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A screening tool to predict fallers in hospital Emergency Departments

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Study team

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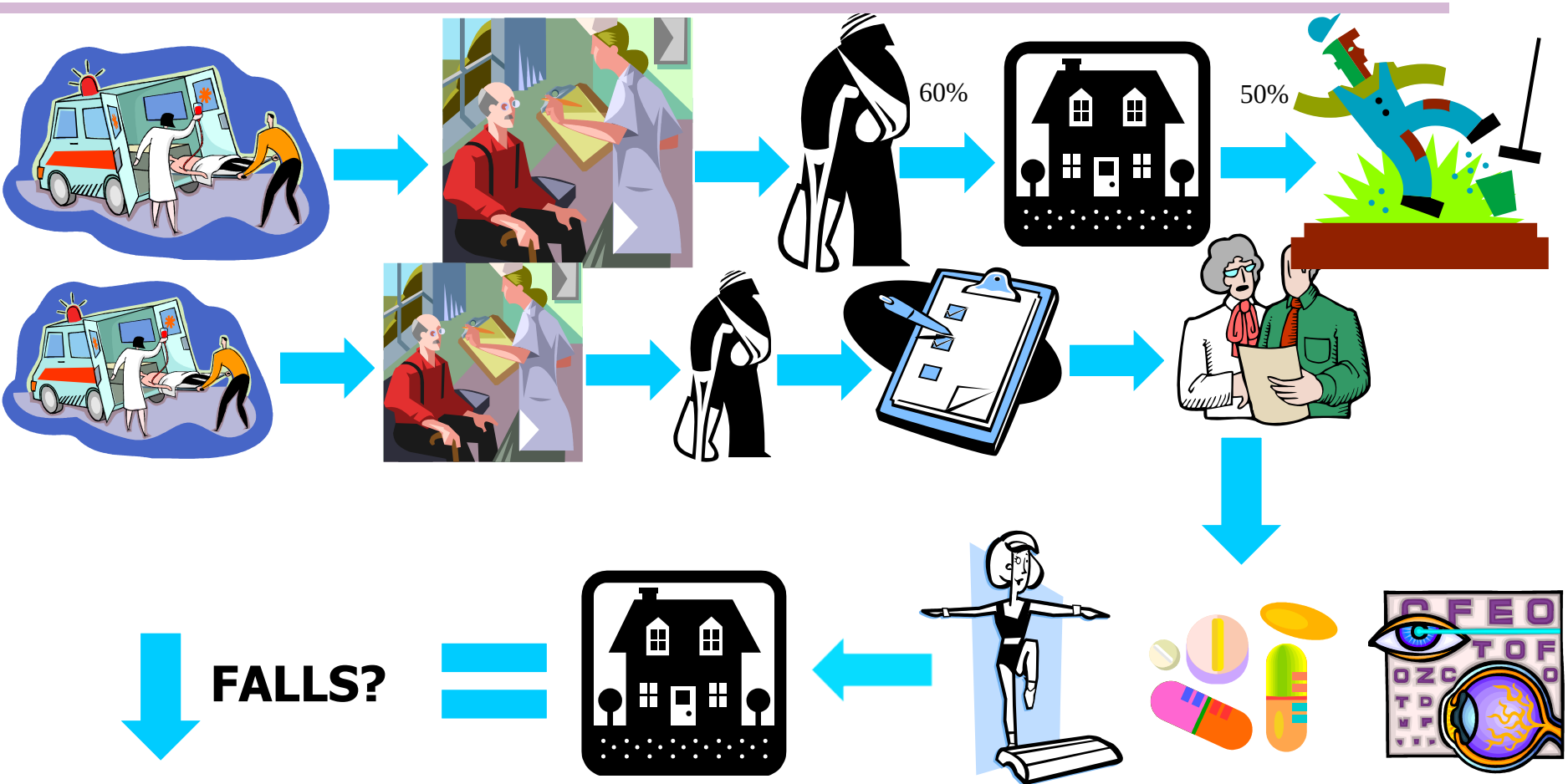
Hospital staff: ASETs at POWH & RNSH

Study commenced: November 2007

Funding: NSW Health

Fallers presenting to ED



Previous research

Previous research in this area:

- Close et al, 2003, PROFET tool

  Previous falls, falling indoors, inability to get off floor after fall, 4+meds

- Russell et al, 2009, FROP-COM screen

  Previous falls, balance impairment, assistance needed for domestic ADLs

- Carpenter et al, 2009

  Previous falls, nonhealing foot sores, self reported depression, inability to cut own toenails

Aims of this study

- To develop a falls prediction tool for use in the ED and to assess it's external validity in a separate sample
- To compare the tools predictive ability to a measure of previous falls, and to existing tools for use in this setting

Patients aged 70yrs + attending ED and seen by ASET

Attending ED with a fall or history of 2 or more falls in past year?

Is patient discharged?

Does patient live at home (not NH or hostel), speak English and have live in carer if cognitively impaired?

Consent to take part in study?

If YES, physical assessment, falls history conducted plus 6 month falls follow-up

10
A decade of
DISCOVERY · INNOVATION · IMPACT

Assessment measures

Results

- *Participants:*
  - 219 people recruited for development study (POWH)
  - 20 people withdrew prior to falls follow-up completion
- *Falls:*
  - 151 falls occurred during 6 month follow-up (>50% in 1st month)
  - 64% of falls resulted in injuries, including 5 fractures
  - 64 fallers were compared to 135 non-fallers
- *Statistics:*

  -Logistic regression to determine predictors of being a faller

  -AUC to compare predictive ability of different tools

Baseline characteristics POWH sample

Age (mean, SD, range)	80.9, 6.3, 70-98yrs
Gender	121 (55%) female
Presented to ED with fall	179 (90%)
ED presentations past year	27% had at least one
2 or more falls past year	88 (44%)
Sit to stand	Mean 21.5sec 95% failed to complete <12sec
TUGT	Mean 20.7sec 72% failed to complete <12sec
Medications (mean, SD, range)	5.9, 3.7, 0-20
Used a walking aid	82 (41%)
Med conditions	60% arthritis 45% vis impairment 23% diabetes

Results- univariate associations

Variable	OR (95%CI), *p*
Sociodemographic	
Gender: Female	0.94 (0.50 to 1.78), 0.75
Aged more than 82	1.41 (0.77 to 2.57), 0.26
Lives alone	1.88 (1.03 to 3.45), 0.04
Health and medication	
3 or more medical conditions	1.65 (0.90 to 3.03), 0.10
6 or more prescription medications	1.81 (0.99 to 3.31), 0.05
Cognitive impairment (self-report)	0.44 (0.05 to 3.83), 0.46
Falls history	
Two or more falls in past 12 months	4.55 (2.40 to 8.62), <0.001
Unable to get up off floor	0.90 (0.49 to 1.65), 0.73
Balance/ mobility	
Use of walking aid outdoors	1.93 (1.06 to 3.53), 0.03
Standing balance time (secs): mean (SD)	0.99 (0.96 to 1.02), 0.51
Timed Up and Go (secs): mean (SD)	1.00 (0.98 to 1.01), 0.47

Odds ratios are for the odds of having at least one fall

Results- multivariate logistic regression

Independent predictors of falling were:

- previous multiple falls

(OR 5.19, 95%CI 2.65-10.17),

- taking 6 or more medications

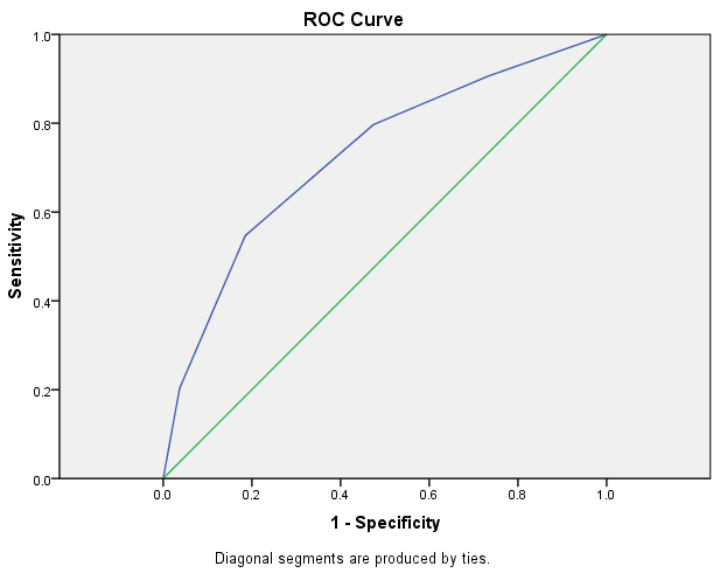
(OR 2.01, 95%CI 1.04-3.91),

- using walking aid outdoors

(OR 1.88, 95%CI 0.97-3.63)

AUC = 0.73 (95%CI 0.65 to 0.81)

(AUC of 1.0= 100% predictive ability)



Moderate predictive ability

Comparison with other screens

Significantly better predictive ability than:

- Previous multiple falls

  AUC = 0.66 (95%CI 0.59 to 0.74), p=0.023

Compares well to:

- FROP-Com Screen (AUC= 0.73, 95% CI 0.67–0.79)
- PROFET tool (AUC= 0.69, 95%CI 0.61-0.77)

Implications for future

- This tool was developed in the ED with the support of ED staff- demonstrates its feasibility in this setting but **change in clinical practice is not easy!**

- External validation required before implementation into practice- **results available soon!**

- Further research is needed to determine if the use of this prediction tool results in fewer falls and fewer ED admissions for falls- **planned for the future……..**

Summary

- A three-item prediction tool discriminated between fallers and non-fallers with good accuracy

- Better assessment and referral systems are needed for ED attendees presenting after a fall

- This simple tool could be used to identify people at high risk of future falls who may benefit from onward referral and intervention after discharge from the emergency department