

AGING, DIVERSITY AND TECHNOLOGY APPLICATIONS

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Research reported in this talk is supported by Grant # NIA 1 P01 AG17211 and AHRQ



CCC
Computing Community Consortium
Catalyst

OVERVIEW

- Pose some issues and challenges for the design and research community.
- Present some data on the increasing diversity of the older adult population and examples of the implications for technology systems and applications.
- Discuss the role of technology for family caregivers.

ISSUES/CHALLENGES FOR THE RESEARCH AND DESIGN COMMUNITY

- Given the changing face of aging what strategies can we use to minimize digital disparities and ensure that vulnerable older adult populations have “meaningful access” to technology applications that meet their needs and enhance their quality of life?
- How do we design/implement technology so that technology applications help maintain functioning and independence without negatively impacting on the performance potential and social relationships/ interactions of individuals?
- What types of technology applications best support family caregivers and in what capacity?
- What types of research strategies are optimal for evaluating the efficacy and effectiveness of technology solutions?

WHO ARE OLDER ADULTS?

- Current and future populations of older adults are and will be characterized by increased diversity:
 - **Age (2012)**
 - 65 -74: 24 million people
 - 75-84: 13.3 million people
 - 85+: 5.9 million people
 - 100+: 61, 985 people (↑ 93% since 1980)
 - **Ethnicity/Culture**
 - Racial/Ethnic Minorities
 - 2012: 21% of the 65+ population
 - 2030: 28% of the 65+ population
 - » Hispanics ↑ 155%
 - » African Americans ↑ 104%
 - » Asian ↑ 119%
 - » American Indian and Native Alaskans ↑ 116%
 - **Living Arrangements**
 - Live with spouse: 57%
 - Live alone: 28%
 - Institutional Settings: 3.5%
 - Senior Housing: 2.7%
 - Rural areas: 21.6%

WHO ARE OLDER ADULTS?

- **Education**
 - High School Education: 83%
 - College Degree or Higher: 25%
- **Income**
 - Less than \$15,000: 34%
 - \$15,000 – \$35,000: 38%
 - Greater than \$35,000: 28%
- **Literacy**
 - Below Basic Prose Literacy: 26%
 - Below Basic Health Literacy: 29%
 - Basic Health Literacy: 30%
 - Intermediate Health Literacy: 38%
- **Health Status**
 - Visual impairments: ~ 16%
 - Hearing impairments: ~ 26%
 - One Chronic condition: 80%
 - At least two chronic conditions: 50%
 - ADL Limitations: 28%
 - IADL Limitations: 12%
 - Mental Health Concerns: 20%
- **Cognitive Impairments**
 - Normative age-related decline in fluid abilities
 - Report memory loss: ~ 13%
 - MCI: ~10-20%
 - Alzheimer's Disease: 11%

IMPLICATIONS FOR TECHNOLOGY APPLICATIONS

- **User Needs and Preferences**
 - What types of technologies best:
 - Compensate for age-related declines or disabilities
 - Assistive technologies
 - Prevent further declines of disabilities
 - Monitoring systems; disease management systems
 - Improve well-being
 - Social networking; educational applications; support ADL/IADL tasks
- **Interface Design**
 - Cultural/language issues
 - Translation; cultural differences in communication, health beliefs
 - Complexity
 - Literacy demands
 - Cognitive demands – learnability, memorability, cost of adoption
 - Accessibility
 - Changes in sensory-motor functions
 - Disabilities

← →  http://www.medicare.gov/sign-up-change-plan How to get drug coverage | ... X

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Apply for Medicare online
How to get drug coverage
How to switch your Medicare drug plan
How to drop your Medicare drug plan
When can I join a health or drug plan?
About Medicare health plans

How to get drug coverage

Medicare offers prescription drug coverage to everyone with Medicare. If you decide not to join a Medicare Prescription Drug Plan when you're first eligible, and you don't have other creditable prescription drug coverage, or you don't get Extra Help, you'll likely pay a late enrollment penalty.

To get Medicare drug coverage, you must join a plan run by an insurance company or other private company approved by Medicare. Each plan can vary in cost and drugs covered.

2 ways to get drug coverage

1. Medicare Prescription Drug Plan (Part D). These plans (sometimes called "PDPs") add drug coverage to Original Medicare, some Medicare Cost Plans, some Medicare Private Fee-for-Service (PFFS) Plans, and Medicare Medical Savings Account (MSA) Plans.
2. Medicare Advantage Plan (Part C) (like an HMO or PPO) or other Medicare health plan that offers Medicare prescription drug coverage. You get all of your Medicare Part A (Hospital Insurance) and Medicare Part B (Medical Insurance) coverage, and prescription drug coverage (Part D), through these plans. Medicare Advantage Plans with

Related Resources

- Getting started with Medicare

Find someone to talk to

Select your state... Go

Share the news. Share the health!

1-800-MEDICARE
TTY 1-877-486-2048

Tell your friends and family

3:18 PM 9/9/2014

Flesch-Kincaid grade level = 11.5



http://www.lifescan.com/pdf/AW_06397301A_EN.pdf

Norton Phishing Protection on Identity Safe Log-ins

Save a Copy Search Select 212% Search Web Download New Reader Now

CAUTION: High glucose results

If your test result is higher than 180 mg/dL, it may mean hyperglycemia (high blood glucose). If you are uncertain about this test result, consider re-testing. Your healthcare professional can work with you to determine what actions, if any, you should take if your results are higher than 180 mg/dL.

If your meter displays HI, you may have a very high blood glucose level (severe hyperglycemia) exceeding 600 mg/dL. Re-check your glucose level. If the result is HI again, this may indicate a severe problem with your blood glucose control and it is important you obtain and follow instructions from your healthcare professional without delay.

CAUTION: Repeated unexpected glucose results

If you continue to get unexpected results, check your system with control solution. See Control solution testing, pages 28–32.

If you are experiencing symptoms that are not consistent with your blood glucose results and you have followed all instructions in this booklet, call your healthcare professional. Never ignore symptoms or make significant changes to your diabetes control program without speaking to your healthcare professional.

CAUTION: Unusual red blood cell count

A hematocrit (percentage of your blood that is red blood cells) that is either very high (above 55%) or very low (below 30%) can cause false results.

Applying blood and reading results

c30 (30 of 55)

Unknown Zone

Flesch-Kincaid Grade Level: 11.2

IMPLICATIONS FOR TECHNOLOGY APPLICATIONS

- *Taha, Czaja, Sharit & Morrow (2013):*
 - Evaluated the ability of a sample of lower SES middle-aged and older adults to use a simulated version of the Epic patient portal to perform routine health management tasks:
 - A significant percentage of the sample had difficulty performing the tasks
 - Cognitive abilities (e.g., reasoning, memory) and numeracy skills were significant predictors of performance
 - There were significant discrepancies between self-ratings and objective ratings of numeracy
- *Czaja, Zarcadoolas, Vaughan et al (in Press)*
 - Evaluated the ability of a lower SES sample of adult patients to use the three currently available PHRs.:
 - The majority of participants:
 - had difficulty performing the tasks
 - reported usability problems (e.g., complex language)
 - perceived PHRs as potentially valuable

IMPLICATIONS FOR TECHNOLOGY APPLICATIONS

- Training, Instructional Support and Technical Support
 - How to best train
 - Design of instructional materials
 - What if the system breaks down?
- Security and Privacy Issues
- Cost and Payment
- Access
 - Awareness
 - Perceived utility and value
 - Acceptance
 - Usability
 - Keeping abreast with changes in system design

USA INTERNET USE BY AGE 2000-2013

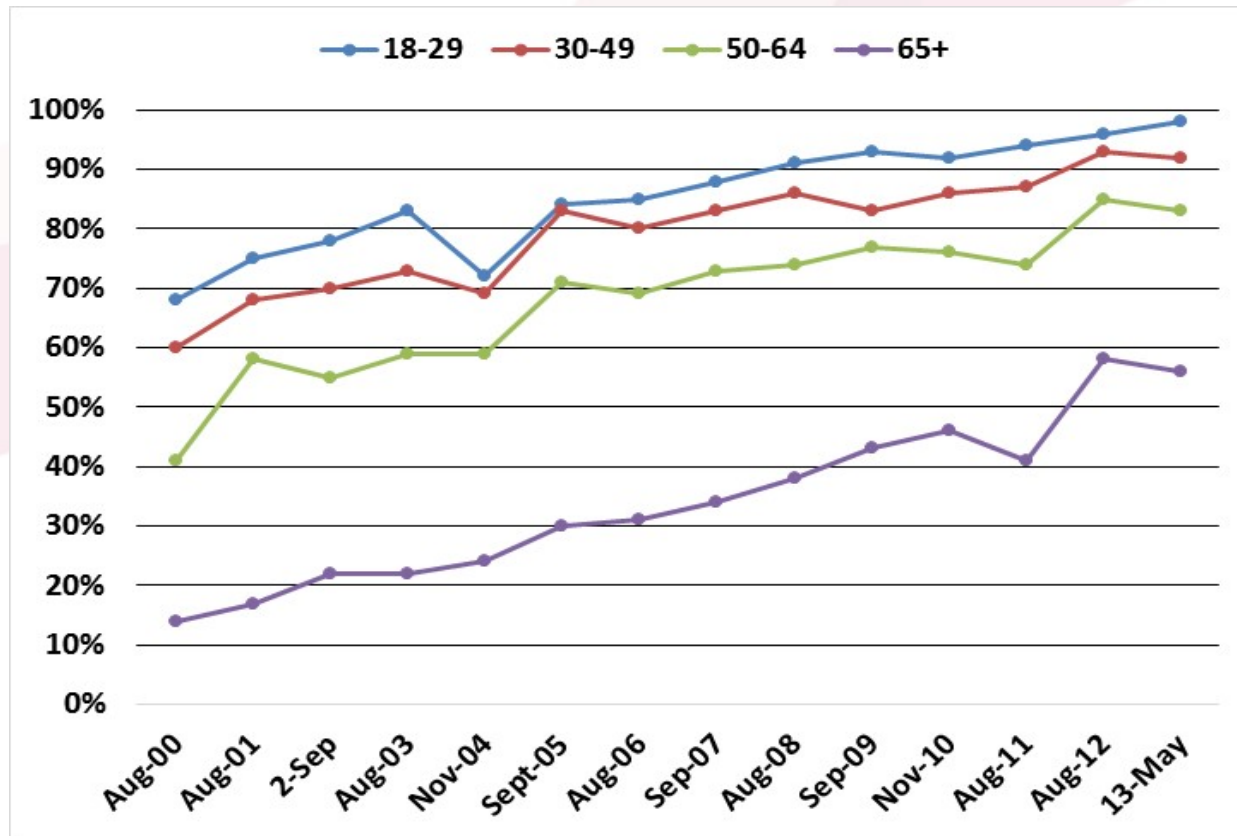


Figure 1. Percent US Internet use by age group. Data selected at near annual intervals from the Pew Internet & American Life spreadsheet <http://www.pewinternet.org/Static-Pages/Trend-Data-%28Adults%29/Usage-Over-Time.aspx> supplemented by <http://www.pewinternet.org/Trend-Data-%28Adults%29/Whos-Online.aspx>, accessed 12/30/2013.

INTERNET, BROADBAND, AND TABLET ADOPTION AMONG SENIORS

% of seniors (ages 65 and older) who ...

	Go online	Broadband at home	Tablet computer
Total for all 65+	59%	47%	
Age			
65-69	74	65	23
70-74	68	55	18
75-79	47	34	20
80+	37	21	9
Education			
High school grad or less	40	27	11
Some college	69	57	19
College graduate	87	76	31
Household Income			
<\$30,000	39	25	8
\$30,000-\$49,999	63	51	16
\$50,000-\$74,999	86	73	28
\$75,000+	90	82	39

Pew Research Center's Internet Project July 18-September 30, 2013 tracking survey.

PEW RESEARCH CENTER

CELL PHONE AND SMARTPHONE ADOPTION AMONG SENIORS

Cell phone and smartphone adoption among seniors

% of seniors (ages 65 and older) who own a ...

	Cell phone	Smartphone
Total for all 65+	77%	18%
Age		
65-69	84	29
70-74	84	21
75-79	72	10
80+	61	5
Education		
High school grad or less	70	10
Some college	80	19
College graduate	87	35
Household Income		
<\$30,000	67	8
\$30,000-\$49,999	83	15
\$50,000-\$74,999	88	28
\$75,000+	92	42

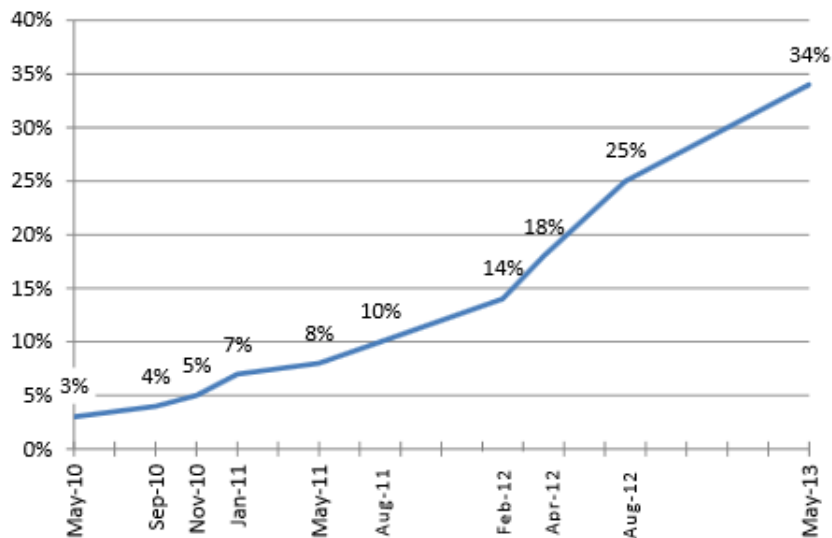
Pew Research Center's Internet Project July 18-September 30, 2013 tracking survey.

PEW RESEARCH CENTER

TABLET OWNERSHIP 2013

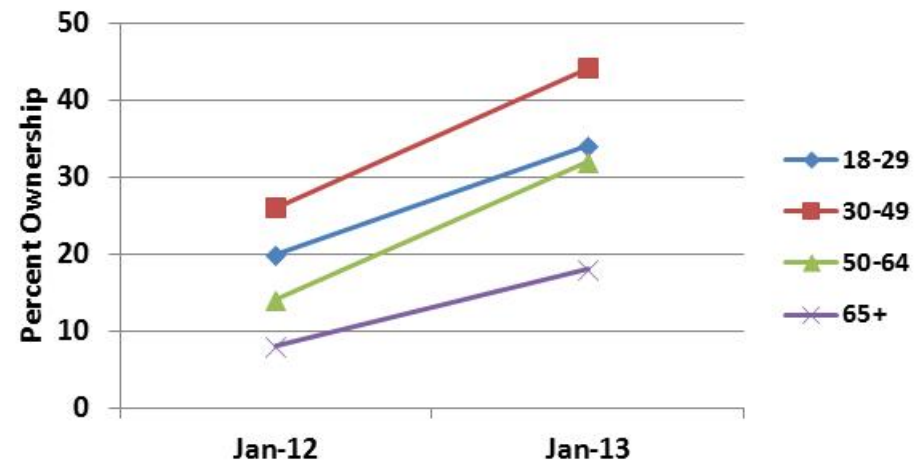
Tablet ownership over time (2010-2013)

% of American adults ages 18+ who own a tablet computer, over time.



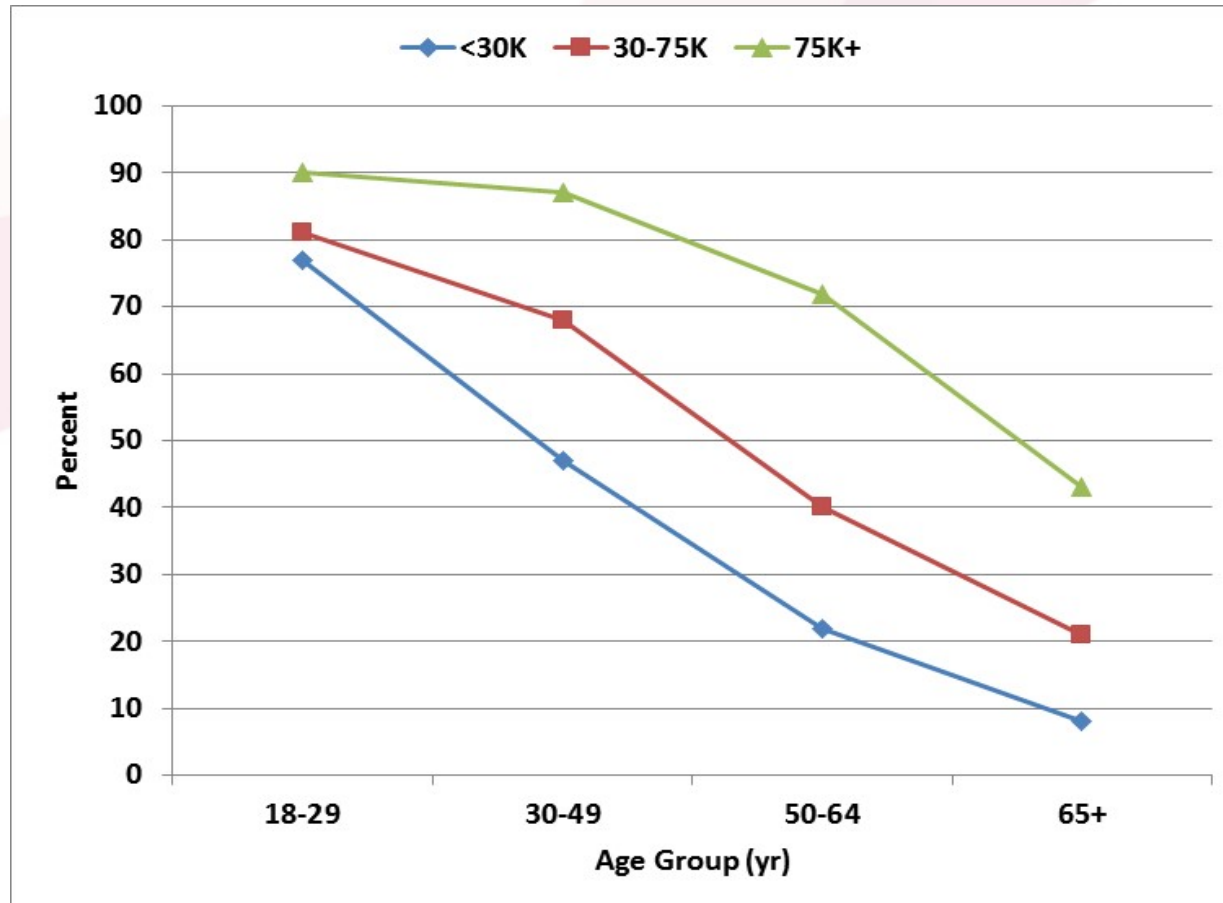
Source: Pew Research Center's Internet & American Life Project tracking surveys, May 2010 – May 2013. May 2013 data is from the Pew Research Center's Internet & American Life Project's April 17-May 19, 2013 Tracking Survey of 2,252 adults ages 18 and older. Interviews were conducted in English and Spanish and on landline and cell phones. The margin of error on the sample is +/- 2.3 percentage points.

Tablet Ownership by Age Group



http://pewinternet.org/~media//Files/Reports/2013/PIP_Tablet%20ownership%202013.pdf

SMARTPHONE BY AGE, INCOME



US Smartphone ownership in 2013 by age and income, with income groups shown in dollar ranges of <30,000, 30-75,000, 75,000+. Data from Smith (2013).

FAMILY CAREGIVERS

- Technology can aid Family Caregivers
 - Delivery of intervention programs and services
 - Communication
 - Other family members
 - Other caregivers
 - Healthcare Professionals
 - Access to Information
 - Monitoring of Patient
 - Assessment of patient and caregiver
 - Respite
- Issues
 - What technology applications best meet caregiver needs
 - Cost-effectiveness
 - Integration with other aspects of healthcare systems and day-to-day lives
 - Need for more rigorous research and evaluation