

Barriers to Technology Adoption: Why is it so hard?

EDRA 42
May 27, 2011
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Funded by: DHHS Office of the Assistant Secretary for Planning and Evaluation and the National Institute on Aging

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Outline

- Organizational Barriers to Adoption
- Individual Barriers by Seniors to Adoption

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Organizational Adoption Issues

- Increasing numbers of people will need long-term care
- Declining number of nurses/caregivers
- Need to control costs

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Method

- Semi-structured interviews to elicit themes from 16 LTC technology experts
 - Technology manufacturers (4)
 - LTC Providers (6)
 - Regulators (3)
 - Researchers (3)
- Tape recorded interviews, 30-45 minutes in duration
- Transcripts coded by two raters within categories of information, regulatory, and financial issues.

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Summary of Themes

- Financial Concerns
- Regulation
- Lack of information
- Challenges of Managing Change

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Themes relating to Lack of Information

- Cost-effectiveness of technologies
- What technologies are available
- Size of long-term care market

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Lack of Information about Cost Effectiveness of Technologies

- Minimum staffing standards

“They [technologies] might save money in other efficiencies, ... but it’s hard to link it directly back to the technology you bought...Somebody should do a study linking the efficiency to cost savings in less tangible areas: medication costs, anti-biotic use, wound care, fall risk.”

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provider

Lack of information about What Technologies are Available

“There is a lack of awareness of what the technology does, what technologies are available, and they it can achieve.”

provider

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Perceived Lack of Financial Resources

- Limited funding to purchase technology
- Concerns about liability/costs
- Lack of reimbursement for technology
- Limited resources to develop useful technologies

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Fear of Total Costs

- It’s not just the cost of the technology
 - Locating technology in the building (environmental modifications)
 - Training (initial and on-going)
 - Upgrading other systems/compatibility

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“You’ve got a lot of companies out there now who [have]... never been involved in health-related areas who are now working on technologies...and [they are] fearful of all the liabilities that [are] associated around health-related activities. We hear that on a regular basis.”

- Average number of claims have tripled in past 10 years
- Average cost of liability insurance increased 200-600% in 10 years

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“There’s an obvious need for technology that can facilitate the quality of care, facilitate productivity, etc. But the real struggle is that there is very little opportunity to fund those initiatives, or fund the analysis to determine what kind of value a given technology might have at the organization, or what kind of outcomes and results that a given project, or a given technology might yield.”

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Regulatory Concerns

- Lack of Standards
- Regulatory Environment Discourages Innovation
- Specific Regulations Inhibit New Technologies

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Regulatory Barriers

“On one of my campuses, I may have a fire system, I may have a nurse call system, I may have a wandering system... four or five independent systems. Each one of those delivers value. But the fact that each delivers value independently from the other is a very, very significant impediment to effectively deploying the full benefit from them.”

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Regulatory Barriers

“Technology is moving so fast that the codes can't keep up.”

regulator

Automatic assistance call systems (using motion sensors) don't meet codes in 28 states that call for manual activation by residents.

Wireless technology only specifically allowed in 2 states (according to NHRRegsPlus).

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Managing Change

- 1) Staffing related challenges
- 2) Managing the process of change

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Staffing related challenges

- Limited technical knowledge
- Discomfort with technology
- Turnover
- Training highly intensive and time consuming
- *“At the end of the day we are more about training and change management than about technology implementation”*

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manufacturer

Managing the Process of Change

- Resistance
“I say technology by itself is pretty simple. [The difficult part is] to get the human side to work with it. It's convincing people it's better for them”
- Leadership
“In order to bring ... a real cutting edge technology into a long-term care facility... you have to have [key] people who are really dedicated ... who really want to make it work...”

provider

provider

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Managing the Process of Change

- Need for technology identified by top management
Provider: *"We're now at a point where the staff is pretty compliant...."*
Interviewer: *"When did you first bring in this technology?"*
Provider: *"About 2 years ago."*
Interviewer: *"And how long would you say it took [to achieve] compliance?"*
Provider: *"About 2 years."*

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Managing the Process of Change

- Need for technology identified by line staff
"We queried [staff] about what they needed related to capturing information"
The provider then piloted an application hoping to get feedback from the staff about what worked and what didn't, thinking that they would then remove the technology until any difficulties were worked out.
"When it came to the end of the pilot ... they refused to give up the application. They said, 'There's no way we're going to give this up. Even ... in its preliminary state, it is such a productivity lift and such an aid and benefit... we don't want to give it up'."

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Successful Strategies for Technology Adoption

- Leadership is crucial, but
- A top-down (Administration → Staff) may not work
 - Higher staff distrust

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Get Staff Involved

- Ask what would make their life easier/job more efficient
- Create a team to
 - Examine current practice
 - Explore options
 - Make a recommendation

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Further Recommendations

- Encourage development of industry standards that cut across technologies
- Explore successful models of technology implementation in LTC settings
- Educate providers about implementation issues

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Individual Acceptance of Technologies

Drawn from the work of
Arthur (Dan) Fisk
Georgia Institute of
Technology



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What can an Aware Home do?

- Recognize crisis
 - Accident, fire, stove left on
- Support everyday cognition
 - Medical monitoring & rehabilitation
 - Memory support
- Provide awareness of daily and long-term trends
- Improve connections with friends & family



How is awareness accomplished?

- Monitoring systems
 - Cameras
 - Sensors
 - Motion detectors
 - RFID
 - Weight
 - Microphones

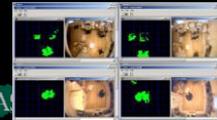


Image Type

- Range of image quality

Potentially recognizable

Highly recognizable



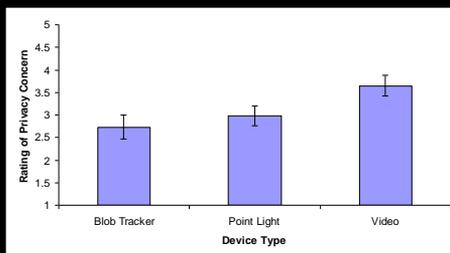
Unrecognizable



Functioning

- Mental Functioning
 - High – easily able to perform IADLs independently
 - Low – difficulty in performing IADLs independently
- Physical Functioning
 - High – easily able to perform ADLs independently
 - Low – difficulty in performing ADLs independently

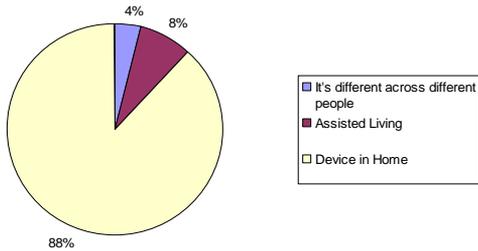
Privacy Issue: "this ... [other] monitoring system provides the most essential information to an external observer without the detail that might be embarrassing... so... giving up the detail eliminates many of the privacy concerns."



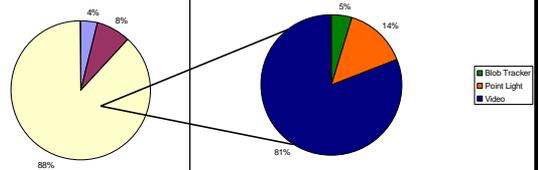
Summary

- Privacy concerns were higher when the type of image that was captured was Full Image ("Video").
- Privacy concerns were lower when the character in the scenario was low on mental functioning.
- Does this mean that people don't want video cameras in their homes?

Choose: Assisted Living or Device in Home



Choice: Device in Home – Which Device?



Individual Adoption

- Desire for Independence AND
- Appearance of Independence
- Explains why home modifications are often hard to get implemented

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