INTERVENTIONS TO PROMOTE WORK PARTICIPATION AFTER ISCHAEMIC STROKE

A SYSTEMATIC REVIEW

Raf Brouns

Dept. Neurologie ZorgSaam Terneuzen
Faculteit Geneeskunde & Farmacie Vrije Universiteit Brussel

Disclosures

No disclosures related to the subject of the presentation

Acknowledgements

Maarten Moens
Lisa Goudman
Alexis Valenzuela Espinoza
Jan Verlooy

Overview

- Background
- Objective
- Methods
- Results
- Conclusions

Background

Description of the condition

- WHO definition of stroke
- Subtypes: ischaemia ≠ haem rhage
  - Risk factors
  - Epidemiology
  - Disease mechanisms
  - Prognosis
  - Acute therapy
  - Secondary prevention
  - Rehabilitation
  - Return-to-work (!)
  - …

Background

How the intervention might work

- Confine neurological damage
  - Optimal emergency stroke treatment
  - Secondary cerebrovascular prevention

- Research from adjacent domains
  - Traumatic brain injury, mental disorders
  - Multimodal interventions
  - Coordinating supportive services, work accomodation, skills training, patient coaching & education

Background

Why is it important do to this review

- Stroke has devastating impact
  - 2nd cause of DALY-loss
  - # strokes and quality of life lost increases annually
  - 45% of stroke victims <65 y (globally)
  - Annual cost USA: $1.75 trillion (33% for <65 y)
- Successfull return-to-work
  - 9 - 91% (methodological variability)
  - Failure despite excellent functional outcome
  - Positive effects (well-being, satisfaction, recurrence risk, …)
- Unmet need regarding strategies to promote return-to-work after ischaemic stroke

Overview

- Background
- **Objective**
- Methods
- Results
- Conclusions

Objective

Systematic review in the **therapeutic** domain aiming to identify and evaluate the effectiveness of **any intervention to promote return-to-work after ischaemic stroke**.

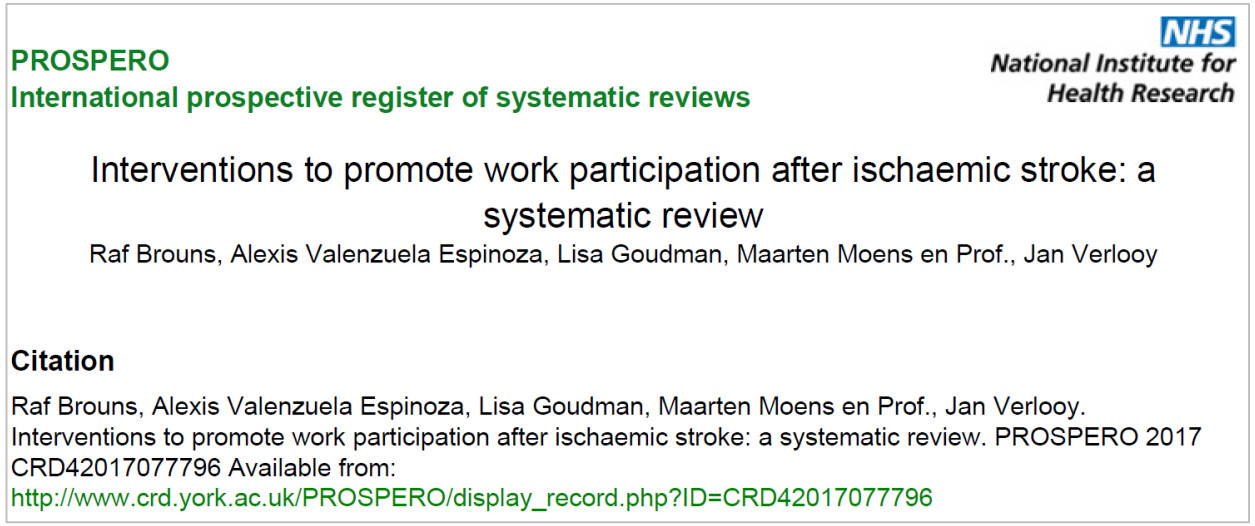
This information is **relevant to patients, clinicians, researchers and policymakers**.

Overview

- Background
- Objective
- **Methods**
  1. Criteria for considering studies
  2. Search methods – identification studies
- Results
- Conclusions

Methods

- Preferred Reporting Items for Systematic Review (PRISMA) guidelines
- Protocol for systematic review
- Registration in PROSPERO



PROSPERO
International prospective register of systematic reviews

NHS
National Institute for Health Research

Interventions to promote work participation after ischaemic stroke: a systematic review

Raf Brouns, Alexis Valenzuela Espinoza, Lisa Goudman, Maarten Moens en Prof., Jan Verlooy

Citation

Raf Brouns, Alexis Valenzuela Espinoza, Lisa Goudman, Maarten Moens en Prof., Jan Verlooy. Interventions to promote work participation after ischaemic stroke: a systematic review. PROSPERO 2017 CRD42017077796 Available from: http://www.crd.york.ac.uk/PROSPERO/display_record.php?ID=CRD42017077796

Methods

1. Criteria for considering studies for this review

- Types of studies
  - Randomized controlled trials
  - Controlled before-after studies
  - Prospective cohort studies
  - Time-series
  - Before-after comparison without controls

  - Comparison: ‘no intervention’, sham intervention, any other intervention

  - Excluded: cross-sectional studies, prognostic studies, case reports

Methods

1. Criteria for considering studies for this review

- Types of participants
  - ≥ 18 y
  - Diagnosis ischaemic stroke
  - Mixed population if data ischaemic stroke distilled *or* if large majority (≥ 80%)

- Types of interventions
  - Any intervention aiming to support RTW:

    active manipulation of the environment, behaviour or disease with the intention to improve or promote health
  - E.g. medical, psychological, physical, social activities

Methods

1. Criteria for considering studies for this review

- Types of outcomes
  - Primary outcome:
    - Employment, unpaid labor, leisure, unemployment, retirement
    - **Proportion patients returning to competitive employment** (paid work)
  - Secondary outcome:
    - Interval between stroke and return-to-work
    - Proportion who maintained professional activities over time
    - Time spent off work or on sick leave
    - Score on a validated work ability scale

Methods

2. Search methods

- Electronic searches: 5 reference databases
  - MEDLINE (PubMed; MeSH)
  - EMBASE (EMTREE)
  - Web of Science
  - Scopus
  - Collaborative Review Group Register

  - Search syntaxes (PICO)

  - English, French, German, Spanish, Dutch
  - No limitation regarding date of publication

Methods

2. Search methods

EMBASE

Date searched

30 Oktober 2017

Searcher

RB

Strategy

1. 'brain ischemia'/exp
2. 'brain infarction' OR 'brain ischaemia' OR 'brain ischemia' OR 'cerebral ischaemia' OR 'cerebral ischemia' OR 'ischaemic brain disease' OR 'ischaemia cerebri' OR 'ischaemic cerebrovascular OR 'ischaemic stroke' OR 'ischemia cerebri' OR 'ischemic brain disease' OR 'ischemic cerebrovascular accident' OR 'ischemic CVA' OR 'ischemic encephalopathy' OR 'ischemic stroke'
3. #1 OR #2
4. 'rehabilitation'/exp OR 'physical medicine'/exp OR 'vocational education'/exp OR 'workplace'/exp OR 'occupational health'/exp OR 'teleconsultation'/exp OR 'telehealth'/exp OR 'central stimulant
5. 'rehabilitation' OR 'rehabilitation' OR 'intervention' OR 'support' OR 'promote' OR 'promoting' OR 'promotion' OR 'stimulate' OR 'stimulating' OR 'stimulus' OR 'program' OR 'programm' OR 'strat 'neurophysiotherapy' OR 'physical therapy' OR 'physiotherapy' OR 'vocational education' OR 'vocational' OR 'education' OR 'educative' OR 'workplace' OR 'work place' OR 'work-place' OR 'wo OR 'occupational health' OR 'employee health' OR 'industrial health' OR 'occupational safety' OR 'remote consultation' OR 'teleconsultation' OR 'telemedicine' OR 'mobile health' OR 'telehealth intervention' OR 'central nervous system stimulant' OR 'central stimulant' OR 'analeptic' OR 'human engineering' OR 'ergonomic' OR 'ergotherapy' OR 'ergotherapeutic' OR 'psychology' OR 'ps
6. #4 OR #5
7. 'return to work'/exp OR 'employment'/exp OR 'medical leave'/exp
8. 'return to work' OR 'return-to-work' OR 'rtw' OR 'returning to work' OR 'back to work' OR 'back-to-work' OR 'workresumption' OR 'work resumption' OR 'stay at work' OR 'stay-at-work' OR 'stayin 'unemployment' OR 'disability pension' OR 'incapacity' OR 'disability leave' OR 'sickness absence' OR 'sick leave' OR 'sick day' OR 'sickness day' OR 'work absence' OR 'absenteeism'
9. #7 OR #8
10. #3 AND #6 AND #9
11. #10 AND ([dutch]/lim OR [english]/lim OR [french]/lim OR [german]/lim OR [spanish]/lim) AND [adult]/lim

Syntaxis

('brain ischemia'/exp OR 'brain infarction' OR 'brain ischaemia' OR 'brain ischemia' OR 'cerebral ischaemia' OR 'cerebral ischemia' OR 'ischaemic brain disease' OR 'ischaemia cerebri' OR 'ischaemi encephalopathy' OR 'ischaemic stroke' OR 'ischemia cerebri' OR 'ischemic brain disease' OR 'ischemic cerebrovascular accident' OR 'ischemic cva' OR 'ischemic encephalopathy' OR 'ischemic stro 'vocational education'/exp OR 'workplace'/exp OR 'occupational health'/exp OR 'teleconsultation'/exp OR 'telehealth'/exp OR 'central stimulant agent'/exp OR 'ergonomics'/exp OR 'rehabilitation' OR 'promotion' OR 'stimulate' OR 'stimulating' OR 'stimulus' OR 'program' OR 'programm' OR 'strategy' OR 'strategies' OR 'recovery of function' OR 'neurophysiotherapy' OR 'physical therapy' OR 'phys 'education' OR 'educative' OR 'workplace' OR 'work place' OR 'work-place' OR 'work location' OR 'work site' OR 'work-site' OR 'worksite' OR 'job' OR 'occupational health' OR 'employee health' OR 'i consultation' OR 'teleconsultation' OR 'telemedicine' OR 'mobile health' OR 'telehealth' OR 'ehealth' OR 'mhealth' OR 'telecommunication' OR 'online intervention' OR 'central nervous system stimula OR 'ergonomic' OR 'ergotherapy' OR 'ergotherapeutic' OR 'psychology' OR 'psychologic') AND ('return to work'/exp OR 'employment'/exp OR 'medical leave'/exp OR 'return to work' OR 'return-to-wo 'back-to-work' OR 'workresumption' OR 'work resumption' OR 'stay at work' OR 'stay-at-work' OR 'staying at work' OR 'employment' OR 're-employment' OR 'unemployment' OR 'disability pension' O 'sick leave' OR 'sick day' OR 'sickness day' OR 'work absence' OR 'absenteeism') AND ([dutch]/lim OR [english]/lim OR [french]/lim OR [german]/lim OR [spanish]/lim) AND [adult]/lim

Methods

2. Search methods

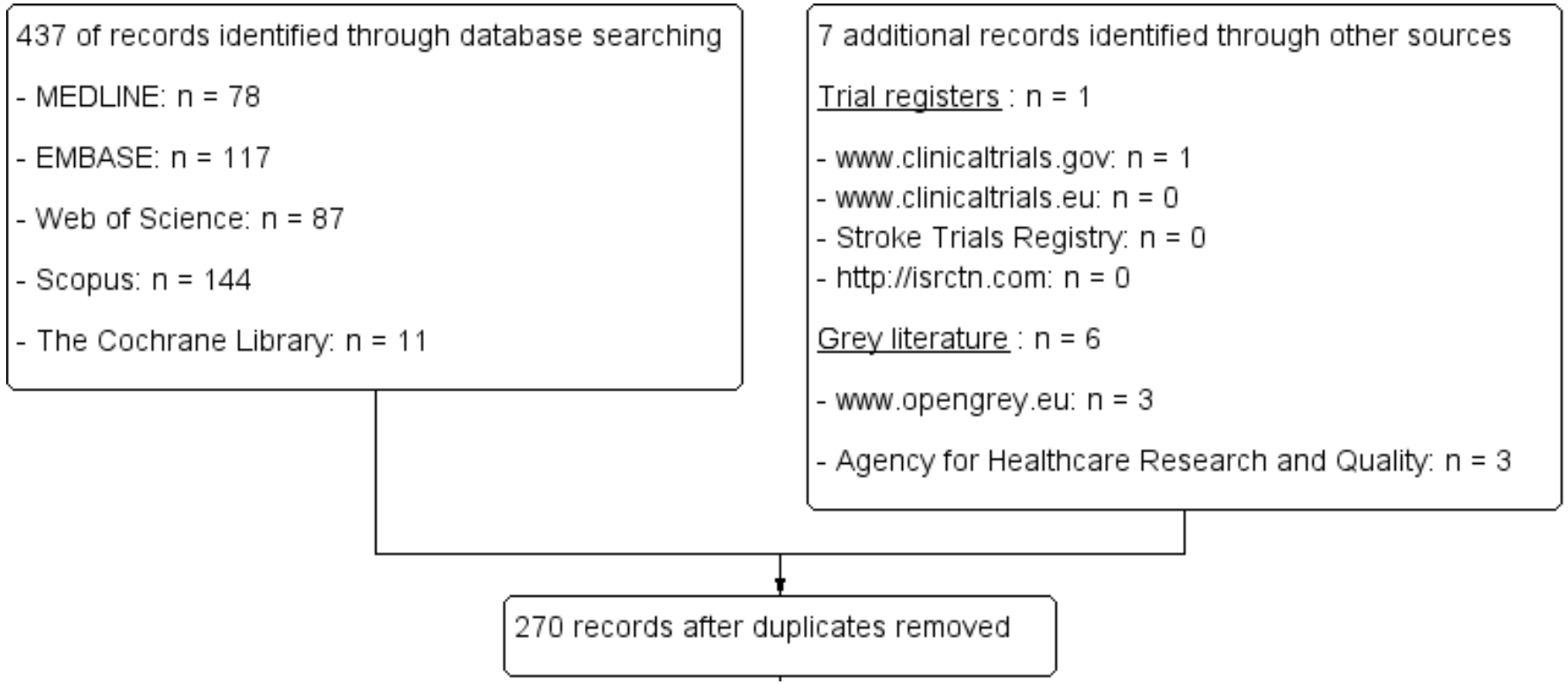
- Other resources
  - Trial registers
    - www.strokecenter.org/trials
    - www.clinicaltrials.gov
    - www.clinicaltrialsregister.eu
    - http://isrctn.cm
  - Grey literature
    - www.opengrey.eu
    - Agency for Healthcare Research and Quality
  - Backward citation chasing (reference lists of publications)
  - Forward citation chasing
    - Web of Science (all citing articles)
    - MEDLINE (linkages via similar articles)

Overview

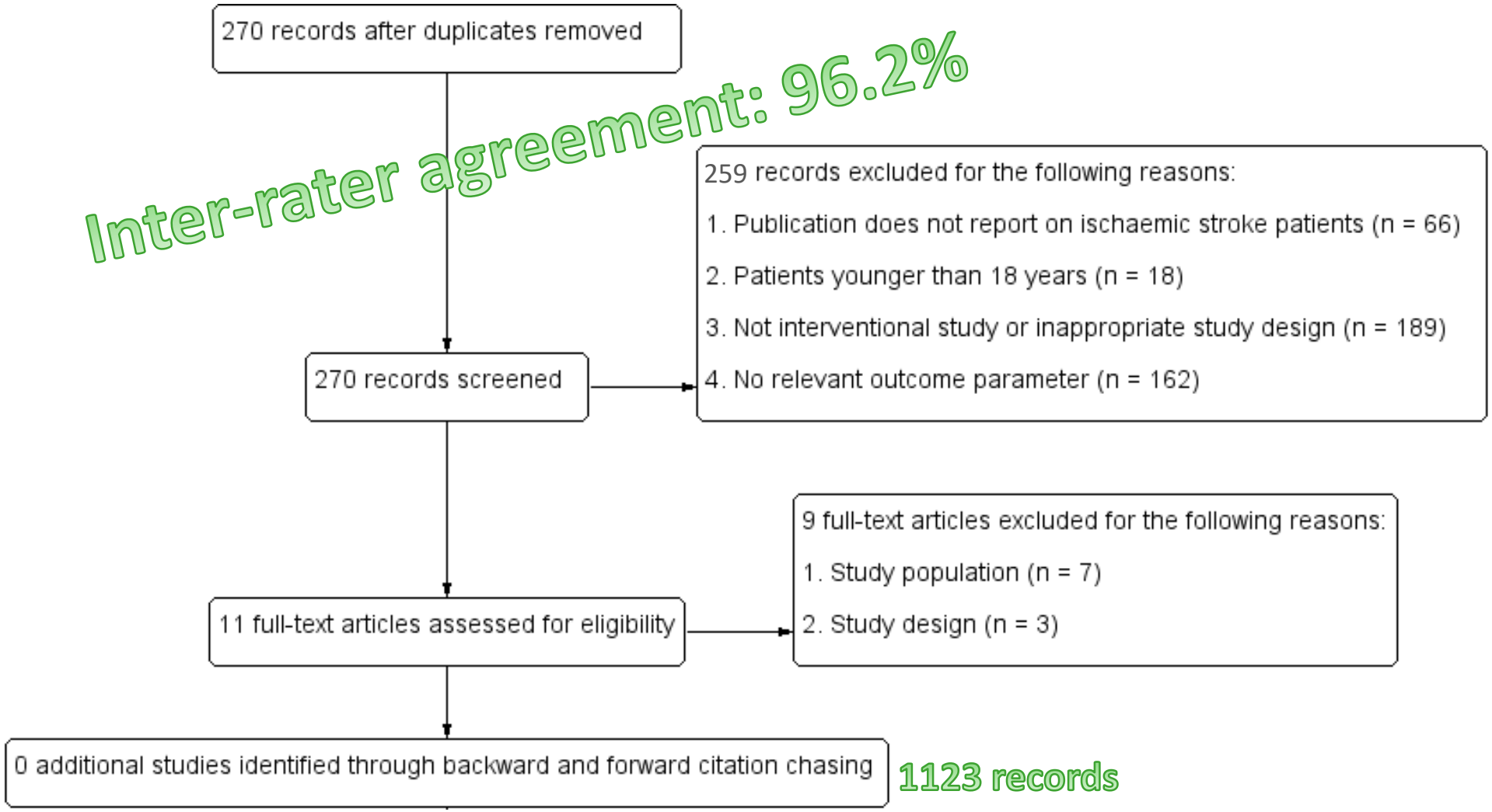
- Background
- Objective
- Methods
- **Results**
  1. PRISMA study flow diagram
  2. Characteristics of included studies
- Conclusions

Results

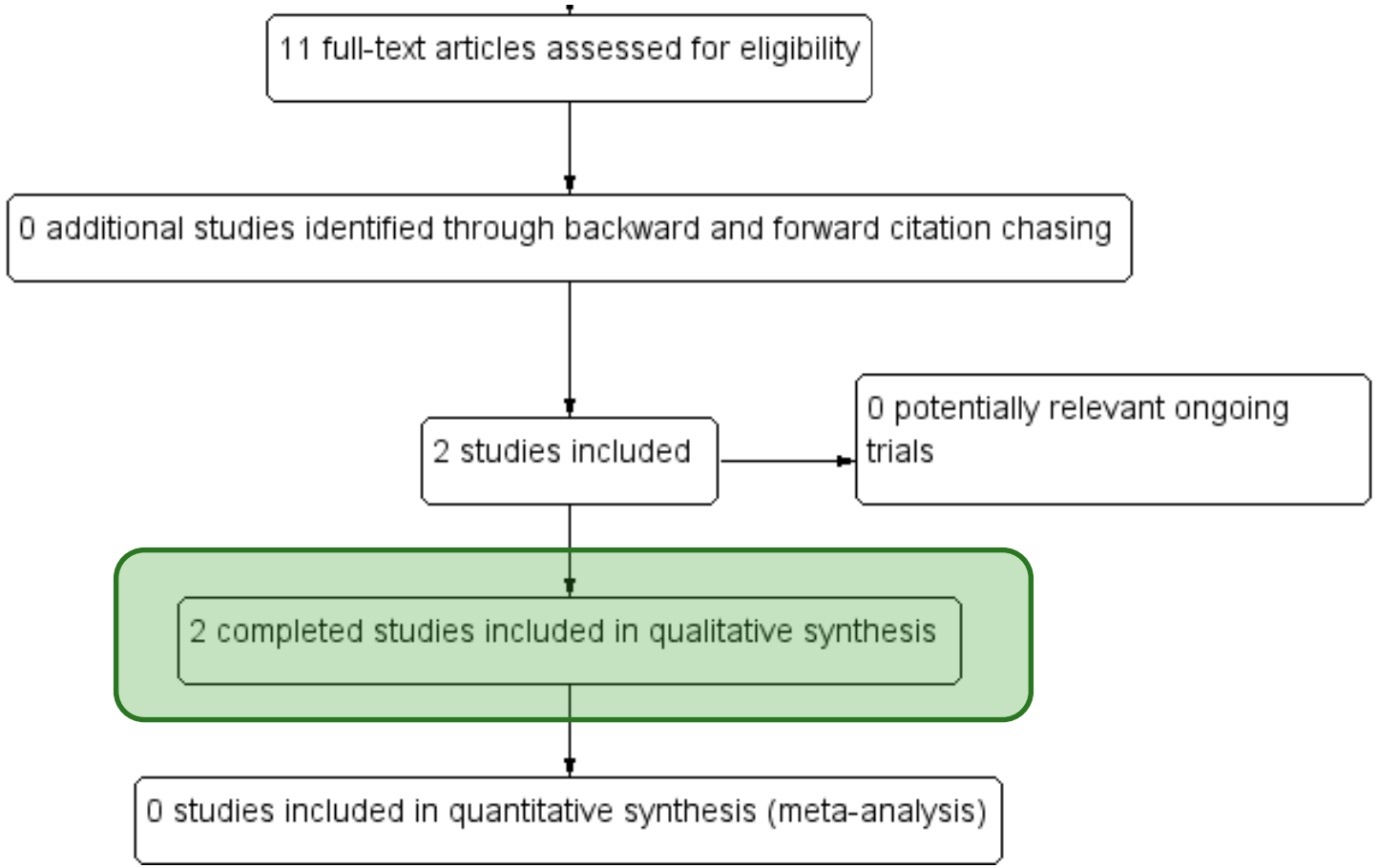
1. PRISMA study flow diagram



Results


270 records after duplicates removed
Inter-rater agreement: 96.2%
259 records excluded for the following reasons:
1. Publication does not report on ischaemic stroke patients (n = 66)
2. Patients younger than 18 years (n = 18)
3. Not interventional study or inappropriate study design (n = 189)
4. No relevant outcome parameter (n = 162)
270 records screened
9 full-text articles excluded for the following reasons:
1. Study population (n = 7)
2. Study design (n = 3)
11 full-text articles assessed for eligibility
0 additional studies identified through backward and forward citation chasing
1123 records

Results


11 full-text articles assessed for eligibility
0 additional studies identified through backward and forward citation chasing
2 studies included
0 potentially relevant ongoing trials
2 completed studies included in qualitative synthesis
0 studies included in quantitative synthesis (meta-analysis)

Results

Research Article

Rehabilitation Outcomes: Ischemic versus Hemorrhagic Strokes

Robert Perna and Jessica Temple

2. Characteristics of included studies

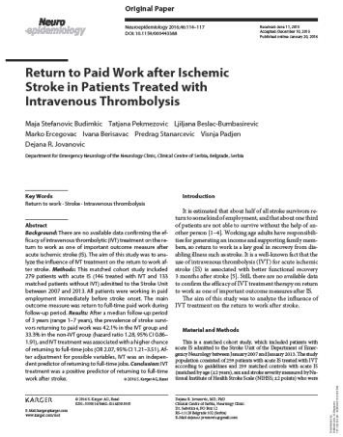
1. Perna 2015 (USA)
   - Single-centre retrospective before-after comparison (no control group)
   - Out-patient program: neuropsychological, social, physical, occupational, speech (2x/w during 3 m)
   - 172 pts mild to moderate ischaemic stroke (<6 m)
   - Methodological quality: low

Results

2. Characteristics of included studies

1. Perna 2015: outcomes
   - Proportion pts returning to work (before/after):
     - Competitive employment: 123 / 39
     - Modified job: 22 / 7
     - School: 3 / 6
     - Homemaker: 4 / 11
     - Volunteer: 5 / 18
     - Leisure: 19 / 48
     - Nonproductive: 7 / 25
   - MPAI-4 (before / after):
     - 46.19 (15.59) / 25.16 (15.27)

Results


Original Paper

Return to Paid Work after Ischemic Stroke in Patients Treated with Intravenous Thrombolysis

2. Characteristics of included studies

2. Stefanovic 2016 (Serbia)
   - Single-centre controlled before-after comparison
   - In-patient stroke unit: IV thrombolysis
   - I = 143, C = 133 moderate to severe acute ischaemic stroke (<24 h)
   - Methodological quality: sufficient

Results

2. Characteristics of included studies

2. Stefanovic 2016: outcomes

- Return to full-time paid job:
  - I : 43 / 143
  - C: 20 / 133

- Return to any kind of job:
  - I : 56 / 143
  - C: 42 / 133

Overview

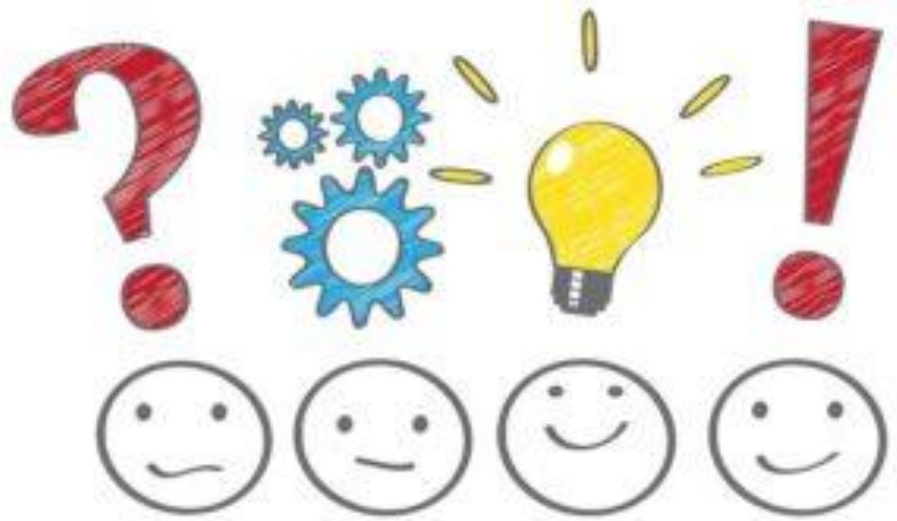
- Background
- Objective
- Methods
- Results
- Conclusions

Conclusions

First systematic review evaluating interventions to promote return-to-work in patients with ischaemic stroke.

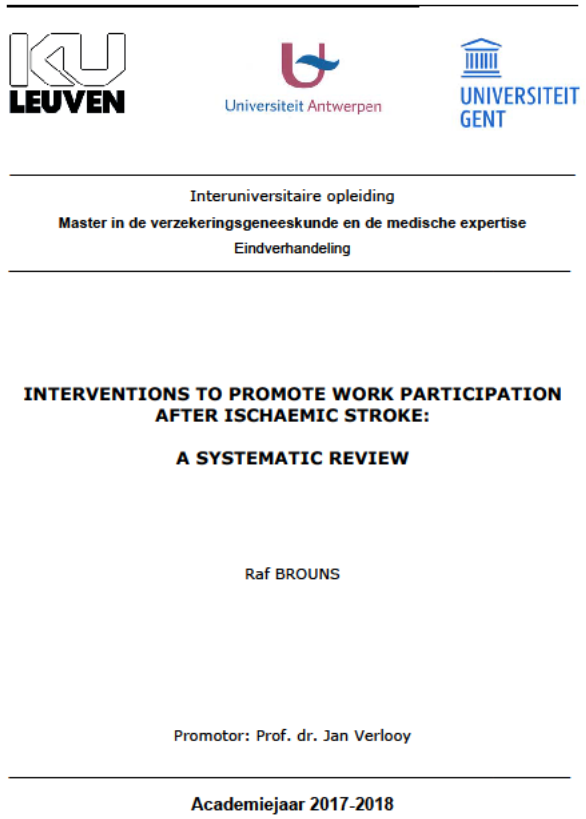
Extensive search using very **permissive criteria** yielded **only two studies**:

- Outpatient rehabilitation and IV thrombolysis *may* be beneficial
- Cave extrapolation given methodology and heterogeneity



brounsraf@skynet.be

Backup slides



KU LEUVEN
Universiteit Antwerpen
UNIVERSITEIT GENT

Interuniversitaire opleiding
Master in de verzekeringsgeneeskunde en de medische expertise
Eindverhandeling

INTERVENTIONS TO PROMOTE WORK PARTICIPATION AFTER ISCHAEMIC STROKE:

A SYSTEMATIC REVIEW

Raf BROUNS

Promotor: Prof. dr. Jan Verlooy

Academiejaar 2017-2018