Technology and Aging Module

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Introduction

**Competencies Addressed**

- Assess and address values and biases regarding aging
- Respect and promote older adult clients’ right to dignity and self-determination
- Apply ethical principles to decisions on behalf of all older clients with special attention to those who have limited decisional capacity
- Identify issues related to losses, changes, and transitions over the life cycle in designing interventions
- Identify the availability of resources and resource systems for older adults and their families
- Advocate with and for older adults and their families for building age-friendly community capacity (including the use of technology) and enhancing the contribution of older persons
- Promote use of research (including evidence-based practice) to evaluate and enhance the effectiveness of social work practice and aging-related services

**Objectives**

1. Understand the impact of the digital divide on older adults and on technological innovation
2. Identify a range of technology products and services for social connectivity, mobility, and health and safety monitoring
3. Understand potential concerns and desires of older adults and family members regarding technology-based services
4. Articulate a range of ethical aspects of remote monitoring technologies
5. Understand the importance and challenges of obtaining informed consent for use of remote monitoring technologies in elder care
6. Identify technology-based services that help address isolation and loneliness and identify ways that technology-based services could entrench isolation and loneliness
7. Identify ways in which technology-based health and home care services are changing professional-care work
8. Recognize that older adults’ choices regarding technology use are often meaningful, motivated, and considered, and question dismissive language (e.g., generational incompetence, noncompliance, paranoia, “initial” vs. real resistance)

**Summary**

Among the 43+ million Americans who are older than 64, fewer than 4% live in nursing homes and nearly one in three lives alone (Ortman, Velkoff, & Hogan, 2014; Freedman &
Spillman, 2140; Vespa, Lewis, & Kreider, 2013). Social isolation and problems of accessible transportation are growing concerns, and the need to ensure the safety of older adults living alone in the community is widely recognized. Recent years have seen an influx of accessible, low-cost technologies for emergency alerts, personal health tracking, and remote monitoring. Some of these technologies to support least-restrictive housing are now covered by third-party payers. In this context of a growing aging population and focus on technological solutions, social workers will be in positions to assist in assessment of and referral to these interventions. They will be called on to assess appropriate use of these technologies and will require the tools to understand and articulate concerns and potential benefits from diverse perspectives. Social workers will want to be prepared to knowledgably mediate decision-making and conflicting views regarding technology use. At this point in time, ethical guidelines based on empirical studies are still needed to inform practice in a rapidly changing policy environment. The more familiar social workers are with the options and implications of a range of technologies, as well as frameworks for assessing them, the better equipped they are to serve older adults and their families.

This module contains materials that may be incorporated into lectures or presentations to help students understand how to assess and present to older adults and their families a range of health, monitoring, and connectivity technologies. It includes the following components:

- **PowerPoint Lecture**: “Technology and aging: An introduction to technologies to support older adults and their care networks”
- Bibliography of the following topics with brief introductions:
  - Overview and Scoping Resources
  - Digital Divide
  - Social Connectivity
  - Technology for Memory Loss
  - Remote Monitoring Technology and Telehealth
  - Ethics and Values in Technology Development and Use
  - The Meaning of Technologies for Care Work
- Web-based resource list of academic research centers and labs focusing on technology and aging
- Web-based resource list of centers, organizations, and advocacy groups working on technology and aging policy, reimbursement, and diffusion issues
- Three Classroom Activities:
  - Multimedia Small Group Discussion Exercise: In-Home Activity Sensors
    The goal of this exercise is to critically engage popular media depictions of monitoring technologies for older adults as a solution to care dilemmas. One of two news article options (from the *New York Times* or *Washington Post*) is examined in relation to the humorous video that illustrates the problems of invasion of behavioral autonomy and privacy in the use of sensing technologies. The video depicts active creative use and resistance that counters the stereotype
of older adults as passive users of home monitoring technology.

- **Staged Debate Activity: Domestic Care Robots**
  The goal of this debate exercise is to introduce students to the near-future of domestic robots to support older adults in a range of settings and to have them think deeply about the issues this raises. After reading two engaging articles about the future of robots in elder care, students are divided into two debate teams with a prompt to prepare their arguments for or against third-party payer coverage of elder care robots.

- **Group Discussion: Cameras in Nursing Home Resident Rooms**
  The goal of this exercise is to help students understand the nuances of an issue that most social workers who work in residential settings will encounter. Over the past few years, there has been renewed attention in the media to the use of cameras in resident rooms in nursing centers or assisted living facilities. Although no federal law addresses such usage, a number of states now have regulations allowing private individuals to install cameras in nursing center resident rooms. In most states, the policy is unclear, and to date, the Centers for Medicare and Medicaid Services have no policy on the issue. This makes it difficult for facilities to know how to act on their use and requests for use. This activity will allow them to understand a full range of potential risks and benefits to this practice.
Bibliography for Aging and Technology

This organized bibliography is meant to serve as a resource to instructors who wish to add readings to their syllabi. The topics are not exhaustive.

**Overview and Scoping Resources**

These articles and books provide a “big picture” or widely encompassing view of the range of technologies available for older adults and their caregivers.


**Digital Divide**

The digital divide typically refers to internet access and use. It is not a static status; sustained inclusion in the digital world requires learning and the ongoing development of new skills (Jaeger, 2012). Use of the internet and information communication technologies (ICT) enables remote connection to people, information, commerce, and recreation. It is
important to remember that people use information communication technology differently, so marginalization matters to how these technologies are developed. Marginality in the Information Society means being excluded from processes that directly shape those services and practices (Jaeger, 2004). The digital divide also has consequences for older adults’ financial well-being: one term that employers use to describe an appropriate job candidates is “digital native,” which implies a young adult who grew up using ICTs. The resources listed here describe the digital divide using survey research and critically engage the representation of older adults and their needs in the design process, calling for more inclusive product development.


**Social Connectivity**

Social networks and high quality ties to others are important to one’s well-being and health outcomes. Key ways in which technologies can support social participation are helping older adults to access opportunities (hobbies, volunteering), connect with a community, and use transportation. These technologies include video-enabled PC or mobile-app solutions to communicate with remote family caregivers, other relatives, or friends. Older adults use Skype, Google Hangouts, FaceTime, and other services to connect with others, as
well as reminder systems to keep up with appointments. Online support groups, such as for bereavement, proliferate. A number of companies have developed services specifically for older adults, such as AARP’s social networking site (community.aarp.org), MyBoomerPlace.com, www.tapestry.net, as well as volunteering sites (SeniorCorp.org). A few examples of innovative programs that focus on engaging older adults in social participation through technology in the United States are the Virtual Senior Center (http://seniorplanet.org/the-center), OATS (http://oats.org), Senior Planet (http://seniorplanet.org) and Manhattan’s Senior Planet Exploration Center (http://seniorplanet.org/the-center).

The Accessible Transportation Technologies Research Initiative (ATTRI): http://its.dot.gov/attri/attri_tech_areas.htm


Technology for Memory Loss

There is a full range of products for older adults with memory loss and their support networks. The technology that currently receives the most media attention is computer-based cognitive training games; however, the research is inconclusive as to their effectiveness in slowing memory loss. Social workers should be able to discern which research is sponsored and reported by product companies and focus on the way researchers report findings. These resources describe the current state of the research on cognitive training and other promising technologies that may be helpful for people with dementia and their families.


**Remote Monitoring and Telehealth**

A variety of technologies have been developed for the purpose of helping to meet challenges older adults face in obtaining health care and monitoring their health and safety at home. Getting to health care appointments can be difficult for older adults in both rural and urban areas. Mobile devices and Internet-based services help them and their support networks access health care and connect them to providers, friends, and family caregivers. Telehealth refers to remotely provided health care, as well as remote communication between health care providers. Technologies are used for care coordination and to collect and transmit health data. Biometric monitoring devices can collect, track, and transmit blood pressure, heart rate, blood glucose, and other vital signs. Remote monitoring of activity in a living space, telecare, smart homes, and ambient assistive living (AAL) are a separate category from telehealth, though some products have multiple functions that cross these evolving boundaries. The terminology is also in flux. Most people are aware of the personal emergency response systems (PERS) that provide access to emergency services in the event of a fall and are infamous for the “I’ve fallen and I can’t get up” commercials. The shift from these actively triggered emergency alarms to passive monitoring systems that monitor continuously represents a significant technological generational shift. The research is inconclusive regarding the effectiveness of fall detection, and particularly prevention devices, but this is a rapidly growing area of focus.


**Ethics and Values in Technology Development and Use**

Technologies for older adults and their support networks are remarkably diverse in purpose and form. Equal access is a consideration for many. Enhanced or diminished social contact is a benefit or a problem in the use of these technologies. Each category of
technology has its own set of values and ethical aspects and implications. For example, technologies that transmit data about activity or movement are increasingly used based on the assumption that diminished privacy, autonomy, human interaction, and other risks are outweighed by new efficient means of enhancing safety, reducing hospitalizations, and allowing people to remain living in the community. These goals have great value, yet two interconnected problems remain: these technologies are being deployed neither with robust evidence of benefit nor with an understanding of how to mitigate the associated risks to older adults that pose significant ethical problems (Novitzky et al., 2015).


The Meaning of Technologies for Care Work

Much has been written about this topic as it pertains to nurses and physicians, particularly around electronic health/medical records and telehealth. As technology-based services alter roles and the geography of care provision, this area of inquiry leads researchers to ask questions such as what is care and what should it be? The ways in which new technology-based services change the work and role of social workers is an area that is ripe for research.


Pols, J. (2012). *Care at a Distance: On the Closeness of Technology*. Amsterdam: Amsterdam University Press.

Web Resources

A number of advocacy and policy organizations are working on issues related to technology use for and by older adults, primarily in the area of health care. Academic research centers frequently update their lists of publications and are a good resource for information about current research. This list of resources is divided into two categories: University research centers and national centers. They are not exhaustive.

### University Research Centers and Labs Focused on Technology and Aging

<table>
<thead>
<tr>
<th>Name</th>
<th>Website</th>
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<tbody>
<tr>
<td>OHSU: Oregon Health &amp; Science University ORCATECH</td>
<td><a href="http://www.ohsu.edu/xd/research/centres-institutes/orcatech/index.cfm">http://www.ohsu.edu/xd/research/centres-institutes/orcatech/index.cfm</a></td>
</tr>
<tr>
<td>Georgia Institute for Technology’s Human Factors and Aging Laboratory</td>
<td><a href="http://hfaging.gatech.edu">http://hfaging.gatech.edu</a></td>
</tr>
<tr>
<td>CREATE: a multidisciplinary, collaborative center that develops and evaluates interventions and design solutions to promote successful technology adoption among older adults. A consortium of three universities: The University of Miami, Florida State University, and Georgia Institute of Technology</td>
<td><a href="http://www.create-center.org">http://www.create-center.org</a></td>
</tr>
<tr>
<td>MIT AgeLab</td>
<td><a href="http://agelab.mit.edu">http://agelab.mit.edu</a></td>
</tr>
<tr>
<td>Center for Information Technology Research in the Interest of Society</td>
<td><a href="http://citris-uc.org/about-citris">http://citris-uc.org/about-citris</a></td>
</tr>
<tr>
<td>The Center For Health and Technology (UC Davis)</td>
<td><a href="http://www.ucdmc.ucdavis.edu/cht">http://www.ucdmc.ucdavis.edu/cht</a></td>
</tr>
</tbody>
</table>

### National Centers, Advocacy, and Membership Organizations

<table>
<thead>
<tr>
<th>Name</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>LeadingAge Center for Aging Services Technology</td>
<td><a href="http://www.leadingage.org/cast.aspx">http://www.leadingage.org/cast.aspx</a></td>
</tr>
<tr>
<td>The Office of the National Coordinator for Health Information Technology</td>
<td><a href="http://healthit.gov/">http://healthit.gov/</a></td>
</tr>
<tr>
<td>The Home Care Technology Association of America</td>
<td><a href="http://www.hctaa.org/">http://www.hctaa.org/</a></td>
</tr>
<tr>
<td>President’s Council of Advisors on Science and Technology (see report on aging)</td>
<td><a href="https://www.whitehouse.gov/administration/eop/ostp/pcast">https://www.whitehouse.gov/administration/eop/ostp/pcast</a></td>
</tr>
<tr>
<td>Technology Gear Guide. AARP</td>
<td><a href="http://www.aarp.org/home-family/personal-technology/info-2014/gadgets-tech-reviews-tablets-photo.htm...html#slide15">http://www.aarp.org/home-family/personal-technology/info-2014/gadgets-tech-reviews-tablets-photo.htm...html#slide15</a></td>
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Three Classroom Activities

1. Multimedia Small Group Discussion Exercise: In-Home Activity Sensors

Summary: The goal of this exercise is to critically engage popular media depictions of monitoring technologies for older adults as a solution to care dilemmas. One of the two article options from the NY Times or Washington Post is examined in relation to the humorous video that illustrates the problems of invasion of behavioral autonomy and privacy in the use of sensing technologies. The video depicts active creative use and resistance that counters the stereotype of older adults as passive users of home monitoring technology.

The articles:


Discussion questions for articles:

1. What are the potential benefits of remote sensing technologies described in the article?
   What potential risks are raised?
2. Does this article present a complete picture of the issue?

The 5 minute video, Uninvited Guests

Available here: [http://www.superflux.in/work/uninvited-guests](http://www.superflux.in/work/uninvited-guests)

Discussion questions for video:

1. Older adults who choose not to use technologies that have purported health benefits are sometimes described as paranoid, “old curmudgeons,” “incompetent,” or “noncompliant.” In what ways does this video challenge those notions? Do this actor’s resistance and creative adaptations surprise you? Why or why not? Why might it be important to take seriously the ways older adults choose to interact with home care technologies?
2. Who do you think conceptualizes and designs these devices for older adults? How might the positionality of the designers/engineers of these devices for older adults and their caregivers help shape the products they design?
3. Who is this technology directly benefiting? What ways could older adults be engaged in designing solutions to meet their needs? How might this apply to social work practice with older adults and their caregivers?

Additional questions that have been raised by the film makers at Superflux Lab:

1. “As physical objects in the home become embedded with increasing smartness and autonomy, what relationships do we form with them?
2. “What role does human agency play in a world where mundane objects and environments begin to gain a level of agency and autonomy?
3. “How will smart objects and devices influence the rhythms and routines of our lives, and ours to theirs, and how will this in turn change our cultures, beliefs and preferences?”
2. Staged Debate Activity: Domestic Care Robots

Have students read these two articles prior to class (the second piece is written in response to the first):


Ask students to identify the most compelling points each author makes. Divide the class into two debate teams. Give them the following prompt:

Domestic robots for elder care is a hotly debated topic at the (hypothetical) newly-created Long-Term Care Commission. The members of the commission are interested in your view on the issue because they are tasked with deciding if robots will be allowed and paid for by Medicaid long-term services and supports. You have been assigned to the team that is going to present a strong argument for coverage / You have been assigned to the team that is going to present a strong argument against coverage.

Additional questions to deepen the analysis:

1. Imagine that the care robots described in the articles were used as care robots for children. What might this thought exercise reveal about how we view older adults in need of services and supports and the status of elder care?

2. Discuss the potential ethical issues involved in allowing older adults with dementia to believe a non-human robot friend or caregiver mutually “cares” for them.

3. Ask students to report the national average wage of a direct care worker. In 2012, the median hourly wage for all direct-care workers was $10.63. By contrast, the median wage for all U.S. workers was $16.71. Personal Care Aides earned $9.57 and Home Health Aides $10.01; Nursing Assistants earned $11.74 (http://phinational.org/sites/phinational.org/files/phi-facts-3.pdf). Take this opportunity to discuss the status of direct care work and job projections. Use this tool developed by PHI to look up the average wage in your state: http://phinational.org/blogs/new-phi-tool-shows-direct-care-worker-wages-every-state
3. Group Discussion: Cameras in Nursing Home Resident Rooms

Background knowledge:

In the past few years, there has been renewed attention in the media on the use of cameras in resident rooms in nursing centers or assisted-living facilities. There is no federal law, but Texas, New Mexico, Maryland, Oklahoma, Washington, and Illinois now have regulations allowing private individuals to install cameras in nursing center resident rooms, and a number of states have similar bills in process. In most states, the policy is unclear, and to date, the Centers for Medicare and Medicaid Services have no policy on the issue. This makes it difficult for facilities to know how to act on their use and requests for use. This is not just an emerging issue in the United States. In the United Kingdom, similar debates are taking place where there is also increasing media attention but no clear legal position.* We have no solid national estimate regarding how widespread use of cameras in resident rooms is. We also don’t know very much about the practical issues (i.e., how requests for cameras are handled by facilities, or how staff feel about cameras observing their behavior). Nursing center and assisted-living facilities, family members, and policy makers are grappling with questions without the benefit of sound research.

Exercise:

Have students read a popular media article on the topic, such as the 2013 *New York Times* article, “Watchful Eye in Nursing Homes,” by Jan Hoffman, or a more recent publication. Have students respond to the question: Why is the use of cameras in residents’ rooms an issue of interest today? Have students turn to the person next to them. Ask them to write down as many potential benefits to the use of a camera in resident rooms as they can think of. Then, have them write down as many potential risks of this practice. Have pairs fill in their notes on a classroom board, instructing them to make a mark next to issues already written on the board in order to assess frequency. Ask pairs with issues that do not have additional marks to explain their issue to the class. Ask if this is the full picture or if other considerations have not yet been discussed. Invite students to consider each of the following, as provided by Barbara Phair at the Abrams Law website: [http://www.abramslaw.com/video_surveillance_in_a_nursing_home_publication_media_id_1043](http://www.abramslaw.com/video_surveillance_in_a_nursing_home_publication_media_id_1043)

<table>
<thead>
<tr>
<th>Issues</th>
<th>Claim</th>
<th>Response</th>
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<tbody>
<tr>
<td>Complainst</td>
<td>* Substantiate complaints</td>
<td>* Event may be misinterpreted, increase complaints</td>
</tr>
<tr>
<td></td>
<td>* Inhibit false allegations</td>
<td></td>
</tr>
<tr>
<td>Litigation</td>
<td>* Potential for increased lawsuits due to misinterpretation of events</td>
<td>* Discourage false allegations</td>
</tr>
<tr>
<td></td>
<td>* Evidence in civil or criminal proceeding</td>
<td>* Evidence may vindicate caregiver</td>
</tr>
<tr>
<td>Insurance costs</td>
<td>* Increased insurance costs (i.e., increase lawsuits)</td>
<td>* Insurance costs may actually decrease due to proactive risk management and the effect of inhibiting false allegations</td>
</tr>
<tr>
<td>Peace of mind of families</td>
<td>* Families would be able to monitor their loved ones care</td>
<td>* Invasion of resident’s privacy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Families are not equipped to interpret what they may see</td>
</tr>
<tr>
<td>Virtual visitation (for web-based cameras)</td>
<td>* Increase residents contact with family</td>
<td>* Family may use video as substitute for personal contact, reduce visits to facility</td>
</tr>
<tr>
<td>Security and safety</td>
<td>* Awareness of surveillance will deter incidents of abuse, neglect, and/or theft</td>
<td>* After the fact information, does not prevent event from occurring</td>
</tr>
<tr>
<td>Staff recruiting and retention</td>
<td>* Weed out potential abusers</td>
<td>* Difficulty recruiting because of surveillance</td>
</tr>
<tr>
<td></td>
<td>* Non-abusing staff would like to work in such an environment</td>
<td></td>
</tr>
<tr>
<td>Issues</td>
<td>Claim</td>
<td>Response</td>
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<tr>
<td>Staff issues</td>
<td>* Stressful working environment with 24-hour surveillance</td>
<td>* No expectation of privacy in workplace</td>
</tr>
<tr>
<td>Quality of care</td>
<td>* Improved quality of care</td>
<td>* Chilling effect on resident-staff relationships, fosters distrust</td>
</tr>
<tr>
<td>Staff</td>
<td>* Protect workers from false allegations</td>
<td>* Event may be misinterpreted</td>
</tr>
<tr>
<td>Privacy issues (common areas)</td>
<td>* No expectation of privacy in common areas</td>
<td>* Common areas do not include restrooms, shower/bath areas, changing rooms, locker rooms</td>
</tr>
<tr>
<td>Right to privacy [1] (accommodations)</td>
<td>* Issues of privacy and dignity during bathing, dressing, etc.</td>
<td>* Informed consent of resident (or authorized representative), resident should have option to turn off camera</td>
</tr>
<tr>
<td></td>
<td>* Inadvertent use or disclosure of video</td>
<td>* Resident would have access to video, security protections for video access will be in place</td>
</tr>
<tr>
<td>Privacy issues [2]</td>
<td>* Monitoring violates right of privacy and dignity of roommate</td>
<td>* Consent will be obtained from roommate before implementing</td>
</tr>
<tr>
<td></td>
<td>* Monitoring violates right of privacy of visitors</td>
<td>* No expectation of privacy for visitors if notice given</td>
</tr>
<tr>
<td>Cost</td>
<td>* Residents will bear expense of installation, maintenance and operation</td>
<td>* If residents bear expense, only residents who can afford it will have camera</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* If facility bears expense, any resident who would want monitoring could have it</td>
</tr>
</tbody>
</table>

Phair notes, “Even after all of these issues have been discussed and decided, there are still other questions, such as: will the video camera be monitored twenty-four hours a day; who will have access to tapes, if there is an internet connection, what protections are in place to ensure privacy concerns; will the resident be able to turn off the camera during private moments (i.e., bathing, dressing, etc.); who should pay the cost of surveillance, etc.”

Notes:

1. 42 CFR § 483.70. (2006) (“Personal privacy includes accommodations, medical treatment, written and telephone communications, personal care, visits, and meetings of family and resident groups, but this does not require the facility to provide a private room for each resident.”). See also, Health Insurance Portability and Accountability Act of 1996 (HIPAA), 42 CFR Parts 160, 162, and 164 (2006).

2. Ibid.