</tr>
<tr>
<td>6</td>
<td>Dead</td>
</tr>
</tbody>
</table>
Levels of functioning

- Quality of Life
- Participation
- Activity
- Impairment
Levels of functioning

Quality of Life

Participation

Activity

Impairment

NIHSS
Levels of functioning

Quality of Life

Participation

Activity

Impairment

Barthel Index
Functional Independence Measure
Katz ADL Scale
Lawton Scale
Levels of functioning

- Impairment
- Activity
- Participation
- Quality of Life

Short Form 36 (SF-36)
EURO-QOL
Patient reported outcomes

People treat and look at you differently

You feel lonely

You are afraid of another stroke

You could do more for yourself but people don’t let you

You feel really down after a stroke

My relationships are stronger following my stroke

Day to day life is a real struggle
Euro-QOL

- **Mobility**
  - I have no problems walking about
  - I have some problems walking about
  - I am confined to bed

- **Self care**
  - I have no problems with self-care
  - I have some problems washing / dressing
  - I am unable to wash / dress

- **Activities**
  - I have no problems with usual activities
  - I have some problems with usual activities
  - I am unable to perform usual activities

- **Pain/Discomfort**
  - I have no pain or discomfort
  - I have moderate pain or discomfort
  - I have extreme pain or discomfort

- **Anxiety/Depression**
  - I am not anxious or depressed
  - I am moderately anxious or depressed
  - I am extremely anxious or depressed
Problems with QOL scales

your QOL now
Problems with QOL scales

- Mobility
- ADLs
- Pain

your QOL now
Problems with QOL scales

- Job stress
- Mobility
- When will he stop
- Hang-over
- Can’t wait till Christmas
- ADLs
- I’m skint
- Pain

your QOL now
Measuring Function

- Difficult to translate individual experience into numbers / grades

"Simple" impairment scale
Easy to grade
Limited information

Participation / QOL scale
Difficult to grade
Too much information?
Measuring Function

- Difficult to translate individual experience into numbers / grades

“Simple” impairment scale
Easy to grade
Limited information

Participation / QOL scale
Difficult to grade
Too much information?
Question

• Is this a problem with NIHSS?

• Is this a problem with our outcomes?

• Is this not related to the stroke?
STROKE

mRS <3

3 – 6 months

Good recovery

Poor recovery
STROKE

mRS < 3

Good recovery

Poor recovery
• Do you measure pre-stroke function?
• Who should measure this?
• Do you assess frailty?
Modified Rankin Scale

- **Grade 0**: No symptoms at all
- **Grade 1**: No significant disability despite symptoms; able to carry out all usual duties and activities
- **Grade 2**: Slight disability; unable to carry out all previous activities, but able to look after own affairs without assistance
- **Grade 3**: Moderate disability; requiring some help, but able to walk without assistance
- **Grade 4**: Moderately severe disability; unable to walk without assistance, unable to attend to needs without assistance
- **Grade 5**: Severe disability; bedridden, incontinent and requiring constant nursing care and attention
- **Grade 6**: Dead

Dr. J Rankin 1923-81
Pre-Stroke Modified Rankin Scale: Evaluation of Validity, Prognostic Accuracy, and Association with Treatment

The mRS is not suitable pre-stroke

Prestroke Modified Rankin Stroke Scale Has Moderate Interobserver Reliability and Validity in an Acute Stroke Setting

Patricia Fearon, MRCP; Kate S. McArthur, MRCP; Kevin Garrity; Laura J. Graham; Geraldine McGroarty; Sarah Vincent; T. J. Quinn, MD
Frailty is a ‘hot topic’

• Last year, 1458 scientific studies on frailty were published

• Frailty assessment being introduced for hospital admissions

• Frailty assessment being introduced in GP surgeries

• UK Government has policy on frailty in older age

• New treatments for frailty being tested
Frailty is a ‘hot topic’

• Last year, 1458 scientific studies on frailty were published
• Last year, 4 studies on frailty and stroke were published
• Frailty assessment being introduced in NHS
• But not for stroke
• UK Government has policy on frailty in older age
• Stroke not mentioned
• New treatments for frailty being tested
• People living with stroke are excluded
“the old have little heat left and as a small flame is easily extinguished, even small ailments can result in death”

Aristotle, 4th Century BC
Frailty

“A physiologic syndrome characterized by decreased reserve and resistance to stressors, resulting from cumulative decline across multiple physiologic systems, and causing vulnerability to adverse outcomes”
So, what is frailty

Frailty is a reduced ability to recover from a stressor event such as an illness.

Healthy older age

episode of illness

Functional ability
So, what is frailty

Frailty

Functional ability

episode of illness
Is frailty seen in stroke

All stroke admissions assessed for frailty in a UK hospital:

- 28% (151)
- 51% (276)
- 21% (115)
Is frailty seen in stroke

All stroke admissions assessed for frailty in a UK hospital:

- 21% (115) Not frail
- 28% (151) Frail
- 51% (276) Pre-frail (at immediate risk of becoming frail)
Frailty phenotype

Unintentional weight loss

Self reported exhaustion

Weakness (grip strength)

Slowness (on timed walk)

Low levels of activity

0 = robust, 1-2 = prefrail, ≥3 = frail
“The more things an individual has wrong with them, the more likely they are to be frail”
Question

- Is this a problem with NIHSS?
- Is this a problem with our outcomes?
- Is this not related to the stroke?
SMALL stroke BIG problem (Moving beyond NIHSS)

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