

Assistive Technology

A part of the rehabilitation solution
Do you have the “evidence based” justification for AT?

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Why assistive technology?

Assistive Technology (AT) includes a wide range of technological devices that either compensate for or give an alternative to a user's impaired function. Assistive technology systems, nested within environmental interventions (EI), form a technology continuum that enables people with profound disabilities to actively participate in society.

An ongoing challenge is that many overlook the critical role that AT plays in achieving the best outcomes. Smith et al (2004) noted that the best outcomes are achieved through a number of interventions (see figure, right). Thus medical approaches focused on reducing or compensating for the impairment should be seen a just part of the arsenal needed to achieve an individual's goals.



Nearly 60% of all prescribed or issued assistive technology is abandoned. This is a substantial financial and social loss.



Many users are not in a position to abandon their equipment, but are they satisfied with its performance and does it perform optimally?

Intervention approaches



An Australian case example based on two clients with spinal cord injury



Sub-optimal AT system implementation

- rehabilitation
- adequate AT, minimal EI, minimal personal care
- readmissions for skin and shoulder issues
- decreasing endurance and independence over time
- residential care
- care costs plus inability to work
- disposable income below pension

= impoverished occupational opportunities and failure to accomplish life tasks

Optimal AT system solution

- targeted and ongoing rehabilitation
- optimal AT-EI plus personal care
- establishes full independence over time
- works full-time, play sport, drives with hand controls
- travels internationally to accessible destinations

= normal occupational opportunity



The Australian ‘Fremantle Collaboration’

In 2006, in response to perceived issues with the provision of assistive technology to people with disabilities in Australia, academics and practitioners representing three disciplines reviewed the evidence base relating to assistive technology for people with disabilities. By 2007, this informal research group had become international and expanded to encompass six disciplines.

The ‘Fremantle Collaboration’ represents a significant opportunity to take a broad perspective on this important field of rehabilitation intervention, with a particular emphasis on sound economics.

The group has defined 8 ‘example’ clients to represent the different users entering the Australian rehabilitation sector. The work is focusing on the economics of:

- assistive technology for the end users
- the value of professional assessment and provision of AT
- the importance of research, development and engineering/technical input into customised and new AT.

A workshop in late May 2007 will build the case for an ARC Linkage proposal. Key international researchers in the field are expected to visit Australia to work with the team in the next six months.

Current Fremantle Collaboration Disciplines

- occupational therapy
- sociology
- medicine
- psychology
- rehabilitation engineering
- economics

An international tool to capture the economic costs of AT

‘Siva Cost Analysis Instrument’ (SCAI) compares the additional social costs of alternative solutions over time, including investment, maintenance services and assistance.

Four AT solutions	Wall-mounted stair climber	Mobile stair climber - attendant operated	Vertical conveyer	Just two attendants
Purchase price (€)	7,747	3,718	13,686	30h/month
Additional social cost - 10 years (€)	12,102	41,450	8,640	67,733

From Andrich, R (2002) The SCAI instrument: Measuring costs of individual assistive technology programmes. Technology and Disability 14; 95-99.

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