Comparison of a fall risk assessment tool with nurses' judgment alone

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Halle (Saale)

A remarkable number of fall risk assessment tools have been developed in recent years and a lot of research has been done.

| SNCBI Resources 🖸 | How To ☑ | gn in to NCBI |
|--|---|---------------|
| Pub Med.gov | PubMed ("Risk Assessment"[Mesh]) AND "Accidental Falls"[Mesh] ③ | Search |
| US National Library of Medicine National Institutes of Health | RSS Save search Advanced | Help |

1992-2014

Results by year



Nursing experts have regularly recommended that nurses should not rely on their clinical judgement alone but to add on a standardised tool to increase their professional awareness.

Mobilitätstest nach Tinetti

Teil 1 / Gleichgewicht

| Gleichgewicht (im Sitzen): | |
|--|----|
| unsicher | - |
| sicher stabil (ohne Lehne zu gebrauchen) | _ |
| Aufstahan vom Stuhl: | |
| nicht möglich | - |
| nut mögren | Ξ. |
| divasea Vassucha, sutraht neek vossa | Ξ. |
| broucht Armlehne oden Helt | |
| in ainer fließenden Dewegung | - |
| ni enter medenden bewegung | _ |
| Balance (in den ersten 5 Sekunden nach dem Aufstenen): | |
| unsicher (starkes Schwanken, macht Korrekturschritte, sucht Halt) | _ |
| sicher, aber nur mit Halt (z.B. Gehilfe, Person) | = |
| sicher, ohne Halt | |
| Stehsicherheit: | |
| unsicher (starkes Schwanken, macht Korrekturschritte, sucht Halt) | = |
| sicher, aber ohne geschlossene Füße | = |
| sicher mit geschlossene Füßen, ohne Halt | = |
| Balance (mit geschlossenen Augen und Füßen): | |
| unsicher (starkes Schwanken, macht Korrekturschritte, sucht Halt) | = |
| sicher, ohne Halt, geschlossene Füße | = |
| Drehung 360° (mit offenen Augen): | |
| unsicher (starkes Schwanken, macht Korrekturschritte, sucht Halt) | = |
| diskontinuierlich (Pat. setzt den einen Fuß ganz auf dem Boden ab, bevor | • |
| er den anderen abhebt) | = |
| kontinuierlich und sicher, ohne Halt (fließende Drehung) | = |
| Stoß gegen die Brust (leicht, 3 x): | |
| würde ohne Hilfe oder Halt fallen | = |
| muss Korrekturschritt ausführen, behält aber das Gleichgewicht | = |
| gibt sicheren Widerstand | - |
| Hinsetzen: | |
| lässt sich plumpsen, schätzt die Distanz falsch ein | = |
| (landet nicht in der Stuhlmitte), braucht Lehne | |
| flüssige Bewegung, fähig, sich mit einer fließenden Bewegung zu setzen | = |
| Contraction To 1 | |
| Gesamtbunkte Leil | |

Es werden einzelne Funktionen der Mobilität analysiert und mit Hilfe eines Punktescores bewertet Der Test ist in eine Untersuchung des Gleichgewichts (Stand und Balance), sowie des Gehens unterteilt. Maximal sind als Summe beider Teile 28 Punkte erreichbar. Der Proband darf ein Hilfsmittel (z.B. Stock) benützen. Der Test stellt auch eine Möglichkeit dar, das Sturzrisiko einzuschätzen.

Sturzrisiko-Skala

| Parameter | 4 Punkte | 3 Punkte | 2 Punkte | 1 Punkt | Punkte |
|--|--|---|---|---|--------|
| Alter | | 80 + | 70-79 | 60-69 | |
| Mentaler Zustand | Zeitweise verwirrt/ desorientiert | | Verwirrt/ desorientiert | | |
| Ausscheidung | harn- und stuhlinkontinent | kontinent, braucht jedoch Hilfe | | Blasenverweil- katheder/ Enterostoma | |
| Stürze in der Vorgeschichte | bereits mehr als drei mal gestürzt | | bereits ein oder zwei mal gestürzt | | |
| Aktivitäten | beschränkt auf Bett und Stuhl | Aufstehen aus Bett mit Hilfe | | selbständig/ benutzt Bad und Toilette | |
| Gang und Gleichgewicht | Ungleichmäßig/ instabil, kann kaum die Balance halten im Stehen und Gehen | orthostatische Störung/ Kreislaufprobleme beim Aufstehen und Gehen | Gehbehinderung/ evtl. gehen mit Gehilfe oder Assistenz | | |
| Medikamente hier auch zukünftig geplante sowie die der letzten 7 Tage | drei oder mehr Medikamente | zwei Medikamente | ein Medikament | | |
| Alkohol/auch Melissengeist, Pepsinwein o.ä. | regelmäßig | | gelegentlich | | |
| Punktzahl bis 4 Punkte ab 4 Punkte 5-10 Punkte | geringes Sturzrisi Maßnahmen zur S hohes Sturzrisiko | ko Sturzverhütung einleit | en | Punkte gesamt | |

Quelle: Abington Memorial Hospital Department of Nursing, Pensylvania, USA 1998 Huhn Siegfried, FORUM SOZIALSTATION, Bonn 10/2000

Downton-Skala zur Ermittlung des Sturzrisikos

Administration Profession University Hamburn 2005

Codenummer Bewohner ____

| | Pro bejahter *-Antwort 1 Punkt anrechnen | | | |
|----------------------------------|--|---------------------------------|----|--|
| Ist der Bewohner im letzten Jahr | | Ja* | | |
| gestürzt? | | Nein | 0 | |
| Medikamente? | | Keine | | |
| | N | euroleptika / Sedativa* | 1 | |
| | | Diuretika* | 1 | |
| | Antihyperto | nika (außer Diuretika)* | 1 | |
| | | Antiparkinsonmittel* | 1 | |
| | | Antidepressiva* | 1 | |
| | | andere Medikamente | 0 | |
| Sensorische Ausfälle? | Keine | | 0 | |
| | Sehs | Sehstörung / Sehschwäche* | | |
| | Beeinträ | Beeinträchtigtes Hörvermögen* | | |
| | Extremitäten* (Amputation, | | | |
| | Schlaga | Schlaganfall, Neuropathie etc.) | | |
| Mentaler Zustand? | | Orientiert | 0 | |
| | | Yerwint* | | |
| Gang? | | Normal | 0 | |
| | | Sicher mit Gehhilfe | | |
| | Un | Unsicher mit / ohne Hilfe* | | |
| | | Nicht gehfähig | | |
| Datum: | Summe (Gecomtnunktrahl | | | |
| Handzeichen: | 300 | inc / acsumptincean | | |
| Ergobnic: | Punkte => 🗆 3-11 Punkte = | | •> | |
| Geringes | Sturzrisiko | Hohes Sturzrisi | (0 | |

The rise of fall risk assessment tools in Germany

(Dassen et al. 2008)



Aim of fall risk assessment

- To identify people at risk of falling
- To discriminate between people at risk of falling and people without risk of falling

aimed

- to refer people at risk of falling to preventive measures/programmes in order to reduce the number of accidential fallers and falls and finally of fall-related injuries
- to avoid unnecessary preventive interventions in people without risk of falling

Which requirements should a fall risk assessment fulfill?

- Appropriate and feasible for application to the population
- Simple and safe
- Accurate and trustworthy
- Available and reasonable
- Results must be relevant for decision making about fall preventive measures
- Application of a fall risk assessment tool must result in better clinical outcomes than usual care (without fall risk assessment)
 - Gold standard for evaluation: randomised-controlled trial

Evidence based diagnostics

Four phases in architecture of diagnostic research

- Phase I—Determining the normal range of values for a diagnostic test though observational studies in healthy people
- Phase II—Determining the diagnostic accuracy
- Phase III—Determining the clinical consequences of introducing a diagnostic test through randomised trials
- Phase IV—Determining the effects of introducing a new diagnostic test into clinical practice by surveillance in large cohort studies

Gluud & Gluud BMJ 2005

Grading quality of evidence and strength of recommendations for diagnostic tests and strategies

Holger J Schünemann, Andrew D Oxman, Jan Brozek, Paul Glasziou, Roman Jaeschke, Gunn E Vist, John W Williams, Jr, Regina Kunz, Jonathan Craig, Victor M Montori, Patrick Bossuyt, Gordon H Guyatt and for the GRADE Working Group

BMJ 2008;336;1106-1110 doi:10.1136/bmj.39500.677199.AE

RV

- Cross sectional or cohort studies can provide high quality evidence of test accuracy
- However, test accuracy is a surrogate for patient-important outcomes, so such studies often provide low quality evidence for recommendations about diagnostic tests, even when the studies do not have serious limitations
- Judgments are thus needed to assess the directness of test results in relation to consequences of diagnostic recommendations that are important to patients

Interventions for preventing falls in older people in care facilities and hospitals (Review)

Cameron ID, Gillespie LD, Robertson MC, Murray GR, Hill KD, Cumming RG, Kerse N

Service model change

Meyer 2009 (1125 participants) compared use of a fall risk assessment tool with nurses' judgement alone. There was no significant difference in rate of falls (Analysis 6.1: RaR 0.96, 95% CI 0.84 to 1.10), risk of falling (Analysis 6.2: RR 0.99, 95% CI 0.85 to 1.16), and number of people sustaining a fracture (Analysis 6.3: RR 0.96, 95% CI 0.57 to 1.63).

Age and Ageing Advance Access published May 12, 2009

Age and Ageing 2009; 1–7 doi: 10.1093/ageing/afp049 © The Author 2009. Published by Oxford University Press on behalf of the British Geriatrics Society. All rights reserved. For Permissions, please email: journals.permissions@oxfordjournals.org

Comparison of a fall risk assessment tool with nurses' judgement alone: a cluster-randomised controlled trial

GABRIELE MEYER^{1,2}, SASCHA KÖPKE¹, BURKHARD HAASTERT³, INGRID MÜHLHAUSER¹

Cochrane reviews (Gillespie et al. 2012 & Cameron et al. 2012): Significant lack of evidence on the efficacy of fall risk assessment tools

Evidence from accuracy studies: An example

Screening older adults at risk of falling with the Tinetti balance scale

Michel Raîche, Réjean Hébert, François Prince, Hélène Corriveau drawn from the electoral list of the Sherbrooke urban area, 225 individuals who were 75 years and older were selected, gave informed consent, and were followed prospectively for 1 year. The Tinetti balance test was carried out at the home of the participant at the beginning of the study by trained research nurses. A calendar was then given to the individuals with instructions to record the date of any falls. A monthly phone call by the nurse collected the data about the falls. The sensitivity and

| | | 110 |
|-------------|--|----------|
| In a | 225 community dwelling people | ng |
| 75 | | ng |
| bala onc | >75 years old | se |
| 7 0 | 1fellesses | 4) |
| this | L year follow-up | alé |
| pos | | als |
| cha neo | Study guestion: Validity of the Tinetti balance scale to predict | WO We |
| nre | | itu |
| Alt | individuals who will fall at least once during the following year | .% |
| an | individual's fisk of failing, a standardised and valid specificity. | |
| scre | eening instrument to identify people at risk of falling Using this screening test for preventing falls, the cu | t-off |
| 18 8 | sum unavaliable. There is no evidence to include score of ≤ 36 is preferred since the test has a m | gner |

THE LANCET • Vol 356 • September 16, 2000

Screening older adults at risk of falling with the Tinetti balance scale

Michel Raîche, Réjean Hébert, François Prince, Hélène Corriveau

In a prospective study of 225 community dwelling people 75 years and older, we tested the validity of the Tinetit balance scale to predict individuals who will fail at least once during the following year. A score of 36 or less identified 7 of 10 failers with 70% sensitivity and 52% specificity. With this cut-off score, 53% of the Individuals were screened positive and presented a two-fold risk of failing. These characteristics support the use of this test to screen older people at risk of failing in order to include them in a preventive intervention.

Although many balance characteristics are associated with an individual's risk of falling, a standardised and valid screening instrument to identify people at risk of falling is still unavailable. There is no evidence to include

THE LANCET • Vol 356 • September 16, 2000

drawn from the electoral list of the Sherbrooke urban area, 225 individuals who were 75 years and older were selected, gave informed consent, and were followed prospectively for 1 year. The Tinetti balance test was carried out at the home of the participant at the beginning of the study by trained research nurses. A calendar was then given to the individuals with instructions to record the date of any falls. A monthly phone call by the nurse collected the data about the falls. The sensitivity and specificity of each score on the Tinetti balance scale for predicting at least one fall during the year following its administration were calculated. A receiver operating characteristics (ROC) curve was constructed with these results.

The mean age of the individuals was 80-0 (SD 4-4) years and the mean score on the Tinetti balance scale was 33-8 (SD 7-2). During 1 year, 53 individuals fell at least once (23-6%), as shown on the figure, the two points closest to the upper left corner of the ROC curve are the score ≈ 33 with 51% sensitivity and 74% specificity; and the score ≈ 36 with 70% sensitivity and 52% specificity.

Using this screening test for preventing falls, the cut-off score of ≤ 36 is preferred since the test has a higher

1001

Results – contingency table

Might respond to prevention depending on effectiveness

Will be "overtreated"

Approx. 7 out of 10 fallers identified Sensitivity of 70% Approx. 5 out of 10 non-fallers identified Specificity of 52%

Scenario 1

- No risk assessment, no fall prevention:
 - 24% of persons will fall at least once during one year.

| | Fallers | Non- fallers | Total |
|----------------------------|---------|-----------------|-------|
| Positive <u><</u> 36 P. | 37 | 83 | 120 |
| Negative > 36 P. | 16 | 89 | 105 |
| Total | 53 | 172 | 225 |

Scenario 2

Risk assessment and multiple-component home-based exercise (Gillespie et al. 2012: RR 0.78, 95% CI 0.64 to 0.94; six trials; 714 participants) for positively assessed persons (n=120):

- Reduction of prevalence of fallers from 24% to 20%.
- 7% of the total population would not get exercise although faller.
- 69% of the positively assessed population (37% of the total poulation) would get exercise although non-faller.

| | Fallers | Non- fallers | Total |
|----------------------------|---------|-----------------|-------|
| Positive <u><</u> 36 P. | 37 | 83 | 120 |
| Negative > 36 P. | 16 | 89 | 105 |
| Total | 53 | 172 | 225 |

Scenario 3

- No risk assessment, fall-preventive exercise for all (n=225):
 - Reduction of fall prevalence from 24% to 19%.
 - 76% would get exercise although without risk of falling.

| | Fallers | Non- fallers | Total |
|----------------------------|---------|-----------------|-------|
| Positive <u><</u> 36 P. | 37 | 83 | 120 |
| Negative > 36 P. | 16 | 89 | 105 |
| Total | 53 | 172 | 225 |

Screening older adults at risk of falling with the Tinetti balance scale

Michel Raîche, Réiean Hébert, Francois Prince, Hélène Corriveau

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preventive intervention.

These characteristics support the use of this test to screen older people at risk of falling in order to include them in a preventive intervention. points closest to the upper left corner of the ROC curve

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collected the data about the falls. The sensitivity and

Using this screening test for preventing falls, the cut-off score of ≤ 36 is preferred since the test has a higher

JAGS 61:202–208, 2013

Discriminative Ability and Predictive Validity of the Timed Up and Go Test in Identifying Older People Who Fall: Systematic Review and Meta-Analysis

Daniel Schoene, MSc, *[†] Sandy M.-S. Wu, MBBS,[‡] A. Stefanie Mikolaizak, BScPT (Hons), *[†] Jasmine C. Menant, PhD, *[†] Stuart T. Smith, PhD, *[†] Kim Delbaere, PhD, *[†] and Stephen R. Lord, DSc*[†]

OBJECTIVES: To investigate the discriminative ability and diagnostic accuracy of the Timed Up and Go Test (TUG) as a clinical screening instrument for identifying older people at risk of falling.

DESIGN: Systematic literature review and meta-analysis.

SETTING AND PARTICIPANTS: People aged 60 and older living independently or in institutional settings.

CONCLUSION: The findings suggest that the TUG is not useful for discriminating fallers from non-fallers in healthy, high-functioning older people but is of more value in less healthy, lower-functioning older people. Overall, the predictive ability and diagnostic accuracy of the TUG are at best moderate.

Measuring Fall Risk and Predicting Who Will Fall: Clinimetric Properties of Four Fall Risk Assessment Tools for Residential Aged Care

Anna L. Barker,^{1,2} Jennifer C. Nitz,¹ Nancy L. Low Choy,³ and Terry Haines⁴

¹Division "No tool had higher predictive accuracy than the Australia. question, "has the resident fallen in past 12 months?"

assessment tools (FRATs) recommended in best practice guidelines for use in residential aged care (RAC).

Methods. Eighty-seven residents, mean age 81.59 years ($SD \pm 10.69$), participated. The Falls Assessment Risk and Management Tool (FARAM), Peninsula Health Fall Risk Assessment Tool (PHFRAT), Queensland Fall Risk Assessment Tool (QFRAT), and Melbourne Fall Risk Assessment Tool (MFRAT) were completed at baseline, and 2 and 4 months, and falls occurring in the 6 months after the baseline assessment were recorded. Interrater agreement (kappa), predictive accuracy (survival analysis and Youden Index), and fit to the Rasch model were examined. Twelve-month fall history formed the predictive accuracy reference.

Results. Interrater risk classification agreement was high for the PHFRAT ($\kappa = .84$) and FARAM ($\kappa = .81$), and low for the QFRAT ($\kappa = .51$) and MFRAT ($\kappa = .21$). Survival analysis identified that 43%–66% of risk factors on each tool had no (p > .10) association with falls. No tool had higher predictive accuracy (Youden index) than the question, "has the resident fallen in past 12 months?" (p > .05). All tools did not exhibit fit to the Rasch model, invalidating summing of risk factor scores to provide an overall risk score.

Conclusion. The studied tools have poor clinimetric properties, casting doubt about their usefulness for identifying fall risk factors for those most at risk for falling and measuring fall risk in RAC.

Aging Clin Exp Res 2011; 23: 187-195

Diagnostic accuracy of three types of fall risk methods for predicting falls in nursing homes

Hege Bentzen^{1,2}, Astrid Bergland³ and Lisa Forsén¹

¹Division of Epidemiology, Norwegian Institute of Public Health, ²Diakonhjemmet Hospital, ³Oslo University College, Oslo, Norway

Materials and methods: A prospective observational cohort study was carried out for 18 months. One thousand one hundred and forty-eight participants were included and assessed for fall risk. (...) The St- Thomas Risk Assessment tool (STRATIFY- modified for nursing homes), staff judgment of fall risk, and previous falls remembered by the staff were evaluated.

Conclusions: The diagnostic accuracy of the three methods did not differ markedly. However, staff judgment had the highest sensitivity and the lowest specificity after 30, 90 and 180 days. A combination of either two of the methods showed the highest sensitivity but the lowest specificity.

Journal of Clinical Epidemiology 63 (2010) 109-113

Journal of Clinical Epidemiology

The STRATIFY tool and clinical judgment were poor predictors of falling in an acute hospital setting

Joan Webster^{a,b,c,*}, Mary Courtney^b, Nicole Marsh^a, Catherine Gale^a, Belynda Abbott^a, Anita Mackenzie-Ross^a, Prue McRae^a

> ^aCentre for Clinical Nursing, Royal Brisbane and Women's Hospital, Brisbane, Queensland, Australia ^bSchool of Nursing and Midwifery, Queensland University of Technology, Brisbane, Queensland, Australia ^cSchool of Nursing and Midwifery, Griffith University, Gold Coast and Brisbane, Queensland, Australia

Accepted 10 February 2009

Objective: To compare the effectiveness of the STRATIFY falls tool with nurses' clinical judgments in predicting patient falls.

Study Design and Setting: A prospective cohort study was conducted among the inpatients of an acute tertiary hospital. Participants were patients over 65 years of age admitted to any hospital unit. (...)

Conclusion: Considering the poor specificity and high rates of false-positive results for both the STRATIFY tool and nurses' clinical judgments, we conclude that neither of these approaches are useful for screening of falls in acute hospital settings.

Review Article

Design-Related Bias in Hospital Fall Risk Screening Tool Predictive Accuracy Evaluations: Systematic Review and Meta-Analysis

Discussion: Heterogeneity between studies indicates that the Morse Falls Scale and STRATIFY may still be useful in particular settings, but that widespread adoption of either is unlikely to generate benefits significantly greater than that of nursing staff clinical judgment.

related bias in evaluations of tool predictive accuracy could lead to overoptimistic results, which would then contribute to program failure in practice.

Methods. A systematic review was undertaken. Two blind reviewers assessed the methodology of relevant publications into a four-point classification system adapted from multiple sources. The association between study design classification and reported results was examined using linear regression with clustering based on screening tool and robust variance estimates with point estimates of Youden Index (= sensitivity + specificity -1) as the dependent variable. Meta-analysis was then performed pooling data from prospective studies.

Results. Thirty-five publications met inclusion criteria, containing 51 evaluations of fall risk screening tools. Twenty evaluations were classified as retrospective validation evaluations, 11 as prospective (temporal) validation evaluations, and 20 as prospective (external) validation evaluations. Retrospective evaluations had significantly higher Youden Indices (point estimate [95% confidence interval]: 0.22 [0.11, 0.33]). Pooled Youden Indices from prospective evaluations demonstrated the STRATIFY, Morse Falls Scale, and nursing staff clinical judgment to have comparable accuracy.

Discussion. Practitioners should exercise caution in comparing validity of fall risk assessment tools where the evaluation has been limited to retrospective classifications of methodology. Heterogeneity between studies indicates that the Morse Falls Scale and STRATIFY may still be useful in particular settings, but that widespread adoption of either is unlikely to generate benefits significantly greater than that of nursing staff clinical judgment.

St Thomas's Risk Assessment Tool - STRATIFY

according to Oliver et al. 1997

| | Yes = 1 | No = 0 | |
|--|-----------|--------|--|
| Did the patient present to hospital with a fall or | | | |
| has he or she fallen on the ward since admission? | | | |
| Do you think the patient is | | | |
| Agitated? | | | |
| Visually impaired to the extent that everyday | | | |
| function is affected? | | | |
| In need of especially frequent toileting? | | | |
| Transfer and mobility sore of 3 or 4?* | | | |
| | Total sco | re | |

* Transfer score: 0 = unable, 1 = major help needed (one or two people, physical aids), 2 = minor help (verbal or physical), 3 = independent; Mobility score: 0 = immobile, 1 = independent with aid of wheelchair, 2 = walks with help of one person, 3 = independent.

Accuracy of the STRATIFY

| Reference | Setting | Sensitivity | Specificity |
|-----------------------------|---------|-------------|-------------|
| Oliver et al. 1997 | HOS | 0.69 | 0.96 |
| Oliver et al. 1997 | HOS | 0.93 | 0.88 |
| Oliver et al. 1997 | HOS | 0.54 | 0.88 |
| Oliver et al. 1997 | HOS | 0.92 | 0.68 |
| Coker & Oliver 2003 | GR | 0.66 | 0.47 |
| Coker & Oliver 2003 | GR | 0.36 | 0.85 |
| Papaioannou et al. | HOS | 0.62 | 0.71 |
| Papaioannou et al. | HOS | 0.91 | 0.49 |
| Jester et al. 2005 | HOS | 0.5 | 0.24 |
| Vassallo et al. 2005 | HOS | 0.68 | 0.66 |
| Haines et al. 2006 | HOS | 0.77 | 0.51 |
| Smith et al. 2006 | НС | 0,16 | 0,86 |
| Wijnia et al. 2006 | RF | 0.5 | 0.76 |
| Milisen et al. 2007 | НО | 0.9 | 0.59 |
| Kim et al. 2007 | НО | 0.55 | 0.75 |
| Kim et al. 2007 | НО | 0.25 | 0.91 |
| Vassalo et al. 2008 | GR | 0.82 | 0.34 |
| Marschollek et al. 2011 | НО | 0.79 | 0.26 |
| Walsh et al. 2011 | НО | 0.71 | 0.58 |
| Barker et al. 2011 | НО | 0.35 | 0.93 |
| Webster et al. 2011 | НО | 0.82 | 0.61 |
| Bentzen et al. 2011 | RF | 0.56 | 0.76 |
| Neumann et al. 20 <u>13</u> | НО | 0.56 | 0.60 |

- HOS = hospital GR = geriatric reha
 - = geriatric rehabilitation
- HC = home care

RF

= residential care facilities

Fall Prediction According to Nurses' Clinical Judgment: Differences Between Medical, Surgical, and Geriatric Wards

Koen Milisen, RN, PhD,*[†] Joke Coussement, MSN,* Johan Flamaing, MD, PhD,[†] Ellen Vlaeyen, RN, MSN,* René Schwendimann, MSN, PhD,[‡] Eddy Dejaeger, MD, PhD,[†] Kurt Surmont, RN, MSN,[§] and Steven Boonen, MD, PhD^{†¶}

CONCLUSION: This analysis, based on multicenter data and a large sample size, suggests that NCJ can be recommended on surgical and general medical wards and in individuals younger than 75, but on geriatric wards and in participants aged 75 and older, NCJ overestimates risk of falling and is thus not recommended because expensive comprehensive fall-prevention measures would be implemented in a large number of individuals who do not need it.

- Diagnostic accuracy studies using fall events as outcome for validation of the fall risk assessment tools suffer from one major methodological flaw: TREATMENT PARAXOX
- HOW?

Natural course and interventions administered during follow-up period might affect the outcome (falls) and therefore flaw determination of test accuracy. Only randomised controlled trials can overcome the problem and inform decision makers about the benefit of fall risk assessment tools. Age and Ageing 2009; **38:** 417–423 doi: 10.1093/ageing/afp049 Published electronically 12 May 2009 © The Author 2009. Published by Oxford University Press on behalf of the British Geriatrics Society. All rights reserved. For Permissions, please email: journals.permissions@oxfordjournals.org

Comparison of a fall risk assessment tool with nurses' judgement alone: a cluster-randomised controlled trial

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Education sessions

- 1-3 sessions per nursing home
- Approx. 90 minutes
- 4-24 participants
- Best evidence
- Work in small groups to solve "cases"
- Information brochures

Downton-Skala zur Ermittlung des Sturzrisikos

Codenummer Bewohner __ __ __

| Pro bejahter *-Antwort 1 Punkt anrechnen | | | | | |
|--|----------------------|---------------------------------|-------------------------|------------|---|
| Ist der Bewohner im letzten Jahr | | Ja* | | 1 | Γ |
| gestürzt? | | | Nein | 0 | Γ |
| Medikamente? | | | Keine | 0 | Γ |
| | | N | euroleptika / Sedativa* | 1 | Г |
| | | | Diuretika* | 1 | Γ |
| | | Antihyperto | nika (außer Diuretika)* | 1 | Γ |
| | | | Antiparkinsonmittel* | 1 | Γ |
| | | | Antidepressiva* | 1 | Γ |
| | | | andere Medikamente | 0 | Γ |
| Sensorische Ausfälle? | | | Keine | | |
| | | Sehstörung / Sehschwäche* | | 1 | |
| | | Beeinträchtigtes Hörvermögen* | | 1 | |
| | | Extremitäten* (Amputation, | | 1 | Γ |
| | | Schlaganfall, Neuropathie etc.) | | _ | L |
| Mentaler Zustand? | | | Orientiert | 0 | |
| | | Verwint* | | 1 | |
| Gang? | | | Normal | 0 | |
| | | | Sicher mit Gehhilfe | 0 | |
| | | Unsicher mit / ohne Hilfe* | | 1 | |
| | | Nicht gehfähig | | 0 | |
| Datum: | | Summe / Gecomtnunktrahl | | | |
| Handzeichen: | | 34 | | | |
| <u>Fuendaria</u> | 🗆 0-2 Pu | nkte => | 🗆 3-11 Punkte = | => | |
| Ergeonis: | Geringes Sturzrisiko | | Hohes Sturzrisik | (0 | |

Intervention group

- Risk assessment tool
 - monthly
 - by nurses

Results – falls

| | IG | CG | Mean difference |
|-------------------------|------------|-----------|-----------------|
| | (n=574) | (n=551) | (95% CI)* |
| Residents <u>></u> 1 | 302 (52.6) | 292 (53) | -0.4 |
| fall (%) | | | (-10.0 to 9.3) |
| Falls, n | 1036 | 1027 | - |
| Falls per | 1.8 (1.2) | 1.8 (1.0) | -0.05 |
| resident, MV (SD) | | | (-0.64 to 0.54) |

* Cluster-adjusted

Results – fall-related medical attention

| Per resident | IG | CG | |
|---------------------------|-------------|-------------|---------|
| MV [*] (SD) | (n=574) | (n=551) | p-value |
| Fracture | 0.07 (0.07) | 0.07 (0.05) | 0.97 |
| Suture | 0.08 (0.07) | 0.10 (0.09) | 0.39 |
| Physician consultation | 0.16 (0.15) | 0.18 (0.13) | 0.68 |
| Hospital admission | 0.21 (0.15) | 0.25 (0.14) | 0.33 |

* Cluster-adjusted

Results – preventive measures

- No impact on administration of fall preventive measures: walking aids, hip protectors
- No impact on use of bedrails

In conclusion

- The monthly administration of a fall risk assessment tool in nursing homes did not result in a reduction of fallers and fall-related consequences.
- The use of a risk assessment tool should be avoided since it has no clinical benefit but wastes scarce nursing resources.

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COMMENTARY

Falls risk-prediction tools for hospital inpatients. Time to put them to bed?

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Oliver Age Ageing 2008

"As one of the authors of the most widely validated tool for use in hospital (STRATIFY) - still used in many hospitals - I am happy to recant. "

"Often, when I advocate that we should abandon the use of falls prediction tools, staff (...) become vexed. A prominent fellow researcher in this field labeled my advice as 'unethical' suggesting that this meant simply allowing patients to fall."

"However, unless we have an understanding of the limitations of such tools and the evidence for their use, this is a fool's paradise. If we look after all older people in hospital better, it is likely they will fall less."

Fall risk assessment tools:

"There is always an easy solution to every human problem - neat, plausible, and wrong."

Mencken HL, American journalist and essayist

Evidence indicates, that ...

- Currently available fall risk assessment tools do not work.
- Time spend for filling in the instruments should be re-allocated to patient care.
- Further flawed accuracy studies should be avoided.
- Implementation of fall risk assessment tools should be stopped unless their benefit is proven.

Thank you for the attention!