Factors Affecting the Safe Provision of Home Telehealth Monitoring

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Aim of Project: This Component

ASLaRC Aged Services Unit & Baptist Community Services undertook a study funded by the Australian Dept of Health & Ageing; the study explored acceptance and usage of Telehealth by frail older clients receiving Transition Care at home, and their informal carers. Client safety was a major consideration.

One component of the study investigated the reasons for Telehealth reading failure for study participants, and the relationship between Telehealth reading failure rate and the presence or absence of an informal carer.
Methodology

Participants:
Frail older people being discharged home from hospital & at risk of admission to a Residential Aged Care Facility

Exclusion Criteria included:
Lacks capacity to take daily reading on Telehealth equipment & no carer who could do so; home not suitable for Telehealth equipment

Randomisation: A stratified randomisation of participants to:
a control group which received standard Transition Care; or one of 4 groups which received TC + Telehealth monitoring of their blood pressure, heart rate, oxygen saturations and body weight for a period of 6-12 or 18-24 weeks, with or without a medical alarm pendant.
Baseline Demographics

Eligible subjects invited to participate (N=143)

Subjects who did not participate (n=71)

Subjects enrolled in the study and randomised to groups (n=61)

Carers allocated to same group as participant (N=29)

Clients who completed the study (n=42)

Carers who completed the study (N=19)
Baseline Demographics

<table>
<thead>
<tr>
<th>Client characteristic</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>N=81 (63-99 years)</td>
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<tr>
<td>Gender</td>
<td>38% male</td>
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<tr>
<td>Marital status</td>
<td>48% married</td>
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<tr>
<td></td>
<td>43% widowed</td>
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<tr>
<td></td>
<td>7% divorced</td>
</tr>
<tr>
<td>Living arrangements</td>
<td>43% live alone</td>
</tr>
<tr>
<td></td>
<td>33% live with spouse</td>
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<tr>
<td></td>
<td>23% live with family</td>
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<tr>
<td>Accommodation type</td>
<td>72%</td>
</tr>
<tr>
<td>Receipt of pension</td>
<td>Yes = 73%</td>
</tr>
</tbody>
</table>
Relationship between Client and Carer

- 54% of clients (N=33) had a primary (non-professional carer); of these
  - 36% (n = 12) were husbands of the client
  - 15% (n = 5) wife
  - 36% (n = 12) daughter
  - 13% (n = 4) son

- 38% of clients had a carer who lived with them

- No significant difference between groups according to age, gender, marital status, living arrangements, accommodation type or pension status
Attitudes to Technology

• >50% believed that using Telehealth would:
  – Improve access to regular testing of health condition
  – Make it easier to do regular testing
  – Save time in having regular testing
  – Be useful in doing regular testing
  – Be comfortable to use in own home

• 30–50% believed that Telehealth equipment would:
  – Be easy to learn to operate
  – Be easy to become skilful at
  – Be easy to use
Telehealth Reading Failure Rate

For participants in groups 2-5, daily readings of 4 peripherals were taken for the duration of time clients received Transition Care (average 8 weeks or 160 readings per client) and for an additional 12 weeks post-Transition Care for participants in groups 3 & 5, resulting in 9,715 readings.

There was a 12% Telehealth reading failure rate (N=1,263) across the 31 participants in groups 2-5. Of those, staff not following up missed or incomplete readings accounted for 33%; equipment failure 31%; participant non-compliance 30%; and user error 6%.

There was no significant difference between clients with or without carers for the reading failure rate, or for each failure reason.
Change in Attitude to Technology

• Significant increase in agreement that the Telehealth equipment was easy to learn to operate.

• Other trends not statistically significant but trend towards clients agreeing:
  – Less strongly that Telehealth would improve access to regular testing, make testing easier, save time, be useful;
  – More strongly that interaction with Telehealth was clear and understandable, easy to become skilful, easy to use, comfortable to use in own home.
Carers of Clients

• The majority of carers had a positive attitude to technology at baseline

• Positive feedback from carers:
  - Security and safety
  - Peace of mind
  - Less stress

• Negative feedback from carers:
  - Sometimes didn’t work properly
  - Not always necessary
  - Accuracy an issue
Safety Issues

When the safety of the older person requires high Telehealth reading rate reliability, there are a number of factors to be considered:

1. The current standard of the monitoring equipment is not of a sufficient quality to guarantee safety. (One person in our study was recording a zero pulse rate, even though he was recording a “readable” blood pressure, because the equipment could not detect a pulse rate below 40 beats/min);

2. The presence of an informal carer cannot be assumed to improve Telehealth reading rate reliability;

3. Staff training, and working agreements, must emphasise the need to follow-up every missed reading, and time must be allowed for them to do so.