Pathways in geriatric care: collaboration between primary and hospital care

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Health at a Glance 2013 (OECD report)

1.1.1. Life expectancy at birth, 1970 and 2011 (or nearest year)

Projection 2010 – 2050
Netherlands
Proportion living in nursing home, Switzerland 2010
Meta-Analysis: Acute Care Eldery Units
Hospital discharge: home

Total of 5 studies

Pooled odds ratio (95% CI): 1.3 (1.1 to 1.5)
Meta-Analysis Inpatient Geriatric Rehabilitation: Functional Status

Total of 13 studies

Pooled odds ratio (95% CI): 1.3 (1.1 to 1.7)  
In favor of the intervention

But: significant heterogeneity
The disablement process

Health → Active pathology disease → Impairment → Functional limitation → Disability

Health
- Interruption or interference with normal processes and efforts of the organism to regain normal state

Active pathology disease
- Anatomical, physiological, mental, or emotional abnormalities or loss

Impairment
- Limitation in performance at the level of the whole organism or person

Functional limitation
- Limitation in performance of socially defined roles and tasks within a sociocultural and physical environment

Adapted from Verbrugge and Jette

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Meta-analysis of preventive home visits 2010

Preventive home visits
21 randomised controlled trials

Outcomes (OR)
death 0.92, 0.80 – 1.05
nursing home admission 0.86, 0.68 – 1.10
functional status decline 0.89, 0.77 – 1.03

Significant heterogeneity

Huss A et al. JGMS 2008
Conclusion: Meta-analysis preventive home visits 2010

Heterogeneity among trials

Criteria for favorable effect
- multidimensional approach including medical component
- long-term intervention
- persons initially not disabled

If criteria are met: Potential is one third reduction of nursing home admission

Conclusions based on subgroup analyses

Huss A et al. JGMS 2008
Meta-analysis preventive home visits
2013 Conclusions: Effects of Preventive Home Visits

Home visiting is not consistently associated with differences in mortality or independent living.

we cannot exclude the possibility that some programs may be effective.

Preventive Home Visits for Mortality, Morbidity, and Institutionalization in Older Adults: A Systematic Review and Meta-Analysis Evan Mayo-Wilson et al., PLOS one

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Differences between home visitation programs

Program characteristic
- Personnel
  - Type of personnel
  - Training of personnel
  - Quantity of personnel
- Organization of Visits
  - Number, duration
  - Costs of visits
- Diagnostic and action part of visit
  - Content (defined by program, implemented by visitor)

Characteristics of older persons
- Responders, non responders
- Inclusionary, exclusionary criteria

Integration in health care system
- Level of integration in primary care
**HRA-O**  
(Health Risk Appraisal for Older People)

- Identification of modifiable risk factors for disability
- Recommendations for risk factor modification
- Takes into account multiple risk factors and context
- Literature review of risk factors for functional decline
HRA-O
(Health Risk Appraisal for Older People)

- Literature review of risk factors for functional decline
- Criteria for selection of HRA domains
- Criteria for selection items measuring domains
- Identification of domains and survey items
- Prototype, focus group
- Pilot version, software development, testing
- Extensive field testing, updating
Principle of HRA-O

- Older person: Completion of self-administered HRA-O questionnaire
- Data center: Data entry of completed HRA-O questionnaire
  - Software-based generation of participant and provider report
- Older person: Receipt of individualized participant report
- Older person's primary care physician and nurse counselor: Receipt of individualized provider report
## Domains of HRA-O

- Physical Activity
- Nutrition
- Injury Prevention
- Smoking
- Alcohol Use
- Self-Perception of Health
- Medical Conditions
- Preventive Care
- Medications
- Signs and Symptoms (of possible adverse drug reactions)

- Geriatric Syndromes
  - bladder control
  - memory
- Depression
- Vision, hearing
- Oral health
- Pain
- Functional Status
- Psychosocial Health, Social Support/Network
- Occupation, Retirement
- Demographic Information
Use of HRA-O in PRO-AGE study

Funded by European Union (Fifth Framework Program)

Randomised controlled study of effects of HRA-O based interventions on preventive care use and health behaviour:
- London, UK (N=2503)
- Hamburg, Germany (N=2580)
- Solothurn, Switzerland (N=2284)

And on long-term mortality
Solothurn, Switzerland (N=2284)
## HRA-O Base-line Findings

### Self-Reported Preventive Care

<table>
<thead>
<tr>
<th>Did NOT have:</th>
<th>London (n = 816)</th>
<th>Hamburg (n = 797)</th>
<th>Solothurn (n = 655)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood pressure measure: %</td>
<td>16.4</td>
<td>2.5</td>
<td>5.0</td>
</tr>
<tr>
<td>Cholesterol measurement: %</td>
<td>48.2</td>
<td>7.7</td>
<td>25.5</td>
</tr>
<tr>
<td>Colon cancer screening: %</td>
<td>92.4</td>
<td>37.7</td>
<td>68.0</td>
</tr>
<tr>
<td>Mammography: %</td>
<td>80.1</td>
<td></td>
<td>76.9</td>
</tr>
<tr>
<td>Cervical pap smear: %</td>
<td>89.5</td>
<td>36.7</td>
<td>60.8</td>
</tr>
<tr>
<td>Dental checkup: %</td>
<td>27.6</td>
<td>17.3</td>
<td>40.3</td>
</tr>
<tr>
<td>Vision checkup: %</td>
<td>35.8</td>
<td>28.0</td>
<td>36.7</td>
</tr>
<tr>
<td>Hearing checkup: %</td>
<td>85.1</td>
<td>63.8</td>
<td>66.1</td>
</tr>
<tr>
<td>Influenza vaccination: %</td>
<td>17.6</td>
<td>40.9</td>
<td>53.8</td>
</tr>
<tr>
<td>Pneumococcal vaccination: %</td>
<td>76.4</td>
<td>89.7</td>
<td>92.2</td>
</tr>
</tbody>
</table>

Stuck et al, BMC Research Methods, 2008
<table>
<thead>
<tr>
<th>Health Behaviour</th>
<th>London (n = 816)</th>
<th>Hamburg (n = 797)</th>
<th>Solothurn (n = 655)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low physical activity: %</td>
<td>90.7</td>
<td>80.1</td>
<td>88.4</td>
</tr>
<tr>
<td>Consumption of high fat foods: %</td>
<td>76.1</td>
<td>35.1</td>
<td>55.7</td>
</tr>
<tr>
<td>Consumption low fiber diet:</td>
<td>61.1</td>
<td>81.2</td>
<td>74.8</td>
</tr>
<tr>
<td>Tobacco use: %</td>
<td>11.2</td>
<td>13.1</td>
<td>13.3</td>
</tr>
<tr>
<td>Possible hazardous alcohol use: %</td>
<td>20.4</td>
<td>18.8</td>
<td>14.1</td>
</tr>
<tr>
<td>Overweight: %</td>
<td>32.9</td>
<td>41.0</td>
<td>52.9</td>
</tr>
</tbody>
</table>

HRA-O Base-line Findings

Stuck et al, BMC Research Methods, 2008

Andreas Stuck, Pathways in Geriatric Care, March 26, 2014
HRA-O combined with group sessions (Hamburg, N=2580)

Intervention group participation
- 66% HRA-O plus group session (or home visits)
- 26% HRA-O only
- 8% did not participate

Effects on preventive care services ↑
- e.g. influenza vaccination: OR 1.7 (1.4-2.1)

Effects on health behaviour ↑
- e.g. high fruit/fiber intake: OR 2.0 (1.6 – 2.6)
HRA-O combined with home visits (Solothurn, N=2284)

Effects on preventive care services at two years
Evidence for improvement

Effects on health behaviour at two years
Evidence for improvement

Long-term effects on mortality
Analyses ongoing
PRO-AGE: HRA-O randomised controlled studies: What we learned

Self-administered tool is feasible; acceptance among older persons and general practitioners

Effects of HRA-O combined with reinforcement (home visits/group sessions): improvement of uptake of preventive care and favourable change in health behaviour

Long-term effect on survival: ongoing analysis
Common Principles of Primary Care-Based and Hospital-Based Interventions

1. Assessment: selection of domains
2. Assessment: selection of instrument
3. Intervention: definition of intervention goal
4. Intervention: implementation of intervention
5. Long-term follow-up
# Hypertension: Awareness

<table>
<thead>
<tr>
<th></th>
<th>1976</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>51%</td>
<td>70%</td>
</tr>
<tr>
<td>Treatment</td>
<td>31%</td>
<td>59%</td>
</tr>
<tr>
<td>Control</td>
<td>10%</td>
<td>34%</td>
</tr>
</tbody>
</table>

JNC 7 Report

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Diastolic Blood Pressure and Adverse Outcomes
(first occurrence of all-cause death, nonfatal myocardial infarction, or nonfatal stroke)

Evidence for increased risk if diastolic blood pressure > 90 mm Hg or < 70 mm Hg

-> Importance of control of hypertension
But avoidance of over-treatment (diastolic hypotension/orthostatic problems)
Blood Pressure

Evidence that blood pressure is measured in most older people

Evidence for the following problems that should be avoided:
- Uncontrolled hypertension (under-treatment)
- Over-treatment of hypertension (hypotension, ortho-stasis)

Effective preventive programs should address hypertension
- If programs address both problems, this might contribute to favorable outcomes (e.g., less strokes, lower mortality)
- However, programs might cause harm if they lead to overtreatment of hypertension
# HRA-O Base-line Findings

## S-r reasons for not increasing PA

<table>
<thead>
<tr>
<th>Reason</th>
<th>London (n = 816)</th>
<th>Hamburg (n = 797)</th>
<th>Solothurn (n = 655)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-r enough exercise: %</td>
<td>36.2</td>
<td>47.7</td>
<td>63.2</td>
</tr>
<tr>
<td>Physical limitation: %</td>
<td>22.0</td>
<td>14.3</td>
<td>6.7</td>
</tr>
<tr>
<td>No time: %</td>
<td>18.8</td>
<td>25.7</td>
<td>16.8</td>
</tr>
<tr>
<td>Illness: %</td>
<td>11.5</td>
<td>25.9</td>
<td>13.2</td>
</tr>
<tr>
<td>No one to exercise with: %</td>
<td>5.8</td>
<td>8.4</td>
<td>4.4</td>
</tr>
<tr>
<td>Nowhere to exercise: %</td>
<td>1.9</td>
<td>8.7</td>
<td>4.8</td>
</tr>
</tbody>
</table>

Stuck et al, BMC Research Methods, 2008
Physical activity

Evidence that the majority of older people is not aware that they do not have optimal level of physical activity

A minority of patients limits activity due to pain or other physical conditions.

Effective interventions address

- Awareness of physical activity goals among older people
- Address pain/physical conditions in order to enable older people to do more exercise
Emergency Department Detection of Delirium

Clinicians

Sensitivity: 35%
Specificity: 98%

(N=447 patients
Prevalence of delirium 9.4%)
Cognition in Emergency Departments

Problem

Often lack of systematic screening for cognitive dysfunction among older people admitted to emergency department

If detected, need for effective intervention.
### Groups of Older Persons with Different Approaches for Disability Prevention

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Approach Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
<td>PCP-based annual checks with reinforcement</td>
</tr>
<tr>
<td>Medium Risk</td>
<td>PCP-based care management</td>
</tr>
<tr>
<td>High Risk</td>
<td>Hospital-based interventions (acute, rehabilitation)</td>
</tr>
</tbody>
</table>
Potential New Ingredients for Effective Interventions

- Improved technology for risk assessment
- New insights on effective single risk factor intervention
- Use of information technology to support complex interventions