

The graphic features a central dark blue circle containing the text 'UIC' in light blue. This circle is surrounded by concentric rings of yellow and red. From the right side of the circle, a thick yellow line extends upwards and to the right, and a thick red line extends downwards and to the right. The background is a solid light blue.

UIC

Alumni Exchange

**COLLEGE
OF NURSING**

The Future of Aging: How Technology Enhances Older Adult Care Across the Globe

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University of Illinois Chicago

June 24, 2021

Welcome

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Disclosure

Dr. Gruss has current funding from:

- Health Resources and Services Administration (HRSA)
- Center for Disease Control
- AWHONN
- NIH

Land Acknowledgement

The University of Illinois System -- with its universities in Urbana-Champaign, Chicago, and Springfield -- rests on the land of multiple native nations. These lands were the traditional birthright of indigenous peoples who were forcibly removed and who have faced two centuries of struggle for survival and identity in the wake of dispossession. We hereby acknowledge the ground on which we stand so that all who come here know that we recognize our responsibilities to the peoples of that land and that we strive to address that history so that it guides our work in the present and the future.

The Land Acknowledgement Statement below is a respectful public acknowledgement of the traditional guardians of the land at events or gatherings, either by the host of ceremonies or a designee.

Land Acknowledgement Statement I would like to begin today by recognizing and acknowledging that the U of I System carries out its mission in its namesake state, Illinois, which includes ancestral lands of the Peoria, Kaskaskia, Piankashaw, Wea, Miami, Mascoutin, Odawa, Sauk, Mesquaki, Kickapoo, Potawatomi, Ojibwe, and Chickasaw Nations. We have a responsibility to acknowledge these Native Nations and to work with them as we move forward as a vibrant, inclusive institution.

Pronunciations:

Peoria (Pea-Or-E-ah)

Kaskaskia (Kahs-KAHS-kee-ah)

Piankashaw (Pea-AN-kah-shah)

Wea (Way-ah)

Miami (My-Am-E)

Mascoutin (Mah-SCOH-tin)

Odawa (Oh-DAH-wah)

Sauk (SAH-uk)

Mesquaki (Meh-skw-AH-kee)

Kickapoo (KICK-a-poo)

Potawatomi (Pot-tah-WAH-tah-mee)

Ojibwe (Oh-JIB-way)

Chickasha (Chi-KAH-shah)

U.S. Aging Society Demographics

U.S.

318 million people

- 46 million are older adults (15%)
- 2020, older adults outnumber children younger than 5 years

PROJECTION:

- 2060 98 million older adults (23.4%)

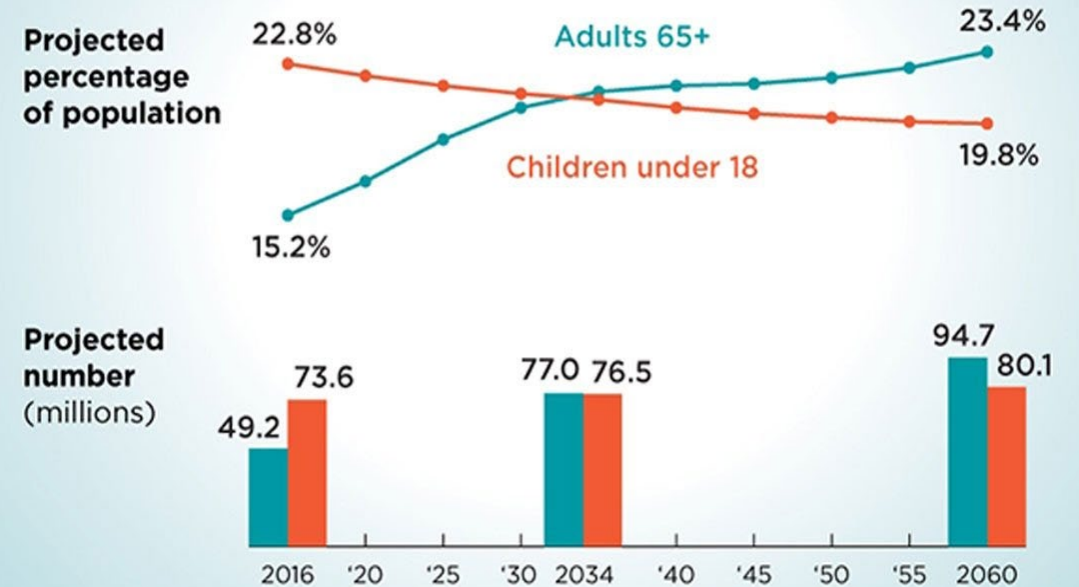
Chicago

- 3 million people,
- 0.4 million are older adults (60+)

PROJECTION:

- 2030 Illinois = 30%

For the First Time in U.S. History Older Adults Are Projected to Outnumber Children by 2034



Changing the Narrative on Ageism and Ageist stereotypes

Old Age – is 65 to 100 years

Very different each decade

Yet “older adult” includes 65 years – 100 years

Comparing 20-year-old to 35- -year-old – how different are they?

103-year-old nicknamed the “Hurricane” wins yet another gold in 100 meter dash (2019)

<https://abcnews.go.com/GMA/Wellness/103-year-nicknamed-hurricane-wins-gold-100-meter/story?id=63805525>



3 *Challenges* and 3 *Solutions* using Technology

- 1. *Challenge:*** Increasing aging population while there is a decreasing number of clinicians trained in geriatrics. ***Solution:*** Provide online virtual geriatric training to educate the future primary care workforce in geriatrics
- 2. *Challenge:*** Increasing aging population with increasing numbers of persons with dementia. Persons with dementia and families need information on dementia management, treatment and resources. ***Solution:*** Utilize mobile app technology to change the way information on dementia is disseminated.
- 3. *Challenge:*** Most vulnerable older adults are home bound and unable to visit clinics for in-person care. ***Solution:*** telehealth E-visits with clinicians and home monitoring devices for virtual status updates

The Challenge #1:

↑ Increasing aging population, ↓ decreasing number of clinicians trained in geriatrics

The number of healthcare professionals trained to provide comprehensive patient-centered care for older adults has not kept pace with the growing older adult population

The Solution

Creating the Healthiest Older Adult Population by
*Preparing and Educating the
Future Geriatric Primary Care Workforce*



Preparing the Future Geriatric Primary Care Workforce

HRSA Geriatrics Workforce Enhancement Program

GWEP: An interprofessional collaborative education and practice initiative to enhance care of older adults

HRSA Grant # U1QHP28730



Engage.il.com

Enhance health care professionals' knowledge and competence to integrate geriatrics into primary care to better care for our increasing older adult population

Preparing the Future Geriatric Primary Care Workforce



Method: Use **technology** to educate faculty, residents and students about interprofessional collaboration in geriatric practice and reach the largest audience...

Engage.il.com

Online Accredited Learning in Interprofessional Geriatrics program



Information Technology: Utilize emerging technologies to positively impact and improve learning

Modern Healthcare “We are seeing the beginning of convergence between devices and apps used by clinicians and those used by consumers”

Using technology to create a mechanism for reaching clinicians which is

- Convenient and affordable
- Provide evidence-based information
- Offer flexible learning opportunities with continuing education credits



Key elements and strengths of an interprofessional online geriatrics course

Elements of an innovative approach using emerging technologies to positively impact and improve training:

- ✓ Evidence based content on variety of topics for multiple disciplines
- ✓ Flexible program, accessible (online)
- ✓ Cost-effective (free)
- ✓ Offer free continuing education credits for medicine, nursing, pharmacy, social work and occupational therapy





Key elements



Engage.il.com

Online library of over 27 geriatric educational videos

Elder Abuse & Self-Neglect

Gero Pharmacy

Fall Prevention

Sleep Quality & the Older Adult

Palliative Care

Driving Safety

Caregiver Burden

End of Life & Advance Directives

Pain Management

Depression & Delirium

Transitional Care

Medication Management

Sexuality & the Older Adult

Geriatric Assessment

The Process of Aging

Community Home Based Services

Promoting Physical Activity

Dementia (4 modules)

Older Adults with Special Needs

Communication with Health Providers

Older Adult with Multiple Chronic Conditions

Oral Health

Common Acquired Hospital Complications

Health Systems Part 1: Changing Global and National Populations

Health Systems Part 2: Pathways to Care, State Programs for Older Adults

Screening and Health Promotion

Disorders of Movement

Innovative online learning modules

Created in three film styles, *Narrate*, *Demonstrate*, and *Relate*

- Using documentary film style with actors as narrators, infographics and animation
- Video interviews with experts who are able to richly demonstrate and illustrate concepts
- Learners relate to case study patients, with videos that share rich stories engaging the learner

OUTCOMES

- Since March 2017, over **18,258 learning modules** have been completed by 4,956 learners
- Learners come from 49 different states
- 55.3% urban, 44.7% rural/suburban
- 71.7% residents/students 15.6% clinicians; 7.3% faculty, and 5.4% other



Outcomes:

Learner improved proficiency

Pre-course N=550; Post-course N=538; missing N=2

Learners Proficiency	Pre-Course	Post-Course
Unsatisfactory	19 (3.45%)	0 (0%)
Need for developing proficiency	202 (36.73%)	170 (31.02%)
Proficiency in caring for older adults	238 (43.27%)	246 (44.89%)
Exemplary proficiency in caring for older adults	91 (16.55%)	132 (24.09%)

Outcomes: Impact on Practice Change



Program completers listed examples of **changes** they will apply to their practice working with older adults as a result of your participation in this educational activity

- Learner “will encourage all staff to consider cultural preferences in end-of-life care”
- Learner: “will use the personal anecdotes from some of the speakers and apply them to appropriate situations and will use all of the websites and refer to the organizational resources presented in the module”
- Learner: “will add this information in my treatment notes”
- Learner “will create an EHR phrase with the recommended resources to be used on instruction printouts and share with colleagues”
- Learner “will stress using the ‘teach-back’ method on every patient at every visit”
- Learner will “incorporate pharmacologic and non-pharmacologic interventions in the care of dying patients”
- Learner “will bring up different aspects in the video and ask coworkers to bounce back ideas on how we can better approach and identify elder abuse and neglect”

Outcomes: Effects on Interdisciplinary Teams



Learners reported how they will **share module information with team** in order to develop a plan to improve patient care:

- Will “share the ‘clinician’s pause’ with my Interprofessional team because it will help us to grieve for our resident together and to acknowledge our own feelings and to support each other and it is okay to “acknowledge the pain that we bore witness to in caring for that family and caring for that patient”
- Will “share at staff meetings” Ex: “I will talk to my team about the Conversation Project website and show them the Conversation Project starter kit online”
- Will “share the information with team and create a list of areas that we may need to work on to improve patient care. I would then apply the information from the learning activity to areas that may need improvement”
- Will “share with staff at hospital”; “share at Interprofessional meetings”
- Will “explain the importance of respecting the needs of the patient’s wishes to the multidisciplinary team”
- Will “either send out a pamphlet in an email or in a staff meeting to provide education on elder abuse and when you must report it”
- Will” set an exemplary course of action such as putting a poster regarding important facts mentioned in the training video. Then I’d like to speak individually with each team member to see if they have any questions and if they are competent in understanding the concepts

The Challenge #2:

↑ Increasing aging population, ↑ number of persons with Alzheimer's disease and related dementias is increasing

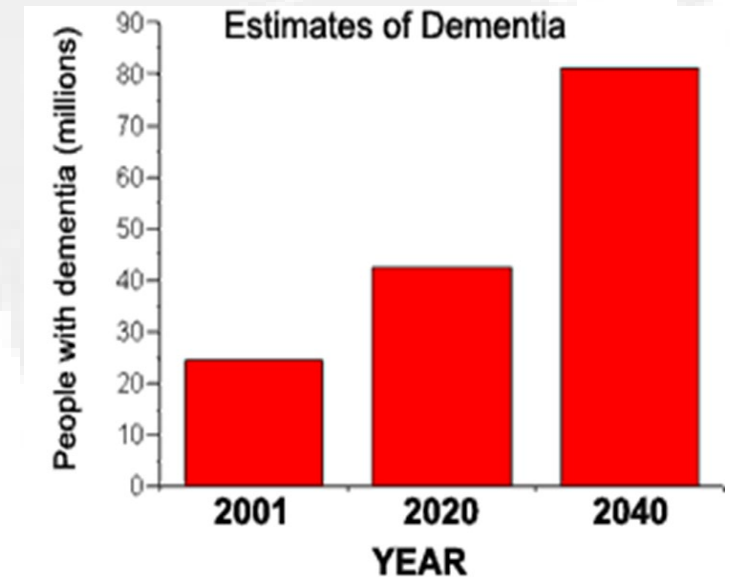
The Solution:

Educating the general public about dementia through mobile app technology. Utilizing mobile technology to change the way information on dementia, management, treatment, resources and support is disseminated.

Mobile App available for free across the globe.

Dementia and the Aging Population

- Over **5.3 million** people in U.S. have dementia
- Alzheimer's disease is the most common type of dementia 60-80% of dementia cases
- By 2050, the number of older adults with Alzheimer's is projected to nearly triple to **13.8 million** and it could be as many as 16 million!

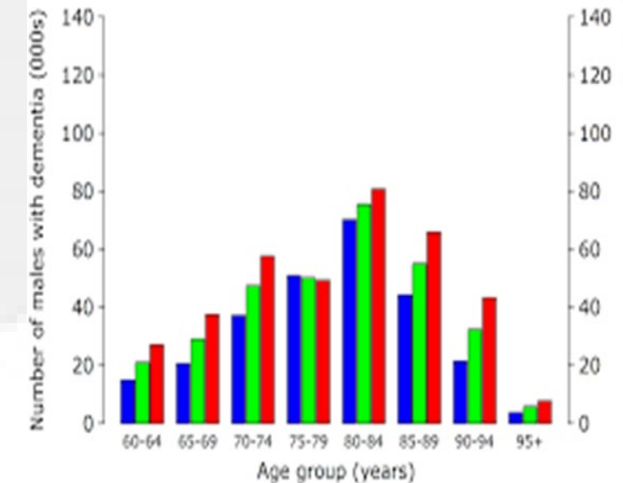


Dementia and the Aging Population

- Prevalence doubles every 5 years after age 60
- The prevalence of people with Alzheimer's dementia increases with age:
 - Age 65-74 years = 3%
 - Age 75-84 years = 17%
 - Age 85 and older = 32% www.Alz.Org/facts/

In U.S.:

- In 2017, U.S. Spent \$259 billion
- By 2050, cost estimated to increase to \$1.1 trillion www.Alz.Org/facts/



Dementia is one of the greatest burdens contributing to dependence and disability

Dementia

No cure or disease-modifying treatments at this time; however, appropriate care has the potential for improving quality of life

Life expectancy:

- **Typically, 6-8 years after diagnosis made;** however, some persons live up to 20 years after the first signs
- Older age at onset associated with earlier mortality
- Comorbidities decrease life expectancy

*Approach should be “**dementia-positive**” and focus on quality of life*

Alzheimer's Association, 2015. [2015 Alzheimer's Disease Facts and Figures](https://www.alz.org/alzheimers-disease/facts-and-figures)

<https://www.verywell.com/life-expectancy-alzheimers-prognosis-98818>

Why a Mobile App?



- There were more than 250 million daily **app** downloads between 2019–2020
- There will be 184 billion **apps** downloaded in 2024!

Healthcare mobile apps

- 500 million people were using healthcare mobile apps in 2015¹
- Healthcare providers and consumers are embracing smartphones as a means to improving healthcare²
- Mobile apps are a fundamental component in expanding and improving patient care and meeting needs of older adult population

Wireless Technology and Mobile Apps



- A mechanism for reaching consumers and providing evidence-based information which is convenient and affordable
- *Modern Healthcare* “We are seeing the beginning of convergence between devices and apps used by clinicians and those used by consumers”³

Designing a Mobile App: Needs Assessment



- Hundreds of apps about Alzheimer's disease/dementia
 - Most related to management of persons already diagnosed, including "memory games" and importance of healthy lifestyles
- What was lacking was:
 - Evidence-based app created by geriatric experts educating on the types and stages of dementia, risks, symptoms, diagnostic criteria, treatment and management
 - Appropriate management and communication techniques
 - Links to resources and support services to assist persons with dementia and families as they journey through the trajectory of the illness

Designing a Mobile App: Developing the Concept



Identify practical ‘steps’ to successfully develop mobile app educational tools

- Designing a mechanism which serves as a ‘guide’ for **Persons with Dementia and families and caregivers** as they navigate through the trajectory of their illness

“Dementia Guide Expert” mobile app

- Created with interprofessional collaboration of Content Experts & Technology Experts (Administrative Information Technology Services, AITS)

Developing the Concept

The journey through dementia stages:

- What is dementia?
- Diagnosis and treatment
- Living with dementia
- Planning for the future



Usability Testing

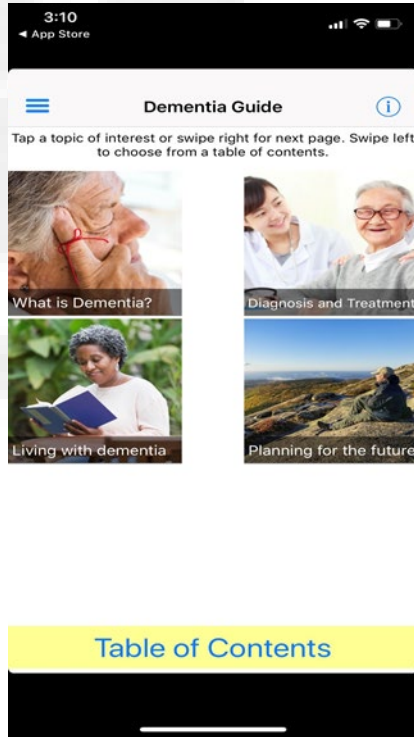
Beta Testing with older adults and caregivers

Method 1: **Older Adults** at Senior Centers

- Examine usability, functionality and content
- Through observation and interviews:
 - ✓ Determined which maneuvers were intuitive
 - ✓ Older adult subjects “liked the pictures”, found the content “important for everyone”, “useful” and to assist with navigation, recommended a “book style” format
- The App was then modified to include an option to access all information through book style chapters



Modifications based on beta testing



Change design
to add a
“Table of Contents”



www.engageil.com

Transforming the Alzheimer experience
with a **Mobile App:**
Dementia Guide Expert

Download the FREE App now !!

Available for iOS on Apple iTunes and for
Android on Google Play

Spanish: Guia Experta Sobre La Demencia

Korean: 치매 안내 전문가

Questions: Contact:

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Dr. M. Hasnain: memoonaa@uic.edu



Available in Spanish



Available in Korean

Tracking Devices to Collect Data

App Data Analytics:

December 2017-January 2021

- **56,211 Downloads/Views**
- 83% iPhone, 17% iPad
- 12 Countries: Australia, Brazil, Canada, China, Germany, Japan, Korea, New Zealand, Spain, Taiwan, U.K., U.S.



App Updates

NEW Version 2021 !

New design with accessibility features for
Persons with Disabilities

The Challenge #3:

Most vulnerable older adults are not able to visit clinics for in-person care – necessitating increasing range of community services provided outside hospitals and clinics

The Solution:

Implementing Telehealth in underserved communities:
Implementing telehealth program for homebound older adults in underserved communities including daily health monitoring with home monitoring devices and providing telehealth visits with providers

HRSA T1M Cares Act COVID-19 Telehealth Funding

HRSA Grant # T1MHP39059



[Engage.il.com](https://engage.il.com)

We utilized the one-year CARES Act COVID-19 funding to develop, implement and evaluate a new pilot **telehealth program** for homebound inner-city older adults, an extremely vulnerable older adult population.

Program Objectives



- *Prevent*: Promote the use of telehealth technologies to reduce the risk of COVID-19
- *Prepare*: Enhance readiness to respond to COVID-19 through telehealth technologies
- *Respond*: Provide access to telehealth technologies to limit spread of COVID-19

Telehealth program for homebound older adults

- ✓ Virtual check-in with home monitoring devices
- ✓ E-telehealth visits with clinicians

Telehealth Training for

- Clinicians
- Patients
- Families



Virtual patient monitoring



Virtual check-in with home monitoring devices

Home monitoring devices for complex patients



Link+
User Guide



Health
Improving Aging in Place

Bluetooth Fingertip Pulse Oximeter (SPO2)



Bluetooth Blood Pressure Monitor



Step 1: Press red emergency button

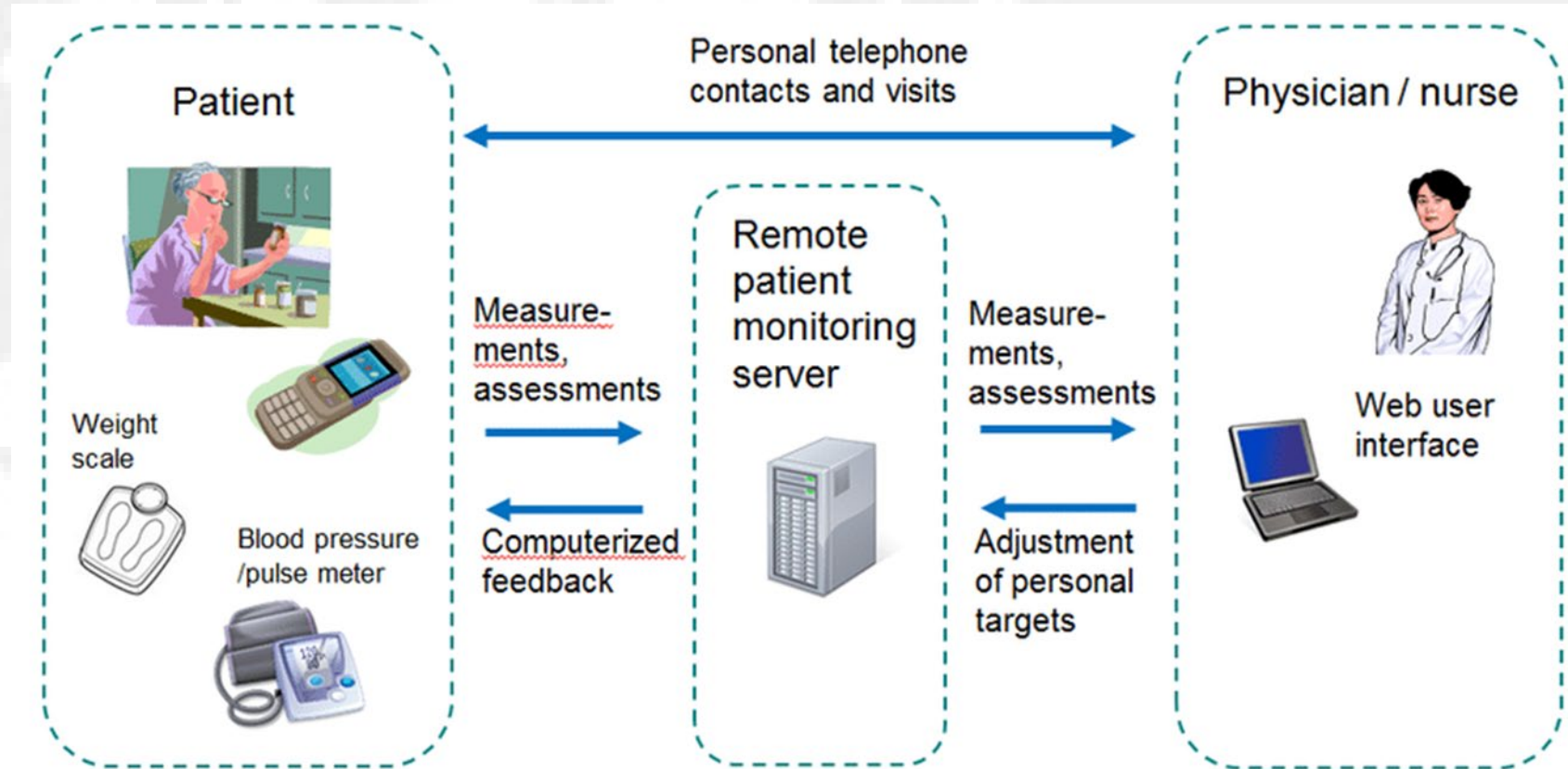
On the Link+ device, press the red emergency button and hold for **2 seconds** to call for help.

Step 2: Confirmation screen

After holding down the emergency button you will see a confirmation screen asking, **if you have an emergency**. If the request did not go through, you will see a screen prompting you to call 911. See below.



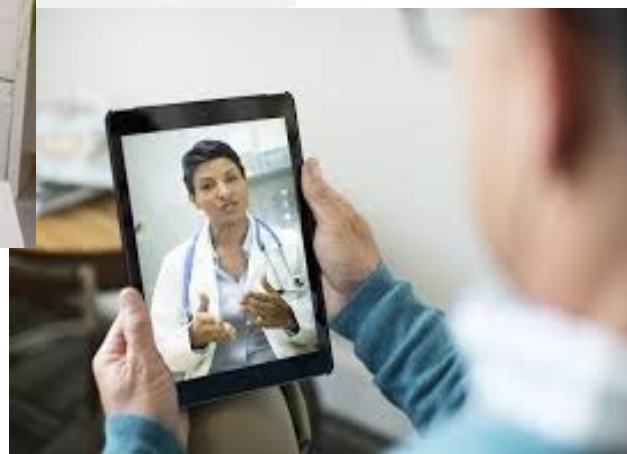
Patient Home Monitoring System data recording



Home Monitoring System with Clinic monitoring



E-Visits with Clinicians



Summary

- ENGAGE-IL has created an online geriatric training program that is engaging, accessible, improves learners' proficiency and confidence, and has a positive impact on practice change and interdisciplinary team training. This online interprofessional education and collaborative practice program is helping to develop the **future geriatric primary care workforce**
- Our *Dementia Guide Expert* mobile app is transforming the dementia experience by guiding clinicians, persons with dementia and their caregivers as they navigate through the trajectory of their illness
- Using **telehealth home monitoring devices and virtual e-visits** with clinicians provides care to the most vulnerable patients-those unable to visit clinics

Thank You

Questions and Discussion

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References

1. Jahns, RC. 500m people will be using healthcare mobile applications in 2015. 2010; <http://research2guidance.com/500m-people-will-be-using-healthcare-mobile-applications-in-2015/>.
2. Frost & Sullivan White Paper. Mobile Devices and Healthcare. www.frost.com
3. Conn J. No longer a novelty, medical apps are increasingly valuable to clinicians and patients. *Modern healthcare*. 2013;43(50):16-18, 20.
4. Hebert LE, et al. Alzheimer disease in the United States (2010-2050) estimated using the 2010 census. *Neurology*. May 7 2013;80(19):1778-1783.



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Visit advance.uic.edu/alumniexchange for PowerPoint slides and a recording of this presentation.

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