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The Hastings Center

AI for the care & support of aging individuals & societies



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Goals for today

- Introduce myself & The Hastings Center
- Understand the typical argument for development of aging tech (and by the end, its limitations)
- Recognize that designing devices or products – many of which involve some form of surveillance - for aging societies involves prioritizing values and stakeholders
- Gesture at how we might prioritize values more transparently and legitimately

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About Me...

- Philosopher
 - Interested in value conflicts in the development of emerging technologies (why and how to prioritize human values as we develop, test, and roll out new technologies, e.g. safety vs. freedom or efficiency vs. empathy)
 - Why question = are there principled reasons for prioritizing one value over another? How strong are the arguments in their favor? What assumptions are made within that argument?
 - How = if there are no knock-down arguments for prioritizing one value over another (which is, I think, usually the case), how do we go about negotiating values?
 - This has all brought me to the world of digital med/robotics/AI/big data/machine learning/etc. which is “disrupting” how we provide care in a variety of contexts and inevitably involves a shift in values

Why Aging?



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The Last Stage of Life

**A PLANNING PROCESS FOR THE HASTINGS CENTER'S PROGRAM AREA,
AGING, CHRONIC CONDITIONS, AND END OF LIFE**

Principal Investigators: [Mildred Z. Solomon](#) and [Nancy Berlinger](#)

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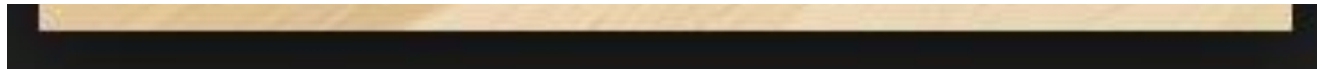
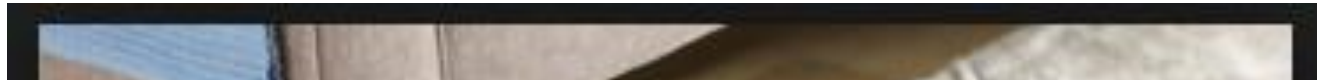
In the United States and other wealthy nations, older adults make up a greater proportion of the population than at any time in history. People are living longer, but with more years of chronic illness and frailty. Many lack the financial, community, or health care resources they need to age with dignity and to support their well-being.

The Argument for Aging Tech: A Bleak Picture

“The number of older people (those aged 60 years or over) has increased substantially in recent years in most countries and this ageing population is projected to continue accelerating in coming decades. **By 2050, the global population of older persons is projected to more than double its size in comparison to 2015 demographics.** As a consequence, there will be a significant burden on healthcare services to treat the large number of old people with chronic diseases. The number of people living with dementia is expected to rise from around 45 million in 2013 to 136 million by 2050 worldwide with each year bringing around 8 million new cases. The total estimated worldwide cost of dementia was US \$604 billion in 2010 and in many cases the costs of informal care account for the majority of these costs. Such costs are around 1% of the gross domestic product of the world’s economy and are set to increase by 85% by 2030.”

*“The use of video surveillance installed in homes of people living with dementia may provide **a more economic and efficient** means for **caring** for those occupants who wish to maintain their independent living.”*







What these have in common...

Broadest classification of things I'm interested in: **“Internet connected consumer devices”**

- products/devices/platforms/apps that, in performing its specified task, also collect information about person(s), biospecimens and biometrics, environment, etc. and that information is stored in a cloud that is owned by some third party (the device creator, or some other data management system)
 - *Some* of these will utilize machine learning/AI to optimize results (whatever the desired result is)
 - Examples: autonomous vehicles, sensor-driven home emergency systems, personal assistive robots, biometric sensors, companion agents, “smart” pill boxes, vacuums, etc.

What these have in common...

- Most products developed will involve multiple “users” many of whom have different goals and values, and are heterogeneous even within categories.

- Ager: Person in late life interacting with the product (often thought of as the “user”) – breaks down importantly by disease category, too (dementia, chronic illness, frail)
- Paid human care providers (home health aides, personal care assistants)
- Unpaid human care providers (family members, friends (filial piety))
- Adult children/family members (filial piety)
- Care home or facility CEO (when the “buyer” is an institution)
- Payers (e.g. insurance companies, who might cover the cost or reimburse apps or products that promote health, prevent falls, etc)
- Researchers
- Physicians or other healthcare providers
- Governments (as payers, public health agencies, etc)
- Shareholders/investors
- Transportation agencies, city planners, public health agencies

Some types of conflicts that are motivating
my thinking here...

An example of value conflicts....

- Fall prevention
 - All parties want to prevent falls
 - Systems could be used both to encourage safe movement (perhaps something that a resident will want, could be achieved by using gait monitors, robot assisted movement etc.) and to discourage movement (the ultimate way to prevent falls, e.g. with robots that make sure person need not move autonomously to perform ADLs, VR instead of face-to-face interacting)



Another example of value conflicts

- "Electronic Visit Verification" Systems
 - The 21st Century Cures Act, passed in 2016, was a sweeping piece of healthcare legislation
 - One little-noticed provision to reduce fraud and waste in the Medicare system is "Electronic Visit Verification" which requires electronic visit verification of all personal care and home health aides provided under Medicare.
 - The legislation requires states to implement EVV, but does not say how. Every state is doing something a little different – from phone calls, to log ins, to GPS tracking.
 - At the same time, entrepreneurs have created "quality care assurance platforms" to make sure that privately funded home care aides are performing the sets of tasks required of them – could incorporate all various sensing technologies, biometrics, etc.

Another example of value conflicts

- "Electronic Visit Verification" Systems
 - These kinds of systems might, on their face, seem fine but they are facing (at least) two sources of opposition:
 - Medicare-dependent disabled persons and caregivers, who are not OK with *also* being tracked, essentially, by sensing devices meant to track their aides
 - We could anticipate opposition from the aides themselves, who are not afforded flexibility and trust to do their jobs, often under trying circumstances
 - All of this amidst under-appreciated, under-paid, under-trained, and over-worked labor force.



Another example of a value conflict

- Data Protection and Sharing Policies
 - Agers may want data protection, but other stakeholders want broad data sharing for research and algorithmic improvement ("data sandbox" to support AI, researchers) or monetization of data (companies – selling data, care homes –adjusting rates, payers – adjusting insurance rates, offering differential plans, etc.)
 - Nearly all device that employ machine learning or AI are collecting massive amounts of data – who else will have access?



One proposed solution:

User-led design

But....which users?

- Multi-stakeholder analyses
 - *Involving a variety of stakeholders in the design process – user-led design **with multiplicity of users***

Some lingering lessons: Values, not choice.

- Choice is an inadequate framework for thinking about tech and aging societies (“tech and AI afford agers more choices for care” is a rationale for their development, but this overstates how much choice people have)
 - Brings to the fore inequalities within our society – these kinds of choices are available only for wealthy, mainly white population.
 - Tech will not be a choice for many others – they may either be forced to use it (as with EVVs for Medicare users) or not able to avail themselves of products on the market that could improve their lives, while at the same time de-valuing other forms of care as a result of increased reliance on tech to do care work.

Some lingering lessons: Valuing care work

- Caregivers – whether paid or unpaid – are performing challenging labor and lots of emotional labor on top of that.
- The idea that robots, assistive devices, or companion agents could supplant careworkers devalues their labor
- The idea is that these AI would enhance care work – the quality of it by leaving more time for human interactions. That seems to be right.
 - But: if the motivating argument is cost effectiveness, will we continue to recognize and invest in human care resources?
- We need better pay and training for care workers.

Some lingering lessons: Have hard conversations.

- We seem to need new forums for making collective decisions about our investment in and development of technologies.
- These conversations have to include, in addition to how to design a fall prevention program, questions like:
 - What does it mean to promote an aging society?
 - What is the *social ethic* that should guide tech creation, infrastructure investment, etc?

Thank you!