Deploying and Evaluating Telehealth Programs for Patients at Home: The BIDMC InfoSAGE and VA Projects

Yuri Quintana [1,2], Ph.D., George Velez[3], DHA, MBA, Irma L. Molina-Vicenty[4], MD, Mitchell Izower [5,6], MD, Zoe Liao [7]

[1] Chief, Division of Clinical Informatics, Beth Israel Deaconess Medical Center

[2] Assistant Professor, Harvard Medical School

[3]Deputy Director, VA Caribbean Healthcare System

[4]ACOS for Research & Development, VA Caribbean Healthcare System

[5]Department of Medicine, Beth Israel Deaconess Medical Center

[6]Instructor, Harvard Medical School

[7]Research Assistant, Division of Clinical Informatics, BIDMC

Beth Israel Deaconess Medical Center | HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

50 YEARS 1970 – 2020 Division of Clinical Informatics

Disclosures

- InfoSAGE was developed with US government grants from Agency for Healthcare Research and Quality (AHRQ)

- All commercial products mentioned in this talk are only for illustrative purposes and no commercial relation exists with these vendors

- Work was supported by the VA Office of Rural Health and resources and the use of facilities at the VA Caribbean Healthcare system in San Juan, PR

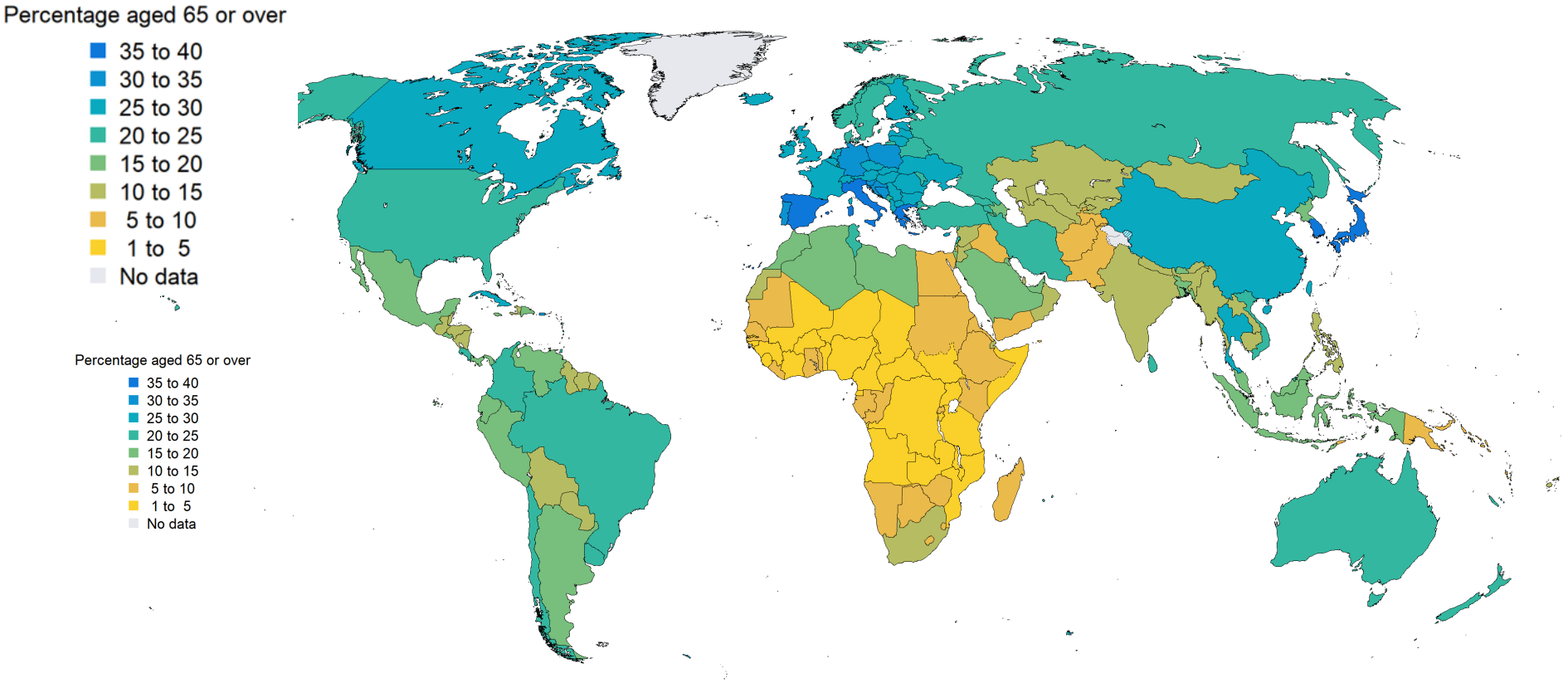
Disclaimer

The contents do not represent the views of the U.S. Department of Veterans Affairs or the United States Government”

Healthcare Challenges

Challenge 1 -Aging Population

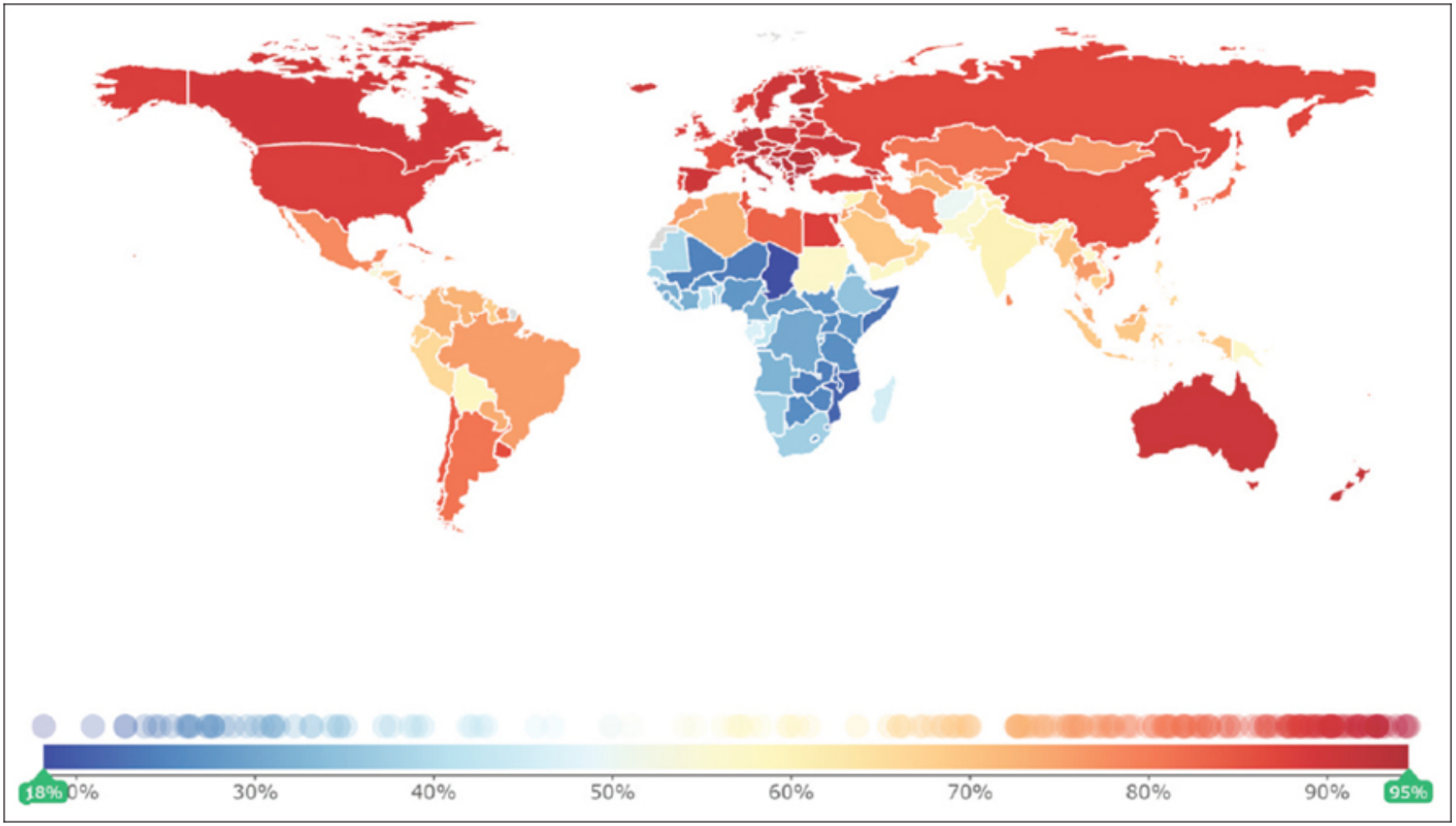
Global population age 60+ is expected to more than triple by 2050



Challenge 2 - Rise of Chronic Diseases

NCDs are the leading causes of death (63%) in all regions except Africa.

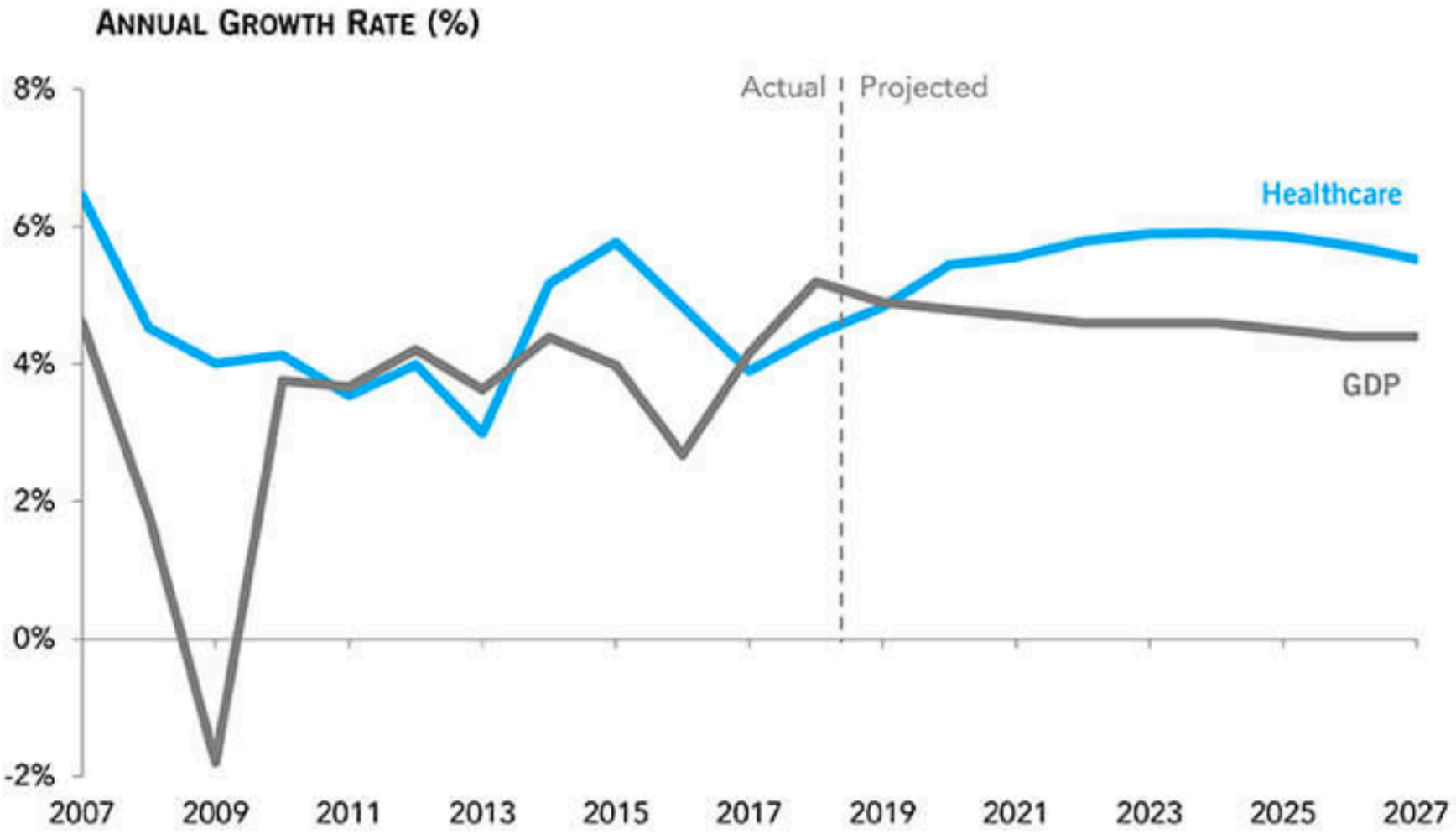
75-85% of healthcare spending on chronic disease management.



Percentage of deaths from non-communicable diseases by country, 2013 (DOI: 10.4103/1658-600X.179820 Institute for Health Metrics and Evaluation

Challenge 3 – Rising Costs

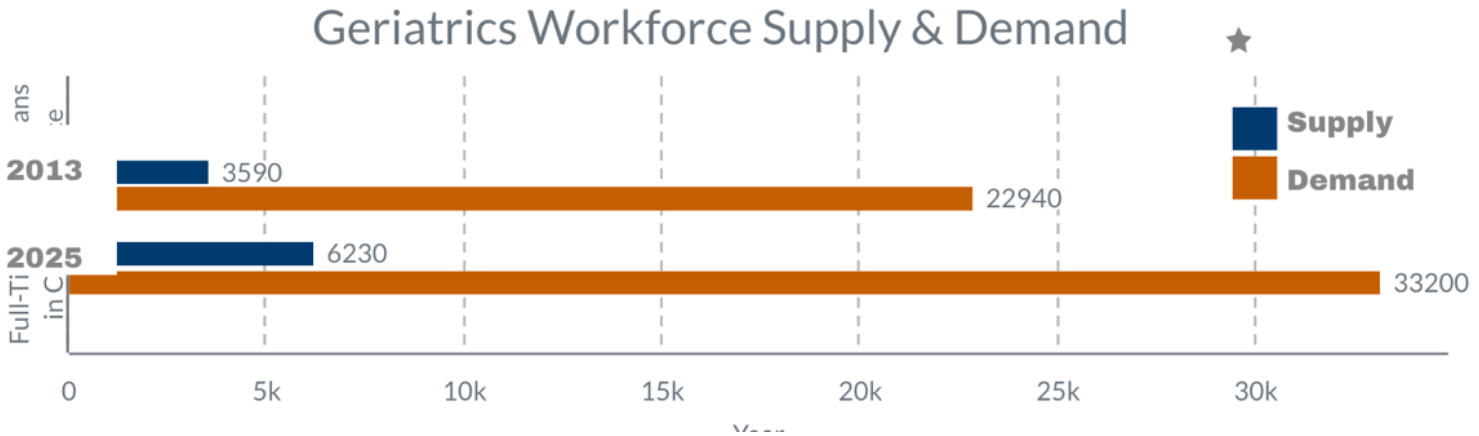
- 1 in 3 adults dies with Alzheimer's or other dementias. USA cost $290 Billion.



Source: CDC and Peterson Foundation https://chihealthcare.org/2020/01/03/crisis-in-health-care/
Front Public Health. 2017; 5: 335. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5732407 AHRQ Multiple Chronic Conditions https://www.ahrq.gov/patient-safety/settings/long-term-care/resource/multichronic/mcc.html

Challenge 4 - Limited Healthcare Professionals

45%
INCREASE
in demand for geriatricians, 2013-2025★

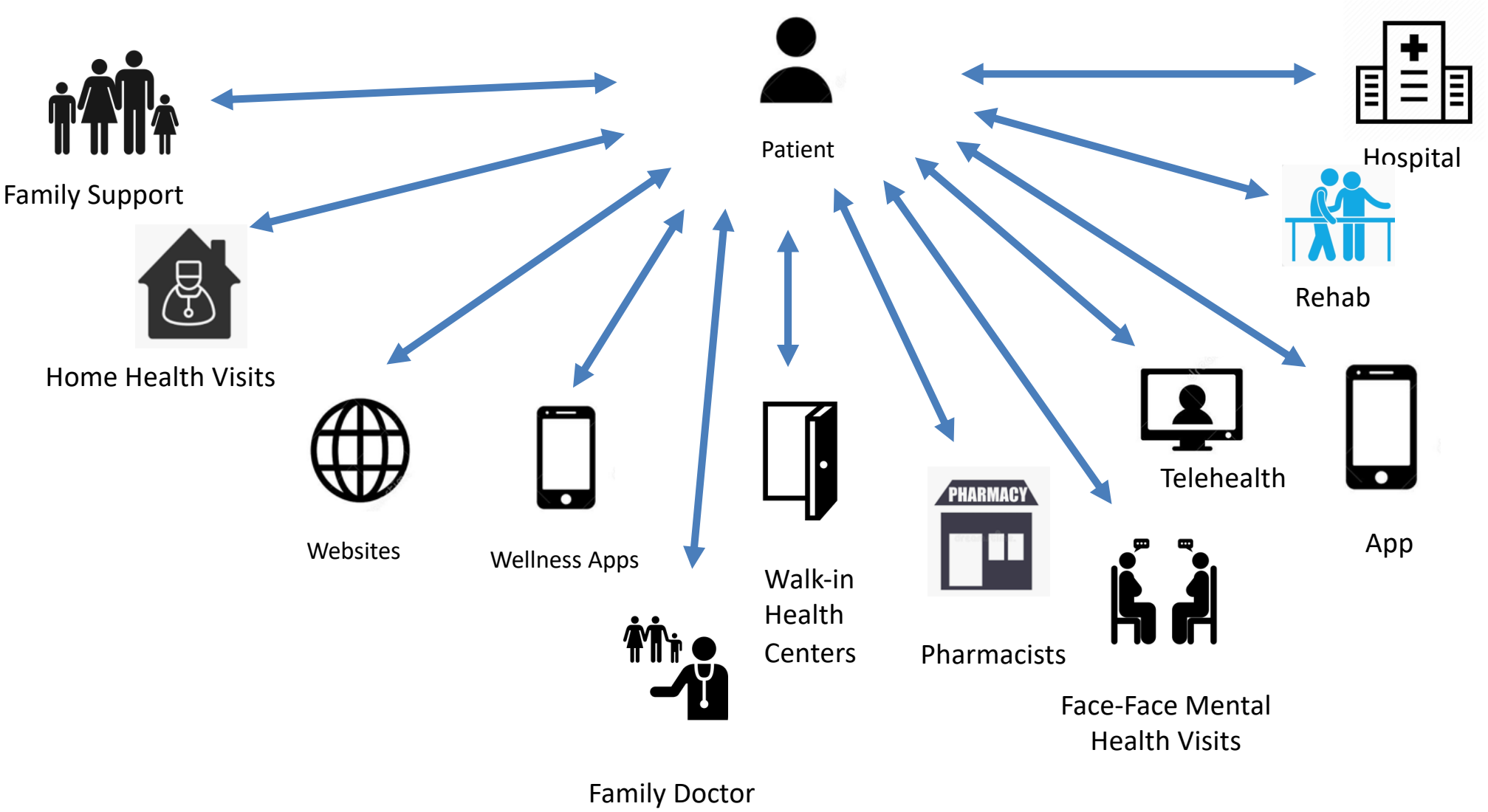


- There won't be enough geriatricians
- Family caregivers provided an estimated 18.5 billion hours of care
- Women in families provide nearly two-thirds of all elder care → Burn out health issues

Sources: American Geriatrics Society https://www.americangeriatrics.org/geriatrics-profession/about-geriatrics/geriatrics-workforce-numbers
CDC https://www.cdc.gov/aging/dementia/ and Alzheimer's Association https://www.alz.org/alzheimers-dementia/facts-figures
NY Times Jan 26, 2016 https://www.nytimes.com/2016/01/26/health/where-are-the-geriatricians.html

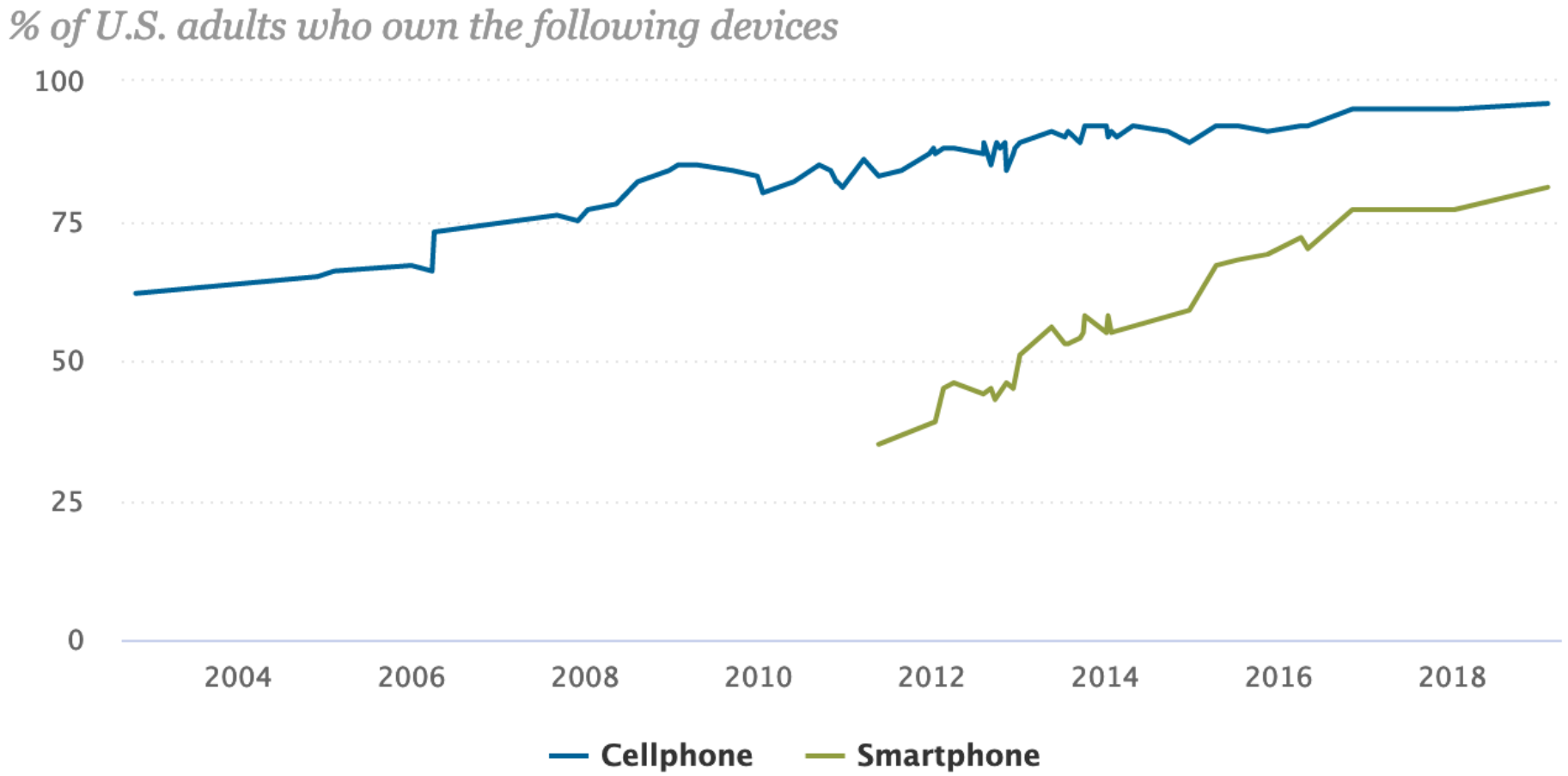
Challenge 5 - Poor Care Coordination

Highly Fragmented System - Health data can't be easily shared



How to Support Aging in Place?

Internet Access



Source: Surveys conducted 2002-2019.

PEW RESEARCH CENTER

https://www.pewresearch.org/internet/fact-sheet/mobile/

Older adult's use of technology

	Any cellphone	Smartphone	Cellphone, but not smartphone
Total	96%	81%	15%
Men	98%	84%	14%
Women	95%	79%	16%
Ages 18-29	99%	96%	4%
30-49	99%	92%	6%
50-64	95%	79%	17%
65+	91%	53%	39%

Source: Pew Research Center Survey , Jan 8 to Feb 7, 2019

InfoSAGE: Family-Centric Care

Eldercare Communities

- Aging creates challenges for **elders and their families** for healthcare decision-making and information sharing
- **Care coordination** is exceptionally challenging
- Respecting the **elder's preferences** and priorities is often lost in transition

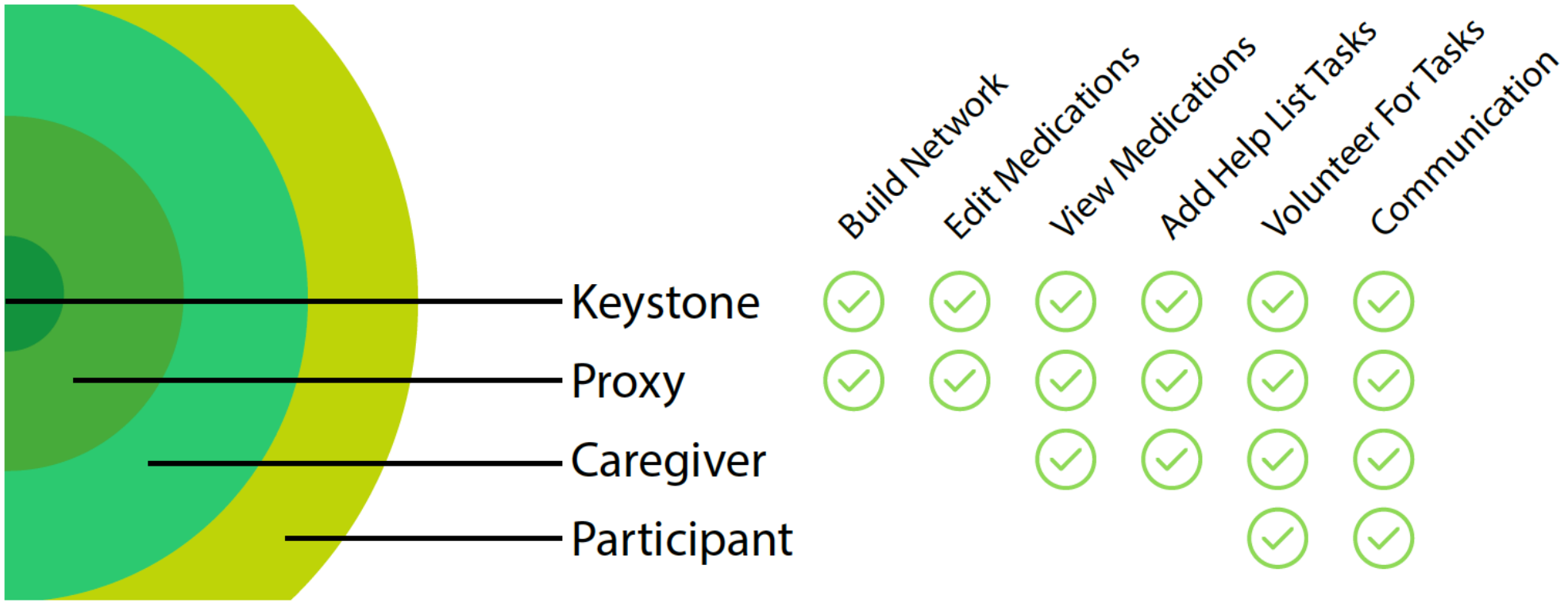
http://ww.InfoSAGEHealth.org

- InfoSAGE is a family-based, **private social network** for coordinating care that is centered on the elder

- InfoSAGE provides medication management, interaction alerts, educational resources, task management, communication tools

- While designed to support the care of fail elderly, system also works for other illnesses and conditions where families are involved in care support

Design of InfoSAGE™

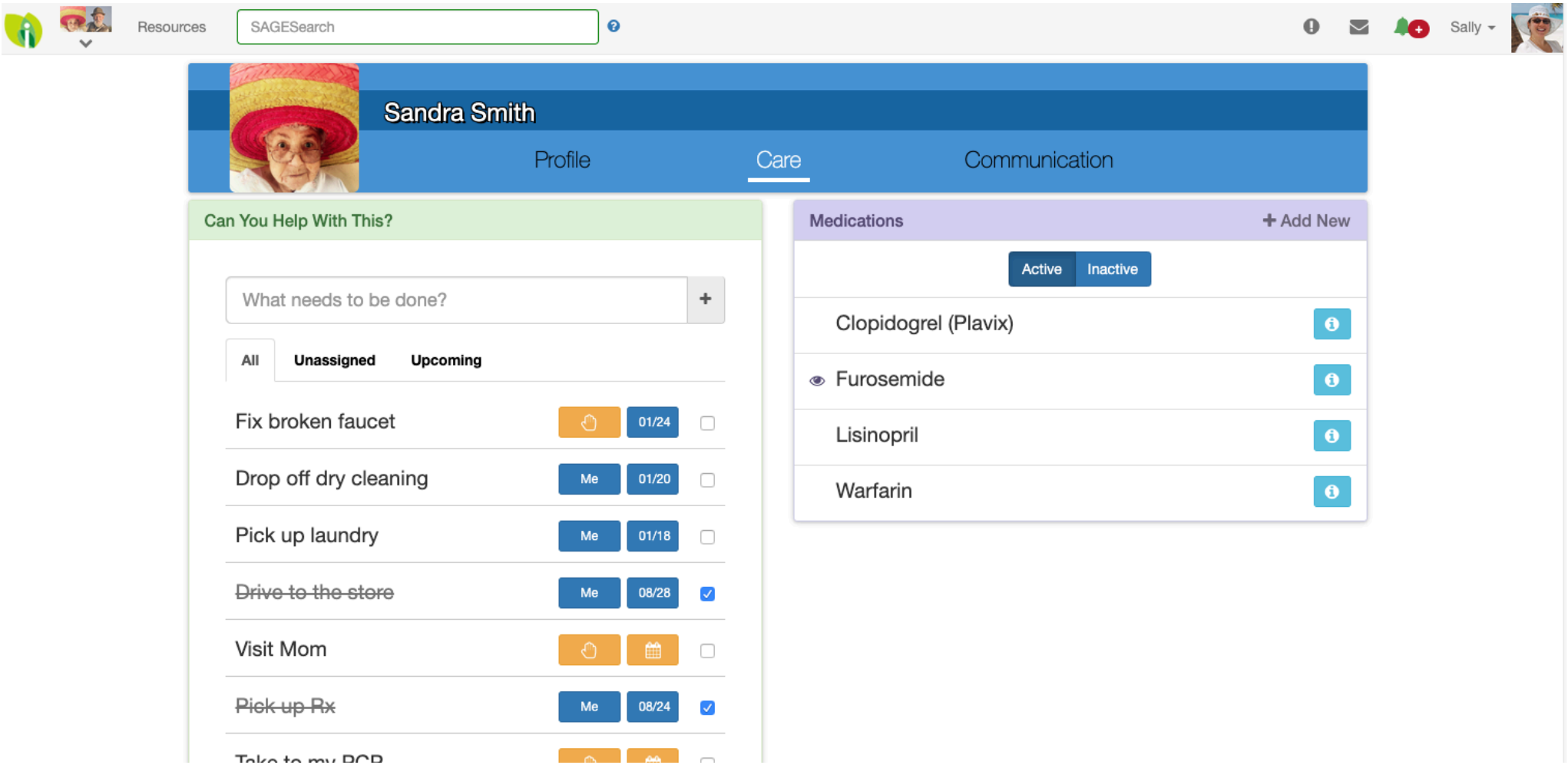


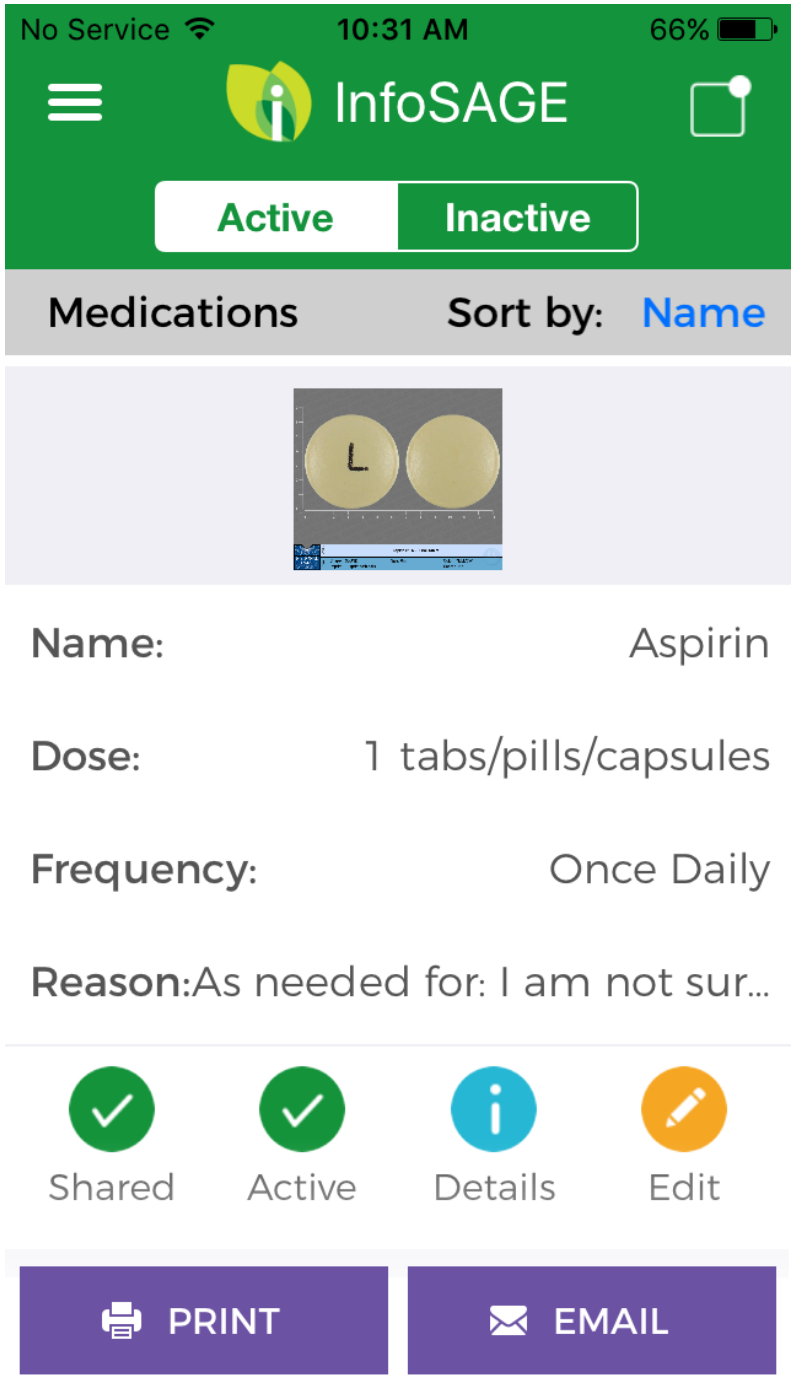
Quintana Y, Crotty B, Fahy D, Orfanos A, Jain R, Kaldany E, Lipsitz L, Engorn D, Rodriguez J, Pandolfe F, Bajracharya A, Slack WV, Safran C. InfoSAGE: Use of Online Technologies for Communication and Elder Care. Stud Health Technol Inform. 2017;234:280-285. PMID: 28186055

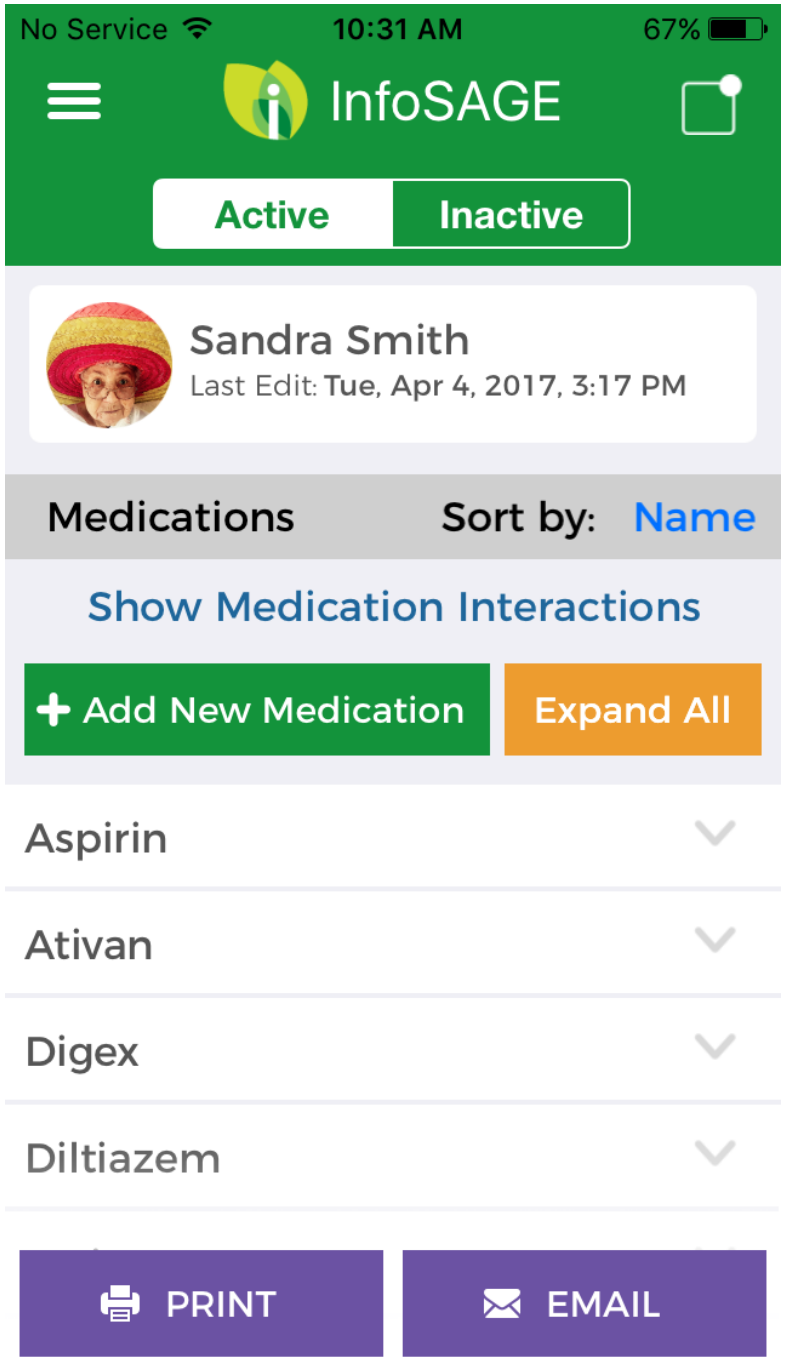
InfoSAGE™

Information Sharing Across Generations

http://ww.InfoSAGEHealth.org



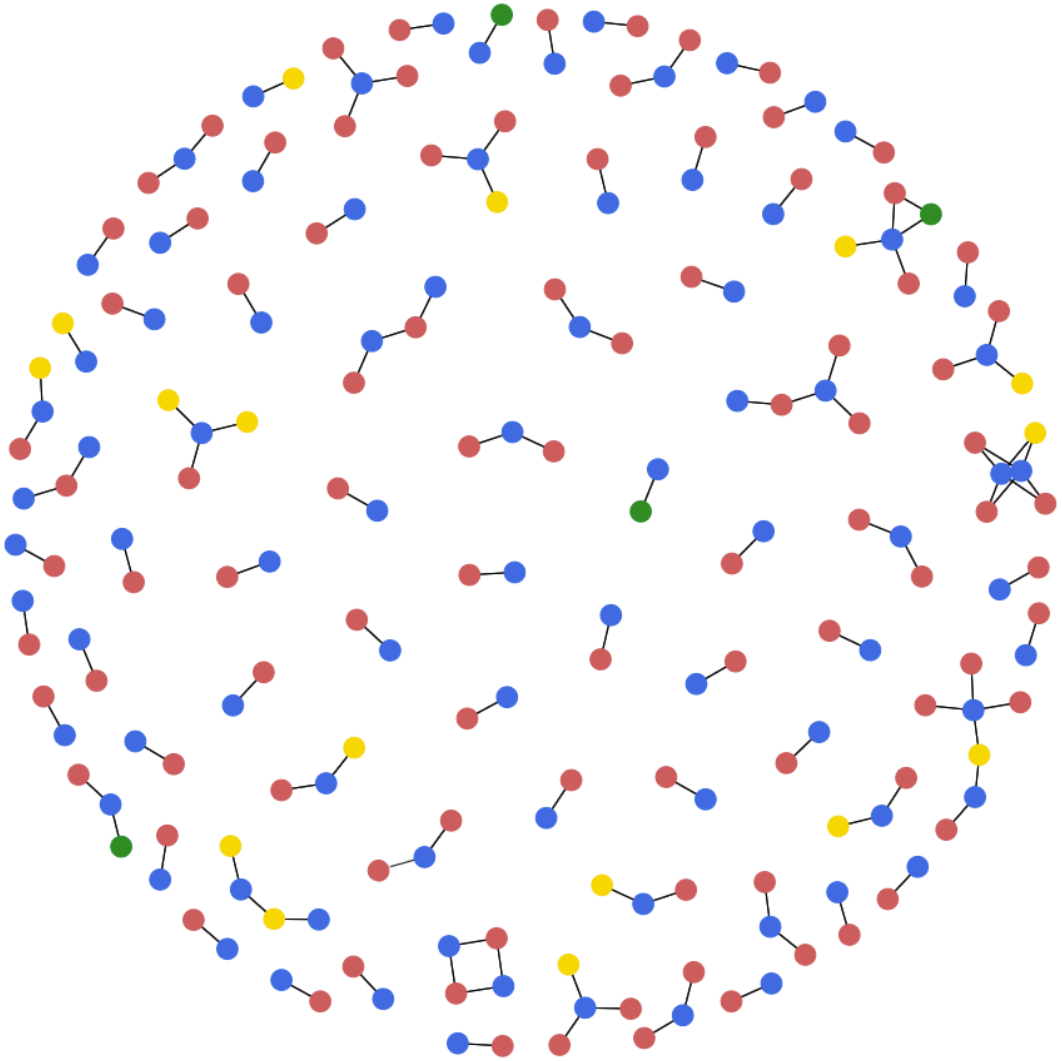




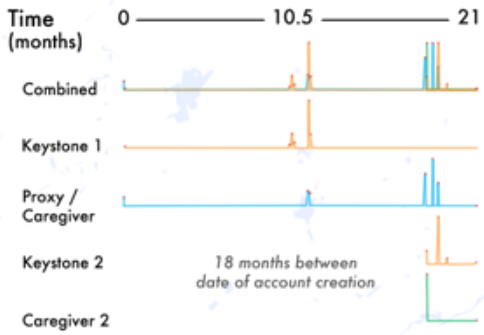
Quintana Y, Crotty B, Fahy D, Orfanos A, Jain R, Kaldany E, Lipsitz L, Engorn D, Rodriguez J, Pandolfe F, Bajracharya A, Slack WV, Safran C. InfoSAGE: Use of Online Technologies for Communication and Elder Care. Stud Health Technol Inform. 2017;234:280-285. PMID: 28186055

InfoSAGE™
Information Sharing Across Generations

Family Centric Networks

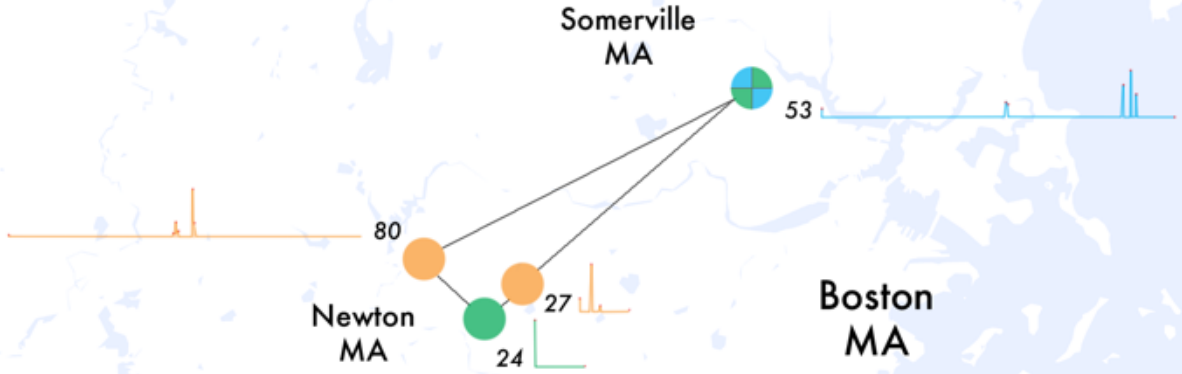


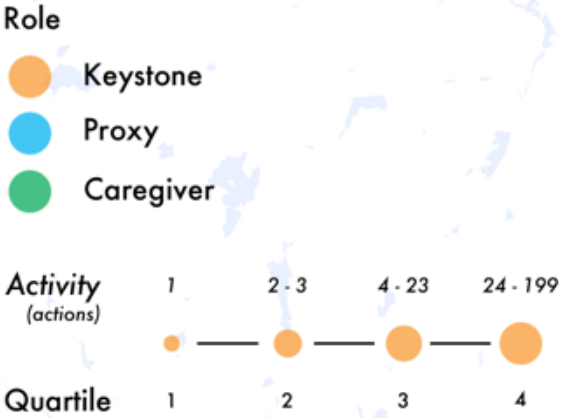
Quintana Y, Crotty B, Fahy D, Orfanos A, Jain R, Kaldany E, Lipsitz L, Engorn D, Rodriguez J, Pandolfe F, Bajracharya A, Slack WV, Safran C. InfoSAGE: Use of Online Technologies for Communication and Elder Care. Stud Health Technol Inform. 2017;234:280-285. PMID: 28186055



InfoSAGE™

Information Sharing Across Generations



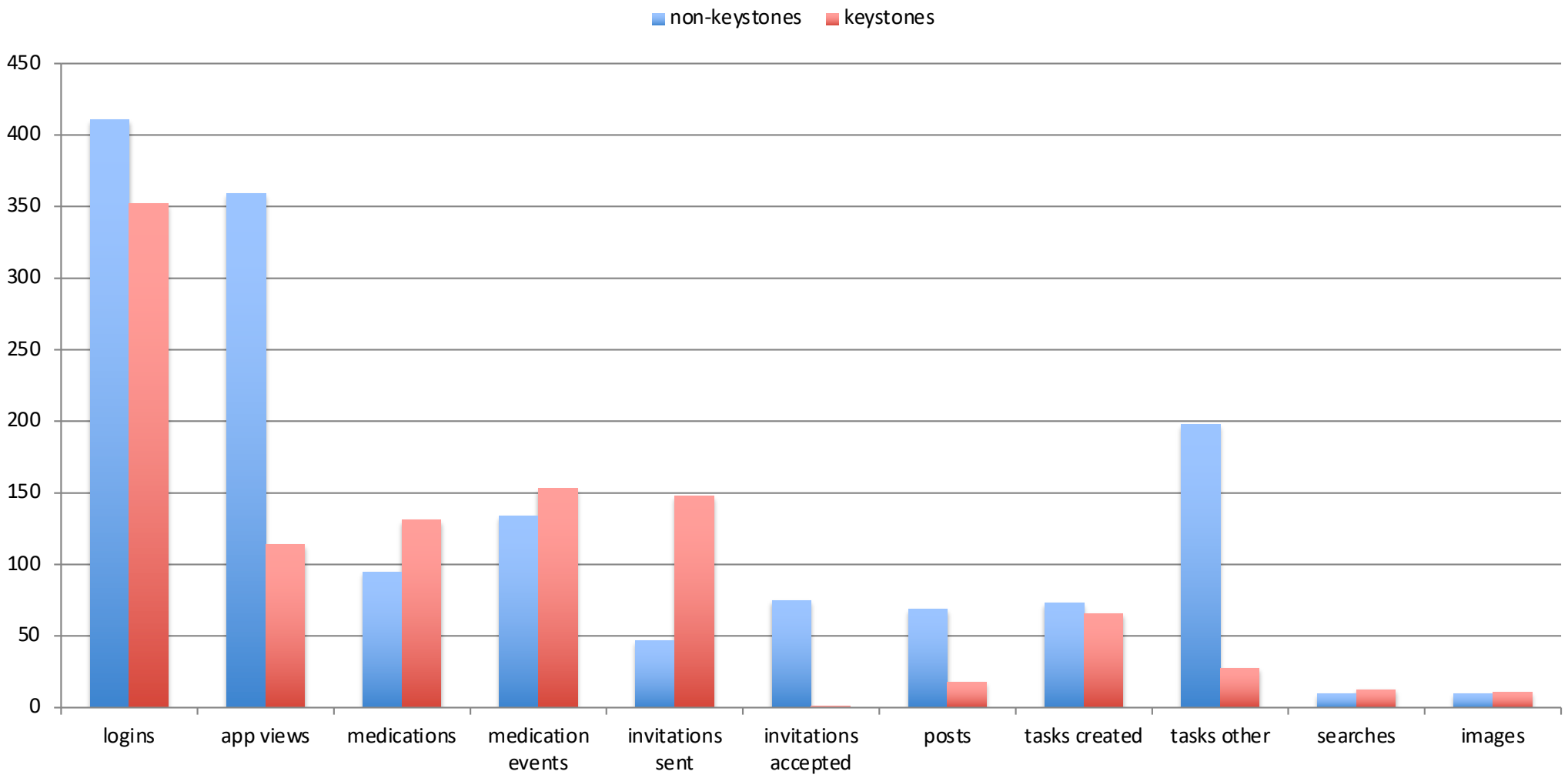


Network 3
21 month timespan

PMID: 28186055

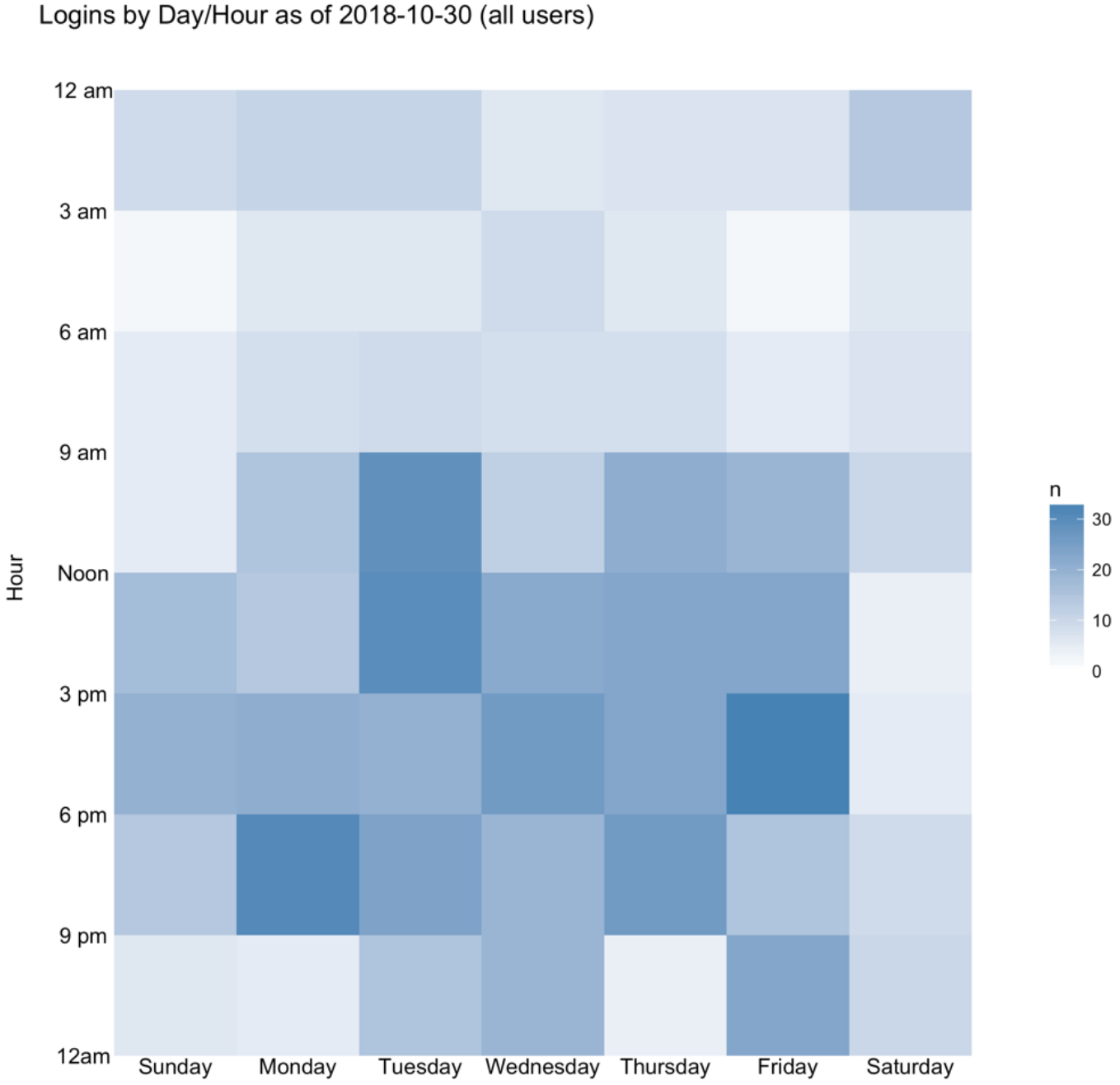
InfoSAGE™
Information Sharing Across Generations

Usage Patterns



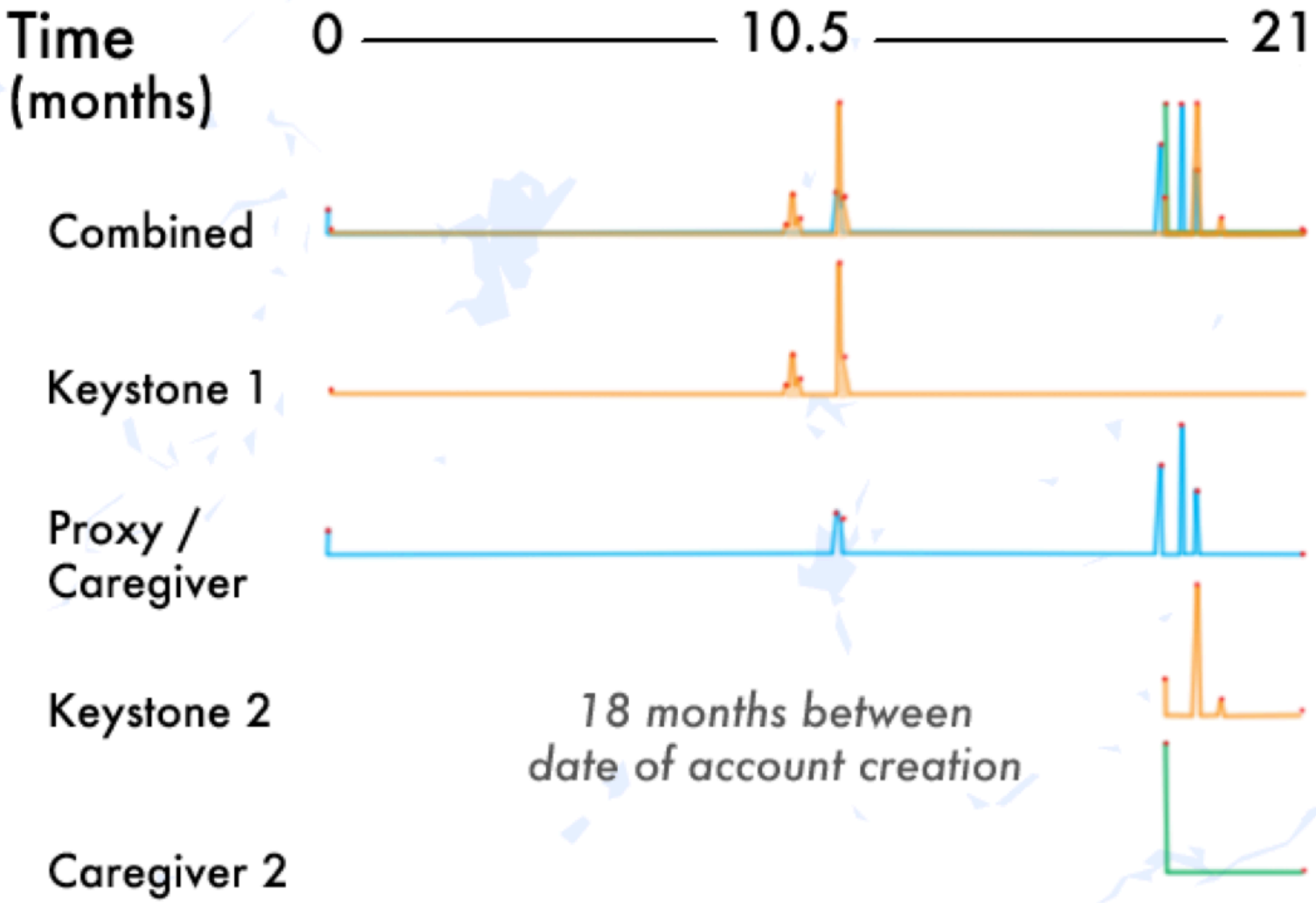
Quintana Y, Henao J, Kaldany E, Gorenbeg M, Chen YP, Adra M, Lipsitz L, Safran C. InfoSAGE: Usage Pattern of a Family-Centric Care Coordination Online Platform. Stud Health Technol Inform. 2019 Aug 21;264:1972-1973. doi:10.3233/SHTI190740. PubMed PMID: 31438434

InfoSAGE™
Information Sharing Across Generations



PubMed PMID: 31438434

InfoSAGE™
Information Sharing Across Generations



PubMed PMID: 31438434

Implementation

- **Initial Partners**
- **International Sites**
- **Industry Partners**

Key Observations

- **Community of Care:** Family networks have formed that include spouses, children, grandchildren, and caregivers.

- **Enrollment:** Enrolled families are also geographically spread out, ranging from different neighborhoods within a city to spread out across the country.

- **Feasibility:** Most keystones in this study were able to use InfoSAGE to create an online network, add medications and messages.

Quintana Y, Crotty B, Fahy D, Orfanos A, Jain R, Kaldany E, Lipsitz L, Engorn D, Rodriguez J, Pandolfe F, Bajracharya A, Slack WV, Safran C. InfoSAGE: Use of Online Technologies for Communication and Elder Care. Stud Health Technol Inform. 2017;234:280-285. PMID: 28186055

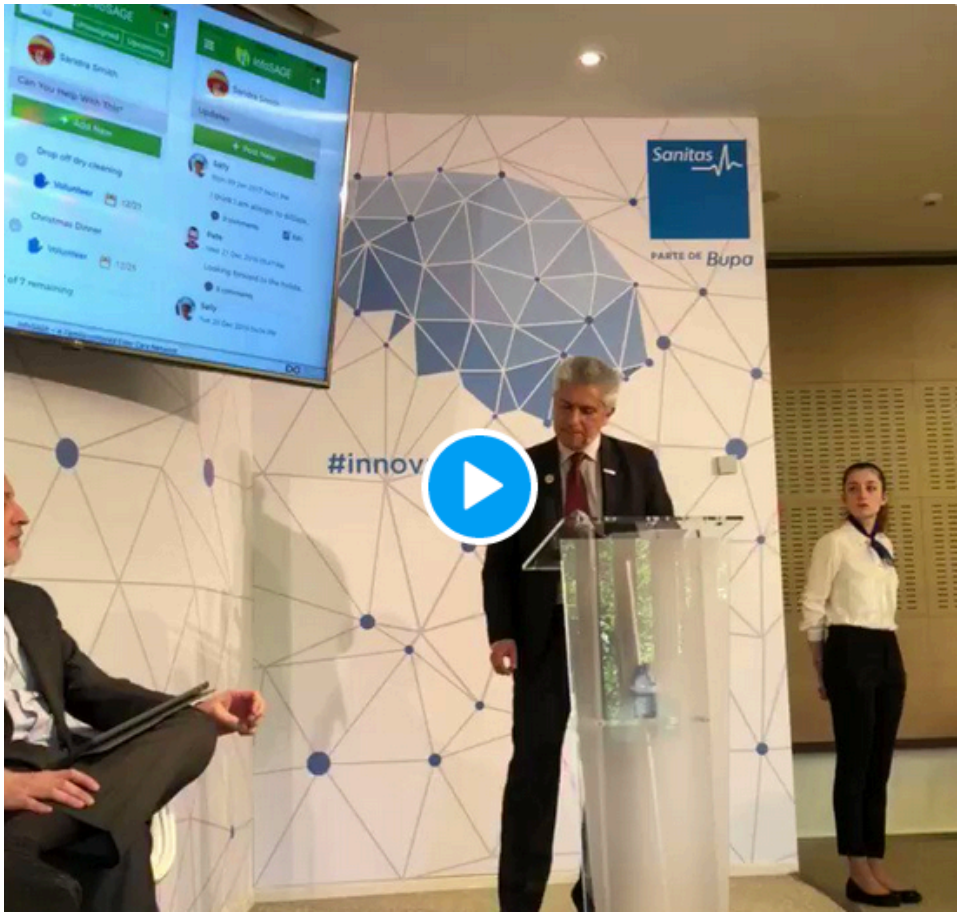
New Development

- **Symptom Management:** InfoSAGE as a platform to support family-based care. Human Factors and Usability? Use biometric devices? Acceptability?

- **Home Monitoring:** InfoSAGE as a platform to chronic care patients with a remote care manager. How to integrated with hospitals, pharmacies, device companies, home care service agencies?

- **Big Data from for Home Monitoring Devices:** With user consent, using platform to collect health care data.

InfoSAGE Alexa Voice Interface



https://twitter.com/Yerburu/status/1004644954784849920

Usability Clinical Grade Devices at Home

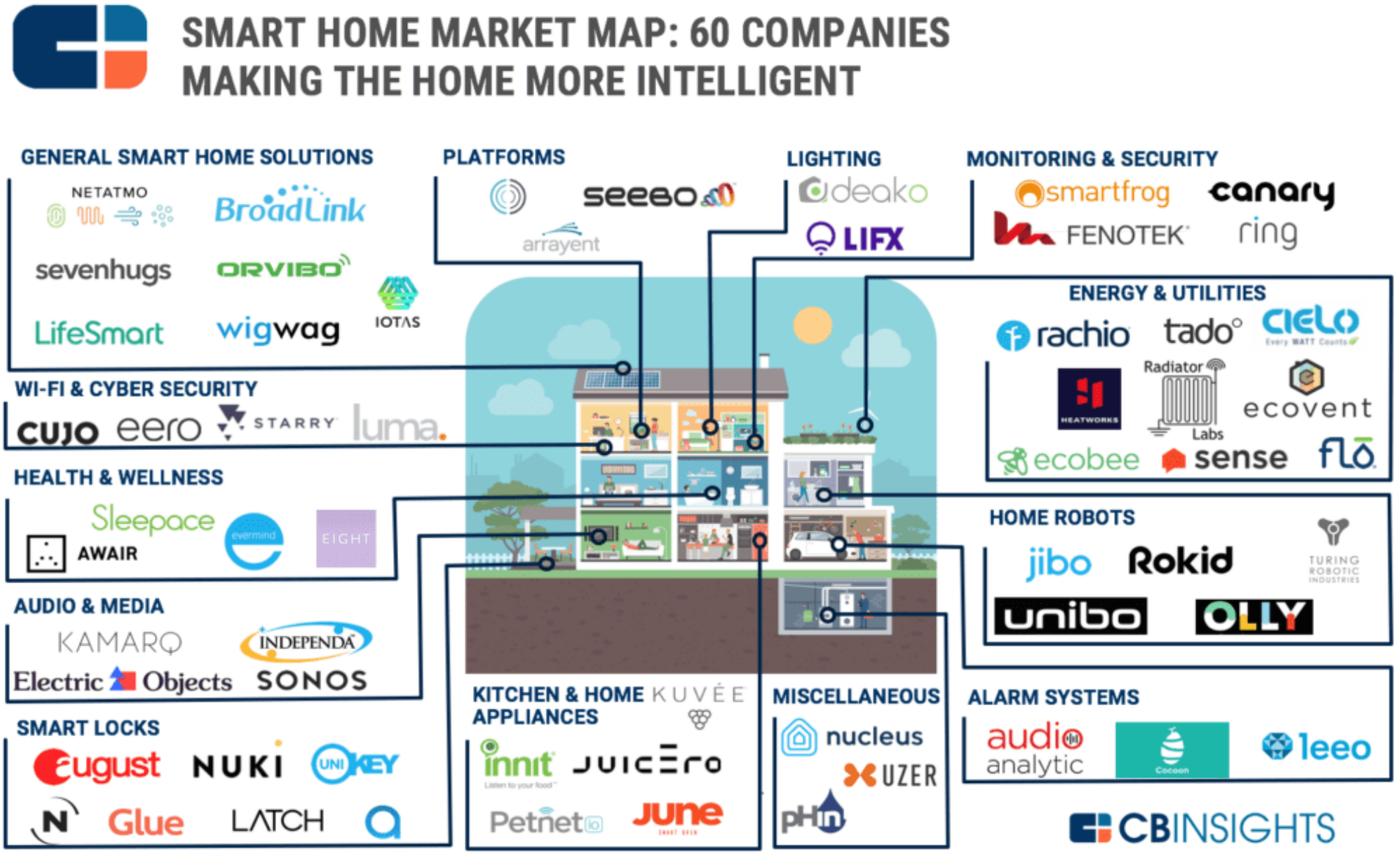
[FDA Clears Biobeat's Wearable Watch and Patch for Non-invasive Cuffless Monitoring **of Blood Pressure**](26 Aug, 2019)

[Omron's smartwatch blood pressure monitor cleared by FDA](December 20, 2018)

[Garmin Health Partners with ActiGraph to Create Wearables for Clinical Trials](December 17, 2018)

medical-grade EKG
https://www.alivecor.com

Integration with Home Technologies



InfoSAGE™
Information Sharing Across Generations

Beth Israel Deaconess Medical Center | HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

50 YEARS 1970 – 2020 *Division of Clinical Informatics*

Past Members

Warner Slack
Eli Kaldany
Ruchira Jain
Max Gorenberg
David Skerry
Yipei Chen
Alex Orfanos
Jacqueline O'Brien
Diane Engorn
Henry Feldman
Jorge Rodriguez
Frank Pandolfe
Adarsha Bajracharya
John Pearson
Andrew Wesson

CareAcademy™

Team

Charles Safran (BIDMC)
Yuri Quintana (BIDMC)
Darren Fahy (BIDMC)
William Mosby (BIDMC)
Roger Davis (BIDMC)
May Adra (BIDMC)
Lewis Lipsitz (BIDMC HSL)
Madhuri Reddy (BIDMC)
Brad Crotty (Wisconsin)
Juan Henao (Colombia)
Jack Li (Taiwan)
Yen Po Chin (Taiwan)

Connected Home Care

Collaborators

Hebrew SeniorLife

LASELL VILLAGE
A passion for living, learning, and laughter

CHA Cambridge Health Alliance

Froedtert & Medical College of Wisconsin

FUNDACIÓN VALLE DEL LILI
Excelencia en Salud al servicio de la comunidad

TAIPEI MEDICAL UNIVERSITY
臺北醫學大學

Evaluation Methods for Telemedicine

U.S. Department of Veterans Affairs

TBI Telehealth

Key Objective of study: Enhancing Access: A Pilot Study to evaluate Traumatic Brain Injury (TBI) assessment in rural areas of U.S. territories using appropriate English and Spanish instruments via Telehealth and Veterans Video Connect (VVC) interventions

- Determine feasibility and acceptability of Telehealth and Veterans Video Connect (VVC) interventions for Traumatic Brain Injury (TBI) screening and comprehensive evaluation, for Veterans residing in rural areas in the Caribbean U.S. territories (PI: Dr. Irma L. Molina-Vicenty)

Location:

- VA Caribbean Healthcare System run by the US Dept. of Veteran's Affairs in San Juan, Puerto Rico

- The VA Caribbean Healthcare System provides services to 64,488 Veterans in Puerto Rico and the U.S. Virgin Islands.
  Source: https://www.caribbean.va.gov

U.S. Department of Veterans Affairs

TBI Telehealth

What are we trying to measure?

- Patient satisfaction with Telehealth as a mode of TBI delivery
- Identify target population size and acceptance rate for Telehealth
- Assess reliability of Spanish and English telemedicine satisfaction surveys

Source: https://www.caribbean.va.gov

Patient Experience & Satisfaction

- Patient satisfaction and patient experience are often used interchangeably, but they are not the same thing.
- Patient experience encompasses the range of interactions that patients have with the health care system. (Source: AHRQ)
- To assess patient experience, one must find out from patients whether something that should happen in a health care setting, such as clear communication with a provider, actually happened or how often it happened.
- Satisfaction is whether a patient's *expectations* about a health encounter were met. Two people who receive the exact same care, but who have different expectations for how that care is supposed to be delivered, can give different satisfaction ratings because of their different *expectations*.

Source: AHRQ https://www.ahrq.gov/cahps/about-cahps/patient-experience/index.html

Using Surveys

- Pros
  - Surveys are confidential
  - Low cost
  - Scales can be used across studies
  - Survey quality can be systematically validated
- Cons
  - Inadequate consideration of constructs
  - Using unvalidated surveys
  - Poor adherence to survey guidelines

Source:
Langbecker D, Caffery LJ, Gillespie N, Smith AC. Using survey methods in telehealth research: A practical guide. J Telemed Telecare. 2017 Oct;23(9):770-779. doi: 10.1177/1357633X17721814. Epub 2017 Jul 20. PMID: 28728502.

Telemedicine for VA Patients

- PubMed search strategy (Dec 2020) using search terms for ”telemedicine” and “VA”→ 477 results
  - Narrowed to 2015-2020 → 281 results
  - From abstracts, 46 studies evaluated telehealth visits

- Key takeaways:
  - Most common disease states: mental health (11), diabetes (6), dermatology (3)
  - 24 studies measured patient satisfaction/experience as an outcome
    - 2 used VA’s Clinical Video Telehealth survey (CVT)
    - 1 used VA’s Store and Forward Telehealth survey (SFT)
    - Others used personalized questionnaires

Department of Veterans Affairs

Clinical Video Telehealth (CVT) Satisfaction Survey

	STRONGLY DISAGREE		DO NOT AGREE or DISAGREE or N/A		STRONGLY AGREE
Example: *I felt well when I woke up this morning.*	1	2	3	4	5
I felt comfortable with the equipment used.	1	2	3	4	5
I was able to see the clinician clearly.	1	2	3	4	5
I was able to hear the clinician clearly.	1	2	3	4	5
There was enough technical assistance for my meeting with the clinician.	1	2	3	4	5
My relationship with the clinician was the same during this session as it is in person.	1	2	3	4	5
The location of the telehealth clinic is convenient for me.	1	2	3	4	5
My needs were met during the session.	1	2	3	4	5
I received good care during the session.	1	2	3	4	5
The telehealth clinic provided the care I expected.	1	2	3	4	5
Overall, I am satisfied with this telehealth session.	1	2	3	4	5
I would recommend this type of session to other veterans.	1	2	3	4	5
I would rather use telehealth to receive this service than travel long distance to see my provider.	1	2	3	4	5

Please list any additional comments:

Source: https://www.reginfo.gov/public/do/DownloadDocument?objectID=27789601

What is a Validated Survey?

- Validating a survey refers to the process of assessing the survey questions for their dependability
- Validity looks at the extent to which a survey instrument measures its intended constructs
- Reliability considers the extent to which the questions used in a survey instrument consistently elicit the same results each time it is asked in the same situation on repeated occasions.

Sources: *Reliability and validity assessment* by Carmines and Zeller (1979) https://methods.sagepub.com/book/reliability-and-validity-assessment
Survey Data: Reliability and Validity? Are they Interchangeable? https://explorance.com/blog/survey-data-reliability-and-validity-are-they-interchangeable/
The quality of qualitative research https://pubmed.ncbi.nlm.nih.gov/18820144/

Validated Surveys

Summary of Steps to Validate a Questionnaire

1. Establish Face Validity
2. Pilot test
3. Clean Dataset
4. Principal Components Analysis
5. Cronbach's Alpha
6. Revise (if needed)

Source: Validating a Questionnaire By Dave Collingridge(2015)
https://www.methodspace.com/validating-a-questionnaire

Validated Surveys for Telemedicine

1. Computer System Usability Questionnaire (CSU Q)
2. **Patient Assessment of Communication during Telemedicine (PACT)**
3. Perceived Efficacy in Patient-Physician Interations (PEPPI-5)
4. Patient Experience Questionnaire (PEQ)
5. System Usability Scale (SUS)
6. **Technology Acceptance Model (TAM)**
7. Telehealth Satisfaction Scale (TeSS)
8. Telehealth Interaction and Satisfaction Questionnaire (TISQ)
9. **Telemedicine Perception Questionnaire (TMPQ)**
10. **Telemedicine Satisfaction and Usefulness Questionnaire (TSUQ)**
11. **Telehealth Usability Questionnaire (TUQ)**
12. **Telemedicine Satisfaction Questionnaire (TSQ)**

Weaver, Meaghann S., et al. “Human Connection and Technology Connectivity: A Systematic Review of Available Telehealth Survey Instruments.” Journal of Pain and Symptom Management, Oct. 2020. ScienceDirect, doi:10.1016/j.jpainsymman.2020.10.010.

Technology Acceptance Model (TAM)

- Background: Developed in 1989, for predicting user acceptance of computers
- Domains: Perceived usefulness, ease of use, attitude, intention to use
- Validated populations: US postgrad students, physicians in HK tertiary hospitals, preservice teachers in Singapore/Malaysia
- Number of Questions: 12
- Pros: Validated in many different populations,
- Cons: Only asks about technology (no questions about human interaction), technology has considerably changed since 1989

Source .
Davis, Fred D. "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology." *MIS Quarterly*, vol. 13, no. 3, 1989, pp. 319–340. *JSTOR*, www.jstor.org/stable/249008. Accessed 5 Feb. 2021.
Weaver, Meaghann S., et al. "Human Connection and Technology Connectivity: A Systematic Review of Available Telehealth Survey Instruments." Journal of Pain and Symptom Management, Oct. 2020. ScienceDirect, doi:10.1016/j.jpainsymman.2020.10.010.

Telemedicine Satisfaction and Usability Questionnaire (TSUQ)

- Background: Created for use for IDEATel project, an RCT comparing telemedicine case management with usual care in older patients with diabetes mellitus in New York. Built on TMPQ and other monitoring items related to blood pressure and glucose monitoring
- Validated Population: Adults 55+ with T2DM
- Constructs: Perceived usefulness, perceived effectiveness, perceived ease of use, attitude, intention to use, comparing telemedicine to in-person
- Number of questions 26
- Pros: Evaluates both communication modality and human experience with communication, available in Spanish
- Cons: Unidirectional (patient/family member only)

Source: Bakken S, Grullon-Figueroa L, Izquierdo R, et al. Development, validation, and use of English and Spanish versions of the telemedicine satisfaction and usefulness questionnaire. J Am Med Inform Assoc. 2006;13(6):660-667. doi:10.1197/jamia.M2146. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1656962/
Weaver, Meaghann S., et al. "Human Connection and Technology Connectivity: A Systematic Review of Available Telehealth Survey Instruments." Journal of Pain and Symptom Management, Oct. 2020. ScienceDirect, doi:10.1016/j.jpainsymman.2020.10.010.

Telemedicine Satisfaction Questionnaire (TSQ)

- Background: Built to evaluate patient satisfaction with telemedicine
- Constructs: Satisfaction, technical quality, interpersonal manner, communication, financial aspects, time, accessibility and convenience
- Validated populations: Newly diagnosed Chinese diabetic patients age 40-70
- Number of Questions: 14
- Pros: Covers communication modality and human experience, short, high internal consistency reliability, available in Chinese
- Cons: Unidirectional, evaluated on adult patients only

Source: Yip MP, Chang AM, Chan J, MacKenzie AE. Development of the Telemedicine Satisfaction Questionnaire to evaluate patient satisfaction with telemedicine: A preliminary study. Journal of Telemedicine and Telecare. 2003;9:46–50. https://pubmed.ncbi.nlm.nih.gov/12641893
Weaver, Meaghann S., et al. "Human Connection and Technology Connectivity: A Systematic Review of Available Telehealth Survey Instruments." Journal of Pain and Symptom Management, Oct. 2020. ScienceDirect, doi:10.1016/j.jpainsymman.2020.10.010.

Telemedicine Perception Questionnaire (TMPQ)

- Background: Goal to assess patients' impressions of the risks and benefits of home telecare
- Validation Population: Residents of elderly assisted-living and a church community
- Constructs: Communication, privacy/confidentiality, time and cost savings, difficulty, accessibility, physical contact, trust in equipment, standardization for future, satisfaction
- Number of Questions: 17
- Pros: Short, evals communication modality and human experience
- Cons: Licensed, English only

Source: Demiris G, Speedie S, Finkelstein S. A questionnaire for the assessment of patients' impressions of the risks and benefits of home telecare. J Telemed Telecare. 2000;6(5):278-284. doi:10.1258/1357633001935914.
Weaver, Meaghann S., et al. "Human Connection and Technology Connectivity: A Systematic Review of Available Telehealth Survey Instruments." Journal of Pain and Symptom Management, Oct. 2020. ScienceDirect, doi:10.1016/j.jpainsymman.2020.10.010.

Telehealth Usability Questionnaire (TUQ)

- Background: Developed as a comprehensive questionnaire that covers all usability factors in 2016. Combines items from existing telehealth questionnaires (TSQ) with those from computer usability questionnaires (TAM/PSSUQ).
- Constructs: Usefulness, ease of use and learnability, interface quality, interaction quality, reliability and effectiveness, satisfaction
- Validated populations: US patients/clinicians w/ and w/o telehealth experience
- Number of Questions: 21 questions
- Pros: Intended for patients and clinicians, focused on usability primarily, good internal consistency/reliability
- Cons: Content validity was determined from prior validated survey items

Source: Parmanto B, Lewis AN Jr, Graham KM, Bertolet MH. Development of the Telehealth Usability Questionnaire (TUQ). *Int J Telerehabil*. 2016;8(1):3-10. Published 2016 Jul 1. doi:10.5195/ijt.2016.6196. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4985278/
Weaver, Meaghann S., et al. "Human Connection and Technology Connectivity: A Systematic Review of Available Telehealth Survey Instruments." Journal of Pain and Symptom Management, Oct. 2020. ScienceDirect, doi:10.1016/j.jpainsymman.2020.10.010.

Patient Assessment of Communication During Telemedicine (PACT)

- Background: Developed primarily to eval quality of physician-patient communication using telemedicine
- Domains: Patient-centered communication, convenience, perceived provider competence and interpersonal skills
- Validated populations: Outpatients at pulm/endo/rheum clinic at US VA hospital
- Number of Questions: 45
- Pros: High internal consistency reliability, highly focused on patient satisfaction, validated via RCT comparing tele vs in-person
- Cons: Doesn't include technology interface aspect (i.e., how hard it was to use the videoconferencing platform), fairly long, does not eval communication modality

Source: Agha Z, Schapira RM, Laud PW, McNutt G, Roter DL. Patient satisfaction with physician-patient communication during telemedicine. Telemed J E Health. 2009 Nov;15(9):830-9. doi: 10.1089/tmj.2009.0030. PMID: 19919189.
Weaver, Meaghann S., et al. "Human Connection and Technology Connectivity: A Systematic Review of Available Telehealth Survey Instruments." Journal of Pain and Symptom Management, Oct. 2020. ScienceDirect, doi:10.1016/j.jpainsymman.2020.10.010.

Choosing Your Outcomes of Interest

- Select outcomes and population of interest
- Example outcomes
  - Satisfaction, Experience, Technical quality, Usefulness
- Constructs are used to measure outcomes
  - Method of care delivery, increased patient knowledge, empowerment, or access to care

Source:
Langbecker D, Caffery LJ, Gillespie N, Smith AC. Using survey methods in telehealth research: A practical guide. J Telemed Telecare. 2017 Oct;23(9):770-779. doi: 10.1177/1357633X17721814. Epub 2017 Jul 20. PMID: 28728502.

Selecting Your Survey

- Use a validated instrument if possible
- Matches the definition and conceptualization of chosen construct
- Good construct, content, criterion validity
- Reliable
- Stable factor structure across studies
- Responsiveness to changes over time
- Designed and validated in a population similar to yours

Source:
Langbecker D, Caffery LJ, Gillespie N, Smith AC. Using survey methods in telehealth research: A practical guide. J Telemed Telecare. 2017 Oct;23(9):770-779. doi: 10.1177/1357633X17721814. Epub 2017 Jul 20. PMID: 28728502.

Other Considerations

- Readability
- Length
- Sensitive topics
- Concepts with multiple meanings
- Consistency of response choices

Source:
Langbecker D, Caffery LJ, Gillespie N, Smith AC. Using survey methods in telehealth research: A practical guide. J Telemed Telecare. 2017 Oct;23(9):770-779. doi: 10.1177/1357633X17721814. Epub 2017 Jul 20. PMID: 28728502.

Modifying Your Survey

- Modifying and validating a survey
  - If no survey is acceptable, you can modify a validated survey or build a new one
  - If modifying a survey, or using it in a new environment than where it was validated, it is best practice to pilot the survey and examine the validity and reliability of the new instrument

Piloting and Validation

- Pilot Study #1
  - Assess face validity and usefulness of survey items
  - Delete poor performing items
  - Ensure all relevant constructs are assessed
- Pilot Study #2
  - Ensure final version of survey works
- Validation study
  - Use a large representative sample
  - Establish construct, convergent, discriminant, criterion validity

Source:
Langbecker D, Caffery LJ, Gillespie N, Smith AC. Using survey methods in telehealth research: A practical guide. J Telemed Telecare. 2017 Oct;23(9):770-779. doi: 10.1177/1357633X17721814. Epub 2017 Jul 20. PMID: 28728502.

Survey Conducting and Reporting

- Sampling frame and strategy
- Sample size
- Administration method
- Strategies to improve response rate
- Data management procedures and analytic decisions
- Disclosure to participants
- Privacy

Source:
Langbecker D, Caffery LJ, Gillespie N, Smith AC. Using survey methods in telehealth research: A practical guide. J Telemed Telecare. 2017 Oct;23(9):770-779. doi: 10.1177/1357633X17721814. Epub 2017 Jul 20. PMID: 28728502.

Conclusions

- There is a rising demand for health care due to changing demographics and rising chronic disease management
- There are not enough healthcare providers to meet the needs of an aging population, and the tools to coordinate care are poor or non-existent.
- Patients and Families are under utilized. InfoSAGE helps families become more engaged and coordinated in their care plan
- Evaluations of InfoSAGE Show that we can meaningfully engage families.
- Using Validated surveys will be important to obtain objective measures of patient satisfaction and patient experience (two distinct measures).

Selected Yuri Quintana Publications

ALICANTO http://www.alicantocloud.com

Development, Evaluation, and Implementation of a Pan-African Cancer Research Network: Men of African Descent and Carcinoma of the Prostate. J Glob Oncol. 2018 Sep;(4):1-14. PubMed PMID: 30260755.

Henao J, Quintana Y, Safran C. Alicanto Online Latin American Maternal Informatics Community of Practice. Stud Health Technol Inform. 2019 Aug 21;264:1676-1677. doi: 10.3233/SHTI190592. PubMed PMID: 31438288.

INFOSAGE https://www.infosagehealth.org

Quintana Y, Henao J, Kaldany E, Gorenbeg M, Chen YP, Adra M, Lipsitz L, Safran C. InfoSAGE: Usage Pattern of a Family-Centric Care Coordination Online Platform. Stud Health Technol Inform. 2019 Aug 21;264:1972-1973. doi:10.3233/SHTI190740. PubMed PMID: 31438434.

Quintana, Y, Fahy, D, Crotty, B, Jain, R, Kaldany, E, Gorenberg, M, Lipsitz, L, Engorn, D, Rodriguez, J, Orfanos, A, Bajracharya, A, Henao, J, Adra, M, Skerry, D, Slack, WV. InfoSAGE: Supporting Elders and Families through Online Family Networks. American Medical Informatics Association Annual Symposium 2018 Dec 5;2018:932-941. eCollection 2018. PubMed PMID: 30815136.

GLOBAL HEALTH INFORMATICS

Quintana Y, Safran C. eCare at a Distance: Opportunities and Challenges. Research on the use of Information and Communication Technologies in Brazilian health facilities - Health ICT 2014. Pgs 167-177. August 20, 2015. http://bit.ly/1Iryi1J

Quintana Y, Safran C. Global Health Informatics—An Overview. In Heimar de Fátima Marin, Eduardo Massad, Marco Antonio Gutierrez, Roberto J. Rodrigues and Daniel Sigulem, editors: Marin-Global Health Informatics, Oxford: Academic Press, 2016 , pp. 1 - 13. Chapter 1.
https://www.elsevier.com/books/global-health-informatics/marin/978-0-12-804591-6

Quintana, Y. Challenges to Implementation of Global Translational Collaboration Platforms. MOJ Proteom Bioinform. 2015;2(6):65. PubMed PMID: 26798845

Quintana Y, Patel AN, Arreola M, Antillon FG, Ribeiro RC, Howard SC. POND4Kids: A Global Web-based Database for Pediatric Hematology and Oncology Outcome Evaluation and Collaboration. Stud Health Technol Inform. 2013;183:251-6. PMID: 23388293

Projects: http://www.yuriquintana.com Papers at https://www.researchgate.net/profile/Yuri_Quintana

Beth Israel Deaconess Medical Center

HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

DIVISION OF CLINICAL INFORMATICS™

An Academic Division of the Dept of Medicine at Harvard Medical Faculty Physicians at BIDMC, Inc.

Contact

Yuri Quintana, Ph.D.

Chief, Division of Clinical Informatics

Beth Israel Deaconess Medical Center

Harvard Medical School

Email: yquintan@bidmc.harvard.edu

Web: www.yuriquintana.com

LinkedIn: www.linkedin.com/in/yuriquintana

Twitter: www.twitter.com/yuriquintana