Making the economic case for rehabilitation and understanding the costs of inaction

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Rehabilitation 2030 – A Call to Action
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An overview

• Economics and rehabilitation

• Examples of the economic case

• Intersectoral actions for rehabilitation

• How to strengthen the economic case
Four key economic questions to inform decision making

- **The costs of inaction**: What are the economic consequences of not investing in rehabilitation?

- **The costs of action**: What would it cost to intervene with rehabilitation?

- **The cost-effectiveness of action**: What is the balance between cost of rehabilitation and better outcomes, e.g. functional status, health status, quality of life, employment, educational performance etc?

- **Financial and other incentives**: What financial and other incentives can encourage increased use of rehabilitation interventions that are thought to be cost effective?
Understanding the cost
Determining the impact of not taking action

- What is meant by not taking action will differ in different contexts and settings
  - No investment in rehabilitation?
  - Providing an inferior form of rehabilitation than is optimal?
  - Providing access to rehabilitation at an earlier time point?
  - Differences in the duration of rehabilitation?
  - Scale of coverage of rehabilitation in a country?
Direct costs of health issues

• Costs incurred by health care systems associated with poor health. Medical costs of dealing with health condition, long term care, managing complications and issues such as psychological health.

• Costs incurred to other sectors: e.g. maybe impacts falling on local and central government related to rehabilitation and recovery, social care, aids and adaptations, support for participation in employment and education etc.

• Direct costs are usually of most immediate interest to policy makers.
Other indirect costs

- Exclusion from the labour and consumption markets, premature death, reduced opportunities within employment and education, need to provide informal care

- Adverse impacts of discrimination, stigmatisation, pain, poor quality of life
Australian lifetime costs: tetraplegia

- Quality of Life: 37%
- Health System: 6%
- Aids and Modifications: 9%
- Long Term Care Costs: 39%
- Productivity Costs: 3%
- Carer Costs: 5%
- Administration of Welfare Benefits: 1%

Access Economics 2009

$AUS 1.288 billion = £690 million
£5.11 million per case
£203,383 per year
£UK 2014 prices
Making an economic case
Economic evaluation

The **effectiveness** question:
Does this intervention work?

The **economic** question:
Is it worth it?
Two Basic Needs: (A) Costs and Outcomes; (B) 2+ Alternatives

- Costs for rehab intervention Z
  - Outcomes (e.g. Quality of Life Years (QALYs), Functioning for intervention Z)

- Costs for Intervention X (or no rehab at all)
  - Outcomes (e.g. Quality of Life Years (QALYs), Functioning for intervention X)
Examples of the economic case
Rapid review on potential economic impacts of rehabilitation

- Studies mainly in high income countries

- Difficult to always determine what is rehabilitation - term not usually used.

- Impacts on health care systems, sometimes other sectors e.g. education, workplace, impacts on families etc

- Lack of consistency in methods used to estimate costs

- An established literature on the economic benefits of some areas of rehabilitation, driven by technology
Inconsistent methodology but identified a number of cost effective actions for different conditions
Cardiac rehabilitation in low- and middle-income countries: a review on cost and cost-effectiveness

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Background: By 2030, more than 80% of cardiovascular disease-related deaths and disability-adjusted life years will occur in the 139 low- and middle-income (LMIC) countries. Cardiac rehabilitation (CR) has been demonstrated to be effective and cost-effective mainly based on data from high-income countries. The purpose of this paper was to review the literature for cost and cost-effectiveness data on CR in LMICs.

Methods: MEDLINE (Ovid) and EMBASE (Ovid) electronic databases were searched for CR ‘cost’ and ‘cost-effectiveness’ data in LMICs.

Results: Five CR publications with cost and cost-effectiveness data from middle-income countries were identified with none from low-income countries. Studies from Brazil demonstrated mean monthly savings of US$190 for CR, with a US$48 increase in a control group with mean costs of US$503 for a 3-month CR program. Mean costs to the public health care system of US$360 and US$540 when paid out-of-pocket were reported for a 3-month CR program in seven Latin American middle-income countries. Cardiac rehabilitation is reported to be cost-effective in both Brazil and Colombia.

Conclusions: Cardiac rehabilitation for patients with heart failure in Brazil and Colombia was estimated to be cost-effective. However, given the limited health care budgets in many LMICs, affordable CR models will need to be developed for LMICs, particularly for low-income countries.

Keywords: Cardiac rehabilitation, Cardiovascular disease, Cost, Cost-effectiveness, Low-income country, Middle-income country
Evidence for the long term cost effectiveness of home care reablement programs

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Background: The objectives of this study were to determine whether older individuals who participated in a reablement (restorative) program rather than immediately receiving conventional home care services had a reduced need for ongoing support and lower home care costs over the next 57 months (nearly 5 years).

Materials and methods: Data linkage was used to examine retrospectively the service records of older individuals who had received a reablement service versus a conventional home care service to ascertain their use of home care services over time.

Results: Individuals who had received a reablement service were less likely to use a personal care service throughout the follow-up period or any other type of home care over the next 3 years. This reduced use of home care services was associated with median cost savings per person of approximately AU $12,500 over nearly 5 years.

Conclusion: The inclusion of reablement as the starting point for individuals referred for home care within Australia’s reformed aged care system could increase the system’s cost effectiveness and ensure that all older Australians have the opportunity to maximize their independence as they age.

Keywords: restorative, older adults, community dwelling, service costs
Reablement: Long term returns

Importance of time horizon to economic case for investment

Figure 3 Median cumulative cost of all home care services received by different service recipients.

Notes: *Adjusted for death, age, sex, living arrangement, having carer, dependency level, and requiring previous service. Australian dollars as adjusted median at different time points.

Abbreviations: HACC, Home and Community Care; HIP, Home Independence Program; PEP, Personal Enablement Program.

Lewin et al 2013
Impact of device cost: Cochlear Implants

CI Cost-Effectiveness with Discounted Device Cost

FIG. 1. Variation in CER/GDP with discounted device cost by country. Maximum device cost that achieves WHO cost-effectiveness criteria of CER/GDP less than 3 is $22,000 in Kenya, $10,000 in Rwanda, $8,500 in Uganda, and $1,100 in Malawi. Cochlear implantation is cost effective at all device costs in South Africa and Nigeria. GDP represents 2012 GDP per capita in international dollars.
Cost effectiveness of fall prevention

• Studies point to cost effectiveness of exercise-based programmes for fall prevention

• But need to be careful again in interpretation

• Have appropriate outcome measures been used
Group exercise for People Living with Parkinson’s Disease

Suggested to be cost effective per fall avoided but secondary outcome measure cost per QALY over $338,000 gained

Has a very high chance of being cost saving with increased QALYs

Farag et al 2016 Movement Disorders
Self-management /self-treatment

- Consistent high income country evidence that self-management helpful for Chronic Obstructive Pulmonary Disorder

- Self-management education / self treatment education can be low cost actions to support rehabilitation

- Potential to explore cost effectiveness in more LMIC settings
## Table 4
Mean costs (€) per patient over 2 years in patients participating in a self-management programme with and without self-treatment

<table>
<thead>
<tr>
<th></th>
<th>Self-treatment</th>
<th>Control</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-management course</td>
<td>121</td>
<td>114</td>
<td>7</td>
</tr>
<tr>
<td>Health-care contacts†</td>
<td>551</td>
<td>844</td>
<td>-293</td>
</tr>
<tr>
<td>Patients with an exacerbation</td>
<td>574 (94.3%)</td>
<td>893 (90.3%)</td>
<td></td>
</tr>
<tr>
<td>Patients without an exacerbation</td>
<td>170 (5.7%)</td>
<td>388 (9.7%)</td>
<td></td>
</tr>
<tr>
<td>Hospital admissions</td>
<td>2714</td>
<td>3554</td>
<td>-840</td>
</tr>
<tr>
<td>General respiratory medication</td>
<td>1391</td>
<td>1358</td>
<td>33</td>
</tr>
<tr>
<td>Medication for exacerbation</td>
<td>79</td>
<td>64</td>
<td>15</td>
</tr>
<tr>
<td>Total costs</td>
<td>4856</td>
<td>5934</td>
<td>-1078</td>
</tr>
</tbody>
</table>

†Includes respiratory physician (telephone) and general practitioner consultations, and emergency department visits.
Specialist rehabilitation can be highly cost-efficient for all neurological conditions, producing substantial savings in ongoing care costs, especially in high-dependency patients.
Considering different measures around the economic case: time until costs of rehabilitation offset.
Rehabilitation: the intersectoral perspective
Intersectoral delivery of rehabilitation

• Not all rehabilitation will be delivered within the health system

• Allied health professionals e.g. occupational therapists not always employed by health system; social care may be separate from health care

• E.g. School health services may be responsibility of school or education ministry - important e.g. costs of special needs schools

• Implications for how the case for investment made
<table>
<thead>
<tr>
<th><strong>Barrier</strong></th>
<th><strong>Facilitator</strong></th>
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<tbody>
<tr>
<td>Fragmented and cross sectoral responsibility for rehabilitation implementation</td>
<td>Develop shared policy goals and implementation strategies</td>
</tr>
<tr>
<td>Building and supporting partnerships across sectors</td>
<td></td>
</tr>
<tr>
<td>Fragmented &amp; cross sectoral responsibility for funding rehabilitation</td>
<td>Creating dedicated cross-sectoral funding streams for rehabilitation?</td>
</tr>
<tr>
<td>Limited incentives for non-health sector to invest in rehabilitation</td>
<td>Identify benefits and costs to different sectors of rehabilitation</td>
</tr>
<tr>
<td>Lack of awareness of importance of rehabilitation in other sectors</td>
<td>Capacity building actions in sectors</td>
</tr>
<tr>
<td>Lack of evidence on effective actions and implementation</td>
<td>Measures to strengthen evidence base</td>
</tr>
</tbody>
</table>
PART 2 - DELAYED DISCHARGES.

“Nearly every discharge is a struggle for care providers. There is a long waiting time for referrals to be assessed round community teams within area leading to delays in vital assessments.”

(Submitted by SCI Centre, Salisbury)

Sheffield SCI Centre submitted evidence based on discharges over the previous six months for non-ventilator dependent patients with SCI and over 18 months for patients with SCI requiring ventilation. The mean delay in discharge for a non-ventilated patient was 85 days representing an additional cost burden of £47,090.

£47,000 = Annual salary of two nurses, Band 5/6
Challenges in making the economic case
### Challenges in determining benefits and costs

<table>
<thead>
<tr>
<th>Issue</th>
<th>Challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demand &amp; Supply</td>
<td>Identifying need; taking account of resources to address need, especially in LMICs</td>
</tr>
<tr>
<td>Understanding the costs of health issue</td>
<td>May be very little evidence on costs of health issues in many different country contexts</td>
</tr>
<tr>
<td>Understanding what is counterfactual to rehabilitation</td>
<td>Providing an inferior form of rehabilitation than is optimal? Providing access to rehabilitation at an earlier time point? Differences in the duration of rehabilitation? Scale of coverage of rehabilitation in a country?</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>Defining and quantifying resources used and costs of rehabilitation</td>
</tr>
<tr>
<td>Impacts</td>
<td>Capturing all relevant impacts within and beyond health systems e.g. measures of functioning</td>
</tr>
<tr>
<td>Understanding financial flows</td>
<td>Which budget holders and/or sectors will pay for rehabilitation and how will this influence arguments</td>
</tr>
</tbody>
</table>

*And of course need evidence on effectiveness!*
Strengthening the economic case
Strengthening the case

• Important to look to see how Health Information Systems can be strengthened; understand what status quo on rehabilitation is

• Major gaps not only in LMICs but everywhere

• Evaluated low cost rehabilitation measures that may be affordable in different contexts

• Modelling the potential longer term return on investment and cost effectiveness of rehabilitation in different country contexts; including costs & benefits outside health sector

• Understanding how health system interacts (or could interact) with other sectors to deliver rehabilitation and use economic incentive to encourage collaboration