Introducing Assistive Technology into the Homes of Older People

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Housing Partners

- Brighton and Hove City Council
- London Borough of Hammersmith and Fulham
- City of Nottingham
- Reading Borough Council
- Redditch Borough Council
- Anchor Housing Trust
- Edinvar Housing Association
- Home Housing Association
- Kerrier Homes Trust
- London and Quadrant Housing Trust
- Court Housing Association*
- James Butcher Housing Association*

* = pilot studies
Contents of To-day’s Presentation

- The Investigation
- A Cost Perspective – will AT pay its way?
- Adapting Properties
- Issues for the Occupational Therapists
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Our investigation
main issues for today are in **bold**

- How far and at what cost can we adapt the existing homes of older people, so they can remain in them?
- How far can the costs of adaptations and AT offset care costs?
- *What type of adaptations are feasible and what AT equipment is available?*
- *What do older people value and expect?*
- *What does this mean for Housing Providers, Other Agencies and Services?*
- What does this mean for Occupational Therapists?
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Background

◆ Characteristics of Older People

◆ What is Assistive Technology?

◆ Note: The study is concerned with:
  ➔ people aged 70+ but of course AT can be provided earlier sometimes as a preventative service
  ➔ social housing although some lessons are likely to be useful for owner-occupiers
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**Older People: Life Expectancy - years**

*Housing is for the longer term*

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>65-69</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>70-74</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>75-79</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>80-84</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>85+</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Population projections 2001-2026:
- Aged 70 and over, from 6.8m to 9.5m - 40% increase
- Aged 80 and over, from 2.5m to 3.7m – 48% increase

Sources: Prophet, 1998 & Government Actuary’s Dept, 2002
### Extent of Need

*Estimated percentage of disabled men and women and housing tenure, GB 1996/7*

*Many older people are disabled*

<table>
<thead>
<tr>
<th></th>
<th>Aged 70-79</th>
<th>Aged 80+</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>All</td>
<td>47%</td>
<td>47%</td>
</tr>
<tr>
<td>Social Renting</td>
<td>57%</td>
<td>57%</td>
</tr>
</tbody>
</table>
### Use and reported need for AT

**GB, 1996/7**

*The needs of many older people are not met*

<table>
<thead>
<tr>
<th>AT</th>
<th>Moderate disability</th>
<th>Severe disability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Using %</td>
<td>Reporting need %</td>
</tr>
<tr>
<td>Furniture</td>
<td>28</td>
<td>12</td>
</tr>
<tr>
<td>Gadgets</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td>Adaptations</td>
<td>28</td>
<td>19</td>
</tr>
</tbody>
</table>

Source: Disability Follow-Up to 1996/7 Family Resources Survey
What is Assistive Technology?
Examples of what we have considered

- Wheelchairs, scooter
- Walking frames, stick
- Ramps, door modifications
- Window & curtain openers
- Intercoms, amplifiers
- Stairlift, through floor lift
- Hoists
- Grab rails
- Alarms
- Lighting, décor

- Electric curtain openers
- Height adapted kitchen
- Height adjusted cupboards
- Aids for daily living
- Special furniture
- Bathroom adaptations and accessories
- Kitchen adaptations and accessories
- Dressing aids
- Environmental control systems
Q: How far and at what cost can we adapt the existing homes of older people, so they can remain in them?

- It all depends on what adaptations and AT are required!
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### Adaptable Homes - Proportions and Costs

<table>
<thead>
<tr>
<th>Needs</th>
<th>One Storey %</th>
<th>Ave Cost £</th>
<th>Two Storey %</th>
<th>Ave Cost £</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>100</td>
<td>175</td>
<td>100</td>
<td>325</td>
</tr>
<tr>
<td>+Stairlift or improved communal lift</td>
<td>95</td>
<td>2250</td>
<td>96</td>
<td>5250</td>
</tr>
<tr>
<td>+W/chair Access, Horiz. Circulation Shower</td>
<td>89</td>
<td>7000</td>
<td>83</td>
<td>12000</td>
</tr>
<tr>
<td>+Vert Lift, W/Ch Bathroom, Hoists</td>
<td>61</td>
<td>12000</td>
<td>31</td>
<td>22000</td>
</tr>
</tbody>
</table>
Some Questions

◆ Qu: How far can the adaptations and AT replace Formal Care?

◆ Qu: How far can the costs of adaptations and AT offset the care costs?
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Care Costs versus Adaptation and AT Costs

◆ Care Packages
  → Personal Home Care
  → Domestic Home Care
  → Day Care
  → Community Nursing
  → Meals
  → Informal carers
    ● No carer at all
    ● Non-resident
    ● Co-resident

◆ Adaptations and Fixed AT
  → First Cost
  → Maintenance Cost
  → Design Life
  → Recovery Value
  → Replacement Cost

◆ Portable AT
  → First Cost
  → Maintenance Cost
  → Design Life
  → Replacement Cost
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Care Packages

- **7 User Profiles**
  - (14 scenarios)
  - Time 1 – current
  - Time 2 – future
    - Five years later

- **Care Ingredients**
  - Personal Home Care
  - Domestic Home Care
  - Day Care
  - Community Nursing
  - Meals

- **Full Care Package**
  - if only very basic adaptations and AT are provided
    - Baseline AT

- **Reduced Care Package**
  - if more extensive adaptations are made and AT is supplied
    - Baseline AT
    - Care Reducing AT
    - Good Practice AT
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Levels of AT

◆ Baseline
   ➔ AT that is essential for living at home regardless of what care is provided

◆ Care Reducing
   ➔ AT that reduces the need for care and aids independence 24 hours a day

◆ Good Practice
   ➔ AT that enhances quality of life
Example: Mrs Pool

Mrs Pool (User Profile 3) was diagnosed with *chronic obstructive pulmonary disorder* when she was about 65.

Current. At 75, her breathing became increasingly difficult.

Future. At 80, her mobility has decreased due to *diminished lung function* and a large increase in *weight*. *Degenerative arthritis* has impacted on her other impairments. The overall effect is that activities of daily living are extremely difficult for her.
Mrs Pool: Proposed Care Packages

◆ No informal care

◆ Current:
  ➔ Full Care Package:
    ● 3 hours domestic home care a week £1612/year
  ➔ Reduced Care Package:
    ● 1 hour domestic home care a week £520/year

◆ Future:
  ➔ Full Care Package:
    ● 5 hours domestic home care a week ) £4940/year
    ● 1 day a week day care )
  ➔ Reduced Care Package:
    ● 2 hours domestic home care a week ) £2548/year
    ● 1 day a week day care )
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Mrs Pool: Proposed Portable AT

◆ Current
  ➔ Scooter
  ➔ Dressing aids
  ➔ Electric tin opener
  ➔ Grabber
  ➔ Jar opener
  ➔ Perching stool
  ➔ Smoke alarm

◆ Future
  ➔ Scooter
  Manual wheelchair
  Portable shower seat
  ➔ Dressing aids
  ➔ Variable posture bed
  ➔ Electric tin opener
  ➔ Grabber
  ➔ Jar opener
  ➔ Perching stool
  ➔ Riser/recliner chair
  ➔ Smoke alarm

◆ Total
    Baseline: £2000
    Care Reducing: -
    Good Practice: £242

◆ Total
    Baseline: £2520
    Care Reducing: £1120
    Good Practice: £1122
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Mrs Pool: Proposed Fixed AT

**Current**
- Lever door handles throughout
- External lighting, external door release, intercom
- Grab rails
- Communal lift
- Stairlift
- Scooter storage
- Level access shower, fixed seat & rails
- Toilet grab rails
- Heating in bathroom and bedroom
- Thermostatic controls
- Additional sockets, alarms etc

**Future – additional to current**
- External and internal door width & thresholds
- Ramp & rails or short rise platform
- Corridor width
- Wheelchair storage
- Toilet frame
- Adapted taps
- Partially adapted kitchen
- Remote electric window openers
- Rocker switches, raised sockets, lowered switches

Also divided into

Baseline
Care Reducing
Good Practice
## Cost of Proposed Adaptations and Fixed AT

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Care Reducing</th>
<th>Good Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average Cost of</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Adaptations and Fixed AT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Period</td>
<td>£6360</td>
<td>£183</td>
<td>£1099</td>
</tr>
<tr>
<td>Future Period</td>
<td>£5038</td>
<td>£3320</td>
<td>£1718</td>
</tr>
</tbody>
</table>

**Current - Number of Adaptable Properties**
77

**Future – Number of Adaptable Properties**
72

**Total Sample**
82
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How the Costs are incurred

PV costs 3.5% discount rate

Mrs Pool
Full Care and Baseline AT
Reduced Care and Baseline and Care Reducing AT
Reduced Care and Baseline, Care Reducing and Good Practice AT

Annual PV Cost (average property cost)
What are the savings and shortfalls?

Mrs Pool
Reduced Care and Baseline and Care Reducing AT
Reduced Care and Baseline, Care Reducing and Good Practice AT
(cumulative savings compared with Full Care and Baseline AT - £ PV cost)

Reduced Life Expectancy – 8.7 years, Life Expectancy – 11.6 years
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Impact of Care Reducing AT on savings

More Examples

Total Savings and Shortfalls – Cumulative £PV
Reduced Care and Baseline and Care Reducing AT versus Full Care and Baseline AT

Rosemary Russet  Polly Whitehair  Bess Pool  Millicent Barnes  Tom Putt
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Impact of Good Practice AT on Savings

More Examples

Total Savings and Shortfalls - Cumulative £ PV
Reduced Care and Full AT versus Full Care and Baseline AT

£

-50000 -25000 0 25000 50000

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

year

Rosemary Russet  Polly Whitehair  Bess Pool  Millicent Barnes  Tom Putt
Breakeven Point

- Baseline and Care Reducing AT plus Reduced Care v Full Care and Baseline AT
  - in most cases (12 out of 13) savings are achieved even with reduced (75%) life expectancy

- Full AT and Reduced Care v Full Care and Baseline AT
  - in most cases (12 out of 13) savings are achieved with average life expectancy
  - in half cases (6 out of 13) savings are achieved with reduced life expectancy
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#### So much for averages
what about actual properties?

Cost of Proposed Adaptations and Fixed AT

**Mrs Pool: Average Costs for five groups of properties**

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Houses</th>
<th>Bungalows</th>
<th>Ground floor flats</th>
<th>Upper floor flats</th>
<th>Other</th>
<th>Max</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Adaptable</td>
<td>77</td>
<td>15</td>
<td>14</td>
<td>19</td>
<td>20</td>
<td></td>
<td>9</td>
<td>443</td>
</tr>
<tr>
<td>Future</td>
<td>72</td>
<td>12</td>
<td>14</td>
<td>19</td>
<td>20</td>
<td></td>
<td>7</td>
<td>1026</td>
</tr>
<tr>
<td><strong>Total Sample</strong></td>
<td>82</td>
<td>15</td>
<td>14</td>
<td>19</td>
<td>21</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Good Practice</strong></td>
<td>8</td>
<td>11</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>12</td>
<td>&gt;20</td>
<td>5</td>
</tr>
</tbody>
</table>
Summary: Costs

- On average:
  - Only in the short term does a traditional Full Care and Baseline AT package pay its way
  - Care Reducing AT pays its way - can lead to significant savings in care costs even in the shorter term
  - Good Practice AT also pays its way - in the medium term
    - and it improves quality of life and can be funded from savings in formal care costs
  - The most pessimistic view is that the costs of a) “traditional packages” and b) modern Full AT plus Reduced Care packages are the same
  - However, the findings are much more positive than this

- Variations in costs can be considerable:
  - Depends on the property as well as the needs of the user
  - Many properties where savings can be made for all user needs
  - Some are very expensive to adapt even to meet simple needs
A Question

◆ Qu: How far can we adapt and add AT to the home so individuals can remain in their own homes?
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Types of Property: Houses
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Types of Property: Flats
Adapting Properties

- **Design Criteria**
  - Difficult to apply Lifetime Homes Standards, Housing Corporation Standards etc to existing properties
  - Need a pragmatic “Safety First” usability approach where ideal is not possible

- **Main Cost issues**
  - Mobility issues, wheelchair accessibility is major challenge
  - Structural alterations cost far more than installation of novel hi-tech equipment
Indicators for adaptability

- accommodation on one level - no vertical circulation
- spacious layout with rooms separately approached from hall/landing
- internal stud partitions & timber floors
- communal entrances
- large bathrooms (or space to enlarge existing)
- large walk-in cupboards

Examples:
- Two bedrooms or more
- Ground floor flats
- Bungalows
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Large bathroom

Rooms approached from a corridor
Contra-indicators for adaptability

- changes in floor level within the same floor
- small bathrooms and no scope for enlargement
- concrete structures
- restricted accommodation layout

- restricted space around the property - for construction of ramps, scooter storage, extensions etc

Examples:
- Flats with inadequate or no lift
- Bedsits & one bedroom flats
- Maisonettes
- Flats in converted houses (e.g. tall terraced houses)
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Winding staircases and landings

Changes in level
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Flats in converted houses

Minimal entrance hall
### Adaptable Homes - Proportions

<table>
<thead>
<tr>
<th>Needs</th>
<th>One Storey %</th>
<th>Two Storey %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Provision for Safety</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>+ Stairlift or improved communal lift</td>
<td>95</td>
<td>96</td>
</tr>
<tr>
<td>+ Wheelchair Accessible, Horizontal Circulation, Shower</td>
<td>89</td>
<td>83</td>
</tr>
<tr>
<td>+ Vertical Lift, Wheelchair Bathroom, Hoists</td>
<td>61</td>
<td>31</td>
</tr>
</tbody>
</table>
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Adaptability by Type of Property
Adaptability - Summary

◆ General Issues
  ➔ To some extent investment can make poorly flexible properties adaptable but there are limits to what can be achieved

◆ Two Floor properties more expensive than one floor

◆ Properties of the same type differ markedly in their adaptability

◆ Expensive Issues
  ➔ Flats without Lifts or with Inadequate Lifts
  ➔ Own rather than Shared Entrances
  ➔ Concrete Buildings

◆ No Go Areas
  ➔ Flats in Converted Houses
  ➔ Some Maisonettes
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Issues for OTs arising from the research

- Acceptability
- Feasibility
  - AT
  - properties
- Costs
- Outcomes
Older People: Expectations & Acceptability of AT

- **Felt Need** – paramount importance
- **Driving Force** – independence
- **Working Efficiency** – simple & reliable
- **Clear Benefits experienced**
- **Age** – not a factor in attitudes to AT
- **Scope for more AT**
Experience of AT: positive

- Now, if it weren’t for those **bed levers** I wouldn’t be able to turn over on my own. (Mrs Clark, 79)

- I couldn’t use the **taps** before (Mrs Parkinson, 70)

- You see how wonderful the **Window opener** is. (Miss Carr, 81)

- I wouldn’t be without that **shower** (Mrs Knight, 75)

- The **door entry system** is a very good thing (Mrs French, 85)

- The **community alarm** is a Godsend, it is really (Mr Castle, 85)
Experience of AT: negative

- Sometimes the smoke detector is a blessed nuisance....if we put the grill on (Mrs Bradley, 76)

- There is a problem with the community alarm. When they speak to Mrs Joyce it’s not loud enough, and she can’t hear them. (Carer of Mrs Joyce, 86)

- I can’t use the shower stool because I slip off..(Mrs Todd, 75)

- That hoist’s a waste of time, isn’t it (Carer of Mr Bernard, 86).
Acceptability – felt need

- Fits with client-centred practice

- *But* conflict with role of gatekeeper/manager of resources

- Self-assessment
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Feasibility - AT

◆ ‘Conventional’ AT
  - keeping up-to-date with new products & new challenges

◆ Smart technology & telecare
  - need for increased knowledge & understanding
  - involvement in ‘smart’ projects
  - evidence-based research
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Feasibility: properties

Adaptability as a variable of property type

BUT

- not all bungalows & ground floor flats are equally/easily adaptable

- not all designated sheltered properties are very adaptable

- not all purpose-built w/c housing is w/c accessible in every respect
Feasibility: properties

Adaptability as a variable of the design & construction of certain property components

- Classification of properties by adaptability, rather than adaptations provided?

- Classification reflecting more graded mobility impairments
Relevance of assessment of feasibility

◆ For individual tenants/clients
  ➔ Choice
  ➔ “therapist advisor” rather than assessor

◆ For housing providers
  ➔ strategic housing policy
    • renovations/refurbishments
    • new build
Costs & Outcomes

- Use this research as evidence of the cost effectiveness of installing AT
- Be pro-active in seeking out potential sources of AT funding
- Carry out research to quantify the other benefits of AT
Strategic importance of OTs

- Unique position
  - only professionals with expertise in all three areas of older people, housing & AT
    - to advise individuals
    - to advise housing providers
    - to promote greater use of AT
    - to carry out research
THANKS