Building for the Future: Successful Approaches to Optimizing Function and PA for ALL Older Adults

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Where are We Now

• Less than 30% of older adults adhere to current PA recommendations.

• AL residents are generally dependent in 2 ADLS.

• NH residents are dependent in 4 ADLS

• Rates of decline are similar across both settings.
Where are We Now

• NH residents engage in no moderate level physical activity and are active for only 25% of time in a 24 hour period (sedentary or lying 75% of time).

• AL residents engaged in 0.70 minutes (SD=2.4) of moderate level PA or exercise, and used 54.4 kcals (SD=47.9 kcals) in a 24 hour period.
Where are We Now

- Older adults in acute care spend 83% of their time in bed and engaged in 515.3 (SD=779.3) minutes of low intensity physical activity, 4.6(SD=9.2) minutes in moderate intensity activity and burned on average 16.7, SD=1.7 kcals over the 24 hour period.
Challenges to PA and Function

- Lack of provider recommendations
- Lack of understanding of and belief in the benefits
- Motivation and ability to overcome barriers
- Access to care and resources?
- Care that creates dependency
- Symptoms: fear, pain, SOB, fatigue
- Policies and environments that prevent/decrease opportunity
Theoretical Support for Change

• Social Cognitive Theory
  – Self-efficacy
  – Outcome expectations
    • Performance
    • Verbal encouragement
    • Role models
    • Physiological feedback
Social Cognitive Theory Expanded

- New Activities
- Physical Sensations
- Goals
- Environment
- Benefits Physical Emotional
- Mastery
- Individual Care
- Social Support
- Motivation

Beneﬁts
Physical Emotional

Mastery

Individual Care

Social Support

Motivation

Goals

Environment

Physical Sensations

New Activities
Theoretical Support

• Social Ecological Models
  – Intrapersonal factors
  – Interpersonal factors: social cognitive theory
  – Environment
  – Policy
In Facilities and Communities

• Diffusion of Innovation Theory
  – The individual
  – The innovation
  – The community/setting
Presentations

• Changing the Philosophy of Care in Geriatrics: Function Focused Care
• Optimizing Function and PA Post Stroke
• Theory Based Online Health Interventions for Community Dwelling Older Adults
Usual Care

• The philosophy of care in institutional settings is generally focused on meeting all care needs of residents
  – In AL this is based on a fee-for-service type approach.
  – In NH daily rate
  – In community care fee-for-service and timed care
Usual Care

• Providing care for (e.g., bathing or dressing an individual) as opposed to with (i.e., helping the individual to complete as much of his or her own care as possible) older adults facilitates functional decline and decreases PA causing further deconditioning and disability.
Function Focused Care

• Engages residents in functional and PA at their optimal level.

• Based on underlying capability

• Includes a range of activities such as walking a resident to the dining room rather than pushing him or her in a wheelchair, encouraging and engaging a resident in an exercise class, or ROM
FFC

• Four Components
  – (I) Environmental and Policy Assessments and Interventions to Optimize Function;
  – (II) Education of Nurses, Team Members, Patients and Families;
  – (III) Function Focused Goal Development with Patients; and
  – (IV) Mentoring and Motivating of Patients and Nurses.
Environment and Policy

• **P-E Fit:** Evaluation of barriers to PA
  – Housing enablers
  – Clutter
  – Pleasant locations and destinations
  – Bed height; Chair height
    • Assure surface height is 115% of the patient’s lower leg length are needed.
    • > 120% of lower leg length (similar to a bar stool) is too high and < 80% of lower leg length are too low
Policy

• Getting in and getting out of the facility
• Allowing access to outdoors
• Marketing statements around what is provided
• Wording of care planning
Education

• Staff
• Families
• Patients/Residents/ Older Adults
• Formally and informally and repeatedly
  – Changing knowledge and beliefs
Setting Goals

• Based on underlying capability

• Pushing it to the next level appropriately and realistically
Capability Assessment

• ROM
  – Full ROM to 180 degrees of abduction (hands over head) ____ (1 yes; 0 if no)
  – Full external rotation (hands behind head) _____ (1 yes, 0 no)
  – Full internal rotation and adduction (hands in small of back)____ (1 yes, 0 no)
Capability

• Either lying or sitting point and flex your toes, bend and straighten your knees and or if sitting ask to march.
• able to flex ankle_____ (1 yes, 0 no)
• able to point toe______ (1 yes 0 no)
• able to range knees ______(1 yes, 0 no)
• able to march _____ (1 yes, 0 no)
Capability

- Chair rise - independently or how much help is needed (up to 10 minutes)
- how many tries does it take ____
  Scoring: 1-3= 1; > 3 times = 0
- Arms use_______(0 yes, 1 no)
- can they make it to a full stand and stand independently for 1 minute_______(1 yes, 0 no)
Capability

• Ask the participant to take a towel, fold it in half, and put it on the table.
  – Follows a 1 step verbal command (1=yes; 0=no)
  – Follows a 2 step verbal command (1=yes; 0=no)
  – Follows a 3 step verbal command (1=yes; 0=no)
  – Follows a 1 step visual/cueing command (1=yes; 0=no)
  – Follows a 2 step visual/cueing command (1=yes; 0=no)
  – Follows a 3 step visual/cueing command (1=yes; 0=no)
GOAL ATTAINMENT SCALE GUIDE

RESIDENT NAME: ____________________________  GOAL SETTER(S): ____________________________

Goal-setting Date: _______________  Number of Scales Written

Follow-up Date: _______________  Goal Attainment Score (Range -8 to +8, Expected = 0)

<table>
<thead>
<tr>
<th>Level of Predicted Attainment</th>
<th>Goal 1:</th>
<th>Goal 2:</th>
<th>Goal 3:</th>
<th>Goal 4:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much Less Than Expected -2</td>
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<tr>
<td>Somewhat Less Than Expected -1</td>
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<td>Expected 0</td>
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<td>Somewhat More Than Expected +1</td>
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<tr>
<td>Much More Than Expected +2</td>
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</table>
Mentoring and Motivating

• Motivational Interventions
  – For Staff
  – For Patients/Residents /Older Adults
Findings

• Consistently we have been able to improve knowledge and beliefs and behaviors related to FFC in staff

• Increase function

• Increase time in PA

• Improve mood and minimize behavioral symptoms

• Decrease hospital transfers

• DOES not increase falls or injury
Sometimes our Greatest is to have fun and Feel good.

I went running today.
Theory-based Online Health Interventions for Community-Dwelling Older Adults

Eun-Shim Nahm, PhD, RN (PI); Barbara Resnick, PhD, RN; Bausell Barker, PhD; Michele Bellantoni, MD; Jay Magaziner, PhD, UM School of Medicine; Barbara Covington, PhD, RN; Paul Estabrooks, PhD; Patricia Brennan, PhD, RN
Information Communication Technology (ICT) In Healthcare

- Recent advances in ICT offer great potential for improving public health.

- Current national emphasis on Electronic Medical Records (EMR), Personal Health Records (PHR), and eHealth.

- Various technologies (e.g., Internet, telemonitoring devices) to provide up-to-date health information and to manage chronic illnesses.

- As the population grows older, more chronic illnesses will be managed remotely using ICT.
Internet and Health Websites

• Popularity of the Internet (2008):  
  – 74% for American adults  
  – 56% of adults age 64 – 72  
  – 31% of adults age 73+

• Internet has been used to empower patients and family members to manage their own health.
Benefits of Health Websites for Older Adults

- **The Web** as a medium to deliver various supportive health interventions to older adult online users
  - Health education
  - Online support groups
  - Remote monitoring of health conditions
  - Personally controlled health records
Effective Online Delivery Method to Change Health Behavior

• A plethora of health websites
  – MedlinePlus; NIHSeniorHealth.gov; AARP.org, etc.
• “Making resources available on the Web” vs. “Offering resources to produce health outcomes”
• Effective way of packaging and delivering online content
• Lack of research to identify effective delivery methods for online interventions
Effective Online Delivery Method to Change Health Behavior

• A few Internet-based studies employed a theory-driven approach to deliver health interventions:
  – Focused more on younger adults
  – Used varying approaches and methods focusing on measuring outcomes only, rather than investigating methods to package and deliver online interventions.
Theory-Driven Health Web Sites: The Social Cognitive Theory

- **Social Cognitive Theory** (Bandura)
  - Goal setting, Motivation, Self-efficacy/Outcome expectations
  - An individual’s belief about efficacy affects goal setting
  - A person’s belief in his/her ability to carry out a behavior (self-efficacy) and in its benefits (outcome expectations) promote that person’s health behaviors.
Research Program

Theory-based Online Health Interventions for Older Adults

1. Theory-Based Online Hip Fracture Prevention Program for Older Adults
   National Institute on Aging (R21 AG026013, 02/2006 – 01/2008)

2. Feasibility of a Theory-Based Online Hip Fracture Resource Center for Caregivers
   National Institute on Aging (R21AG029578, 04/2007 – 04/2009)

3. Dissemination of a Theory-Based Bone Health Program in Online Communities
   National Institute of Nursing Research (R01NR011296, 08/2009 – 05/2013)
Theory-Based Online Hip Fracture Prevention Program for Older Adults

Eun-Shim Nahm, PhD, RN
Barbara Resnick, PhD, CRNP; Barbara Covington, PhD, RN;
Bausell Barker, PhD, Jay Magaziner, PhD, MSHg

Supported by National Institute on Aging
(R21 AG026013, 02/2006 – 01/2008)
Aims

1. To develop a Social Cognitive Theory-based, Structured Hip Fracture Prevention Web site (TSW)
   - structured Web learning modules
   - a moderated discussion board.

2. To compare the effects of the TSW to CW (Conventional HIP Web Sites) on knowledge (hip fractures and osteoporosis) gains, self-efficacy (calcium intake, exercise, and Web-based learning), outcome expectations (calcium intake, exercise) and health behavioral changes (dietary/supplementary calcium intake and exercise).
Design

- A randomized controlled trial employing a two-group comparison design with repeated measures.
- Assessments:
  - Baseline; End of treatment (EOT, 2-week); 3-month follow-up
Setting / Sample

Settings:

- SeniorNet
- Baltimore Times Online and its newspaper (a minority focused newspaper)

Sample:

- N = 245 (White: n = 223, 91.0% / Female n = 192, 78.4)
- Mean age: 69.3 + 7.7 years
- Education: n = 212 (85.5%) with some college or higher education.
Intervention Group Web site (TSW)
Learning to Prevent Hip Fractures

Osteoporosis

After the completion of this module, you will be able to:

1. Explain the definition of osteoporosis.
2. Identify at least three risk factors for osteoporosis.
3. Discuss frequently used diagnosis methods.
4. Identify two preventive methods for osteoporosis.

The content of the module:

- Page 1: Osteoporosis: Bone
- Page 2: Osteoporosis Defined
- Page 3: Osteoporosis Risk Factors
- Page 4: Osteoporosis: Symptoms and Diagnoses
- Page 5: Osteoporosis: Prevention
- Page 6: Osteoporosis: Treatment Options
- Page 7: Osteoporosis: Self Assessment

Previous Page  
Next Page
Osteoporosis

Symptoms
Osteoporosis is often called the "silent disease" because bone loss occurs without symptoms.

People may not know that they have osteoporosis until their bones become so weak that a sudden strain, bump or fall causes a fracture.

Diagnosis
To determine whether you have osteoporosis, or may be at risk for the disease, your doctor will ask you a variety of questions about your lifestyle and medical history.

Your doctor will want to know if anyone in your family has suffered from osteoporosis or fractured bones. Based on a comprehensive medical assessment, your doctor may recommend that you have your bone mass measured.

The U.S. Preventive Services Task Force (USPSTF) recommends that women 65 and older be screened routinely for osteoporosis. For women at high risk for fractures, the USPSTF recommends that screening begin at age 60.
Hi, Are you ready to assess your knowledge of falls and fractures?
Wonderful!
Select the "Next" button to my right to begin.
Is the following statement true or false?

Osteoporosis significantly increases the risk for fractures in the hip and spine.

Click on the correct answer below.

a. True
b. False

Very good! Your answer is correct. Yes, any bone can be affected by osteoporosis, but the risk for fractures of the hip and spine are significantly increased.
As we learned, osteoporosis causes bones to be more fragile and likely to break, which increases the risk of hip and other fractures. There are several risk factors for osteoporosis and many of them can be prevented or modified.

* Let’s think about our own risk factors. Among your risk factors, which ones do you think you can modify or do something about it?

We will talk in more detail later about prevention, including diet and exercise. But for now, let’s think about our current lifestyle.

* Are you currently practicing any of the preventive measures described on the website? Which one(s)? Do you plan to start any preventive measures based on what you’ve learned so far?

Thank you and look forward to reading your postings! <Eun-Shim>

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user168

The one risk factor I can do something about is "not getting enough weight-bearing exercise". I have an injury on my right leg which prevents me from doing any 'brisk' walking. The surgery for repair is scheduled for mid-January. However, my son recently got me a "souped-up" walker with 4 wheels, brakes, etc. I will start tomorrow using the walker up and down my street 3-4 times a week beginning with 10-15 minutes at least once a day.

Regarding preventive measures currently being followed are: getting sufficient calcium and Vitamin D from skim milk, cheddar cheese and some ice cream.

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user172

I am currently walking 25-30 min 4-5 times a week on the treadmill. I am taking calcium supplements and try to have fat-free yogurt daily.
Control Group Web site (CW)
Learning to Prevent Hip Fractures

Osteoporosis

Instructions
In this module, we listed learning topics and several health Web sites where you can find the information about the topics. Sometimes you will find the Web site contains a menu, and you need to select a link to go to the place that has the specific information you need.

Objectives
After the completion of this module, you will be able to:

- Define osteoporosis.
- Identify at least three risk factors for osteoporosis.
- Discuss frequently used diagnosis methods.
- Identify two preventive measures for osteoporosis.

Learning Topics
The following is the list of our recommended learning topics that will help you understand osteoporosis.

1. Bone structure
2. Definition
3. Risk factors
Related Health Web Sites

You will find all related information from the health Web site links below.

Please take about 20 – 30 minutes to review these Web sites.

To go to the Web sites, just click on the Web addresses below.

The National Institutes of Health Osteoporosis and Bone Disorders National Resource Center (NIH ORBD): This site contains general information about osteoporosis. Here is the Web site link:

http://www.osteo.org/osteo.html

NIHSeniorHealth: The National Institutes of Health (NIH) also has a health Web site where you will find general information on osteoporosis. Here is the Web site link:

http://nihseniorhealth.gov/osteoporosis/loc.html

The National Osteoporosis Foundation: This Web site also provides important information on osteoporosis. Here is the link to the main home page:
Selected Findings
Findings: Recruitment & Retention

- Older adults’ enthusiasm to learn about health topics
  - Baseline completion: N = 245
  - Completion of EOT survey: N = 225
  - Completion of 3-month follow up: N = 215
Findings: Pilot Trial

• **Mean Web Use** (Frequency) for 2 weeks:
  – TSW: 5.6 ± 3.8 times / CW: 3.5 ± 2.4 times

• **Within-group changes over time (Hypothesis I)**
  – Both groups showed significant improvement on hip knowledge, self-efficacy and outcome expectancy for calcium intake.
  – Only TSW participants’ dietary calcium intake behavior improved from baseline to both EOT and 3-mo. f/u.
  – No significant changes were observed for either group with exercise self-efficacy or exercise behavior.
Findings

• **TSW vs. CW differences over time (Hypothesis II)**
  None of the group and time interactions approached statistical significance.

Considerations:
- Short intervention length (2 weeks)
- Potent control group intervention
  * CW with specific learning objectives, links to relevant health web sites (e.g., NIH, NOF), and quizzes
  * TSW with limited amount of structured information only

• **User satisfaction with the Web site:**
  - TSW participants were significantly more satisfied than CW counterparts ($p = .045$)
Findings

• The effects of the discussion board (TSW group only):
  More frequent use of the discussion board was positively correlated with:
  – EOT self-efficacy for both web-based learning ($r = 0.20$, $p = .03$) and exercise ($r = 0.23$, $p = 0.02$)
  – Both EOT and Follow-Up Osteoporosis knowledge (EOT: $r = 0.30$, $p = .001$).
Feasibility of a Theory-Based Online Hip Fracture Resource Center for Caregivers

Eun-Shim Nahm, PhD, RN
Barbara Resnick, PhD, CRNP; Barbara Covington, PhD, RN;
Bausell Barker, PhD; Denise Orwig, PhD, Jay Magaziner,
PhD, MSHg

Supported by National Institute on Aging
(R21AG029578, 04/2007 – 04/2009)
Aims

1. To develop a theory-based “Online Hip Fracture Resource Center” (OHRC) for caregivers.
   – Comprehensive hip fracture care guide
   – Discussion/support group,
   – Ask the Experts section,
   – Virtual Hip Library, and evaluate its usability.

2. To conduct a feasibility study of the OHRC protocol that will be employed in a future RCT.
Development of Hip Fracture Online Resource Center
Development of A Theory-Based Hip Fracture Online Resource Center

• A theory-based Online Hip Fracture Resource Center (OHRC) for caregivers
  – Theories of stress, appraisal, and coping (SAC)
  – Self-efficacy/Outcome expectations (SE/OE)

• Goal of the Resource: Maximize the care relationship in the caregiver-care receiver dyad by
  – Providing interactive, *anticipatory guidance* to the caregivers (e.g., information about the recovery process and the care needed)
  – Facilitating caregivers in delivery of *self-efficacy based interventions* to their care recipients.
# OHRC Content Development

## Overall OHRC Module Content

<table>
<thead>
<tr>
<th>Modules</th>
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<tbody>
<tr>
<td>I. Philosophy of caregiving to the persons who experienced hip fracture</td>
</tr>
<tr>
<td>II. Coping With the Caregiver Role</td>
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<tr>
<td>III. Supporting Your Care Receiver Through Hospitalization</td>
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<tr>
<td>IV. Care Needs in the Rehab Unit</td>
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<tr>
<td>V. When Your Care Receiver is Discharged Home</td>
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<tr>
<td>VI. Care Needs in a Long Term Care Facility</td>
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<tr>
<td>VII. Prevention of Future Fractures</td>
</tr>
</tbody>
</table>
Development of the Website

• Web site development:
  – Learning modules
  – Ask-the-Experts
  – Virtual library
  – Discussion board
Use Stress Reduction Techniques

You may find it helpful to use one or more of these stress reduction techniques:

1. Keep a journal: Write down your feelings, relationship changes, problems and joys so you can review them later.

2. Take time to relax each day.
   Relaxation is a skill that requires regular practice. It may not be helpful to try it for the first time when under a lot of stress. Every day, plan to spend some time at rest but not napping. Sit someplace comfortable, close your eyes, relax your muscles and focus on your breathing to make it very regular. Continuously repeat one word that clears your mind - say it out loud or to yourself. Good words to use are "relax" or "easy" or use a brief phrase that has no meaning, such as the "omn". Continue to breathe regularly, with your muscles relaxed.

3. Progressive muscle relaxation is also a good way to relax. This helps you focus on each muscle and become familiar with relaxing your entire body.

4. Visualization: Imagining that you see a pleasant place is a good way to remove yourself mentally from a stressful situation.

5. Relaxed breathing exercise is another good way to ease your...
Femur and replace them with a metal prosthesis.

- **Total hip replacement.** This procedure involves replacing your upper femur and the socket in your pelvic bone with a prosthesis. Total hip replacement may be a good option if arthritis or a prior injury has damaged your hip joint, affecting its function prior to the fracture.

- In general, older adults are more likely to receive a prosthesis.


**To fix an intertrochanteric fracture:**

- Usually, a metallic device (compression screw and side plate) is used to hold the broken bone in place while it lets the head of the femur move normally in the hip socket. This surgery is called an Open Reduction and Internal Fixation (ORIF).
Caring for Caregivers
Hip Fracture Resource Center

Ask the Experts
Welcome to our "Ask the Experts" section of our Website.

Online Hip Fracture Resource Center for Caregivers

Username: 
Question Title: 
Question: 
SUBMIT
### Library

**Caring for Caregivers**

**Hip Fracture Resource Center**

#### General Health Information

<table>
<thead>
<tr>
<th>Resource</th>
<th>Focus of Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Association for Retired Persons, AARP. <a href="http://www.aarp.org/health">http://www.aarp.org/health</a></td>
<td>American Association for Retired Persons. Website has a wide range of resources and references age-related and health-related. Easy search feature helps you find what you need quickly.</td>
</tr>
<tr>
<td>Administration on Aging, U.S. Department of Health and Human Services. <a href="http://www.aoa.gov">http://www.aoa.gov</a></td>
<td>A website with both a search feature and a quick drop-down list of topics, resources, news at national and local levels, covering broad range of age-related topics including health, finances, and support services.</td>
</tr>
<tr>
<td>Agency for Healthcare Research</td>
<td>This website includes lots of helpful information on various health topics including Health</td>
</tr>
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</table>
Feasibility Study
A Pilot Study: Aim

• The feasibility of the OHRC program was assessed by:
  – The degree of usage (i.e., frequency of access and the total amount of time spent using it)
  – Participant comments about the OHRC content and its perceived usability.

• The feasibility of the OHRC online trial intervention protocol was assessed by:
  – Implementing the protocol in order to identify any issues related to recruitment and data collection processes; and determine an optimal sample size
A Pilot Study: Design

• A single group pre- and post-design (baseline and EOT [8 week])

• Proposed outcome measures for future RCT:
  – Caregiver outcomes (knowledge about hip fracture care, eHealth literacy, caregiver strain, coping effectiveness, social support),
  – Care recipient outcomes (Self efficacy/Outcome Expectations for exercise, exercise behaviors, ADLs, and SE/OE for osteoporosis medication adherence)
A Pilot Study: Sample

Dyad Study Unit

Care Recipient Eligibility:

(1) 65 years or older
(2) received hip repair surgery due to hip Fx
(3) must have an eligible caregiver
(4) English speaking
(5) able to perform ADLs independently before experiencing the hip fracture
(6) was not institutionalized at the time of the fracture
A Pilot Study: Sample

Caregiver Eligibility:

(1) is 21 years or older
(2) is a family member, friend or significant other who is identified as the person who provides the majority of assistance in personal care and household tasks
(3) resides in Maryland
(4) has not had a hip fracture in the past
(5) can use the Internet on his/her own
(6) is cognitively intact with a MMSE score of at least 27
(7) English speaking;
A Pilot Study: Setting/Procedures

• **Setting:**
  – Six acute hospitals (initially started with 3 inner hospitals; later 3 suburban hospitals were added)

• **Procedures:**
  – Baseline survey (both the caregiver and care recipient)
  – Upon initial introduction caregivers used the OHRC for 8 weeks
  – EOT survey (both the caregiver and care recipient)
Data Analysis: Currently Ongoing

• Sample Demographical Information
  – A total of 36 dyads were recruited from the six selected hospitals.
  – Caregivers
    * Female: $n = 25, 69.4\%$
    * White: $n = 32, 88.9\%$
    * Mean age: $56.2 \pm 13.0$ (range: 31-88).
    * Education: Some college or higher level of education: $n = 25, 69.4\%$
    * Average years of web experience: $12.22 \pm 5.5$ (range: 4 – 30)
Data Analysis: Currently Ongoing

- Care Receivers:
  - Female: \( n = 25, 69.4\% \)
  - White: \( n = 33, 91.7\% \)
  - Mean age: \( 75.5 \pm 10.5 \) (range: 51 – 94)

- Some preliminary findings:
  - High usability score for the OHRC: 75 (12–84).
  - Significant improvement in:
    * caregivers’ knowledge on the care of hip fracture patients
      \( t = 3.17, p = .004 \)
    * eHealth literacy \( t = 2.43, p = .002 \).
  - Qualitative data on caregivers’ use of the online resource
Next step

Dissemination!!
Dissemination of a Theory-Based Bone Health Program in Online Communities

Eun-Shim Nahm, PhD, RN (PI); Barbara Resnick, PhD, RN; Bausell Barker, PhD; Michele Bellantoni, MD; Jay Magaziner, PhD, UM School of Medicine; Barbara Covington, PhD, RN; Paul Estabrooks, PhD; Patricia Brennan, PhD, RN

Supported by, NIH/National Institute of Nursing Research (R01NR011296 08/2009 – 05/2013)
Aim

- To examine the impact of two SCT-based online bone health programs on the RE-AIM dimensions among members (>50 years) of two large online communities (SeniorNet; My HealtheVet)

1. an 8-week Social Cognitive Theory-based Online Bone Health (TO-BoneHealth) program
2. a 12-month TO-BoneHealth Plus program:
   The 8-week TO-BoneHealth program followed by bi-weekly theory-based eNewsletters with a follow-up of each individual’s maintenance of bone health behaviors for 10 months.
**The RE-AIM framework was modified in our eHealth project.**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Original RE-AIM</th>
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<tbody>
<tr>
<td>Reach</td>
<td>Number and proportion of Individuals willing to participate in a given program</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>Effectiveness/efficacy of an intervention</td>
</tr>
<tr>
<td>Adoption</td>
<td>Number and proportion of settings willing to initiate a program</td>
</tr>
<tr>
<td>Implementation</td>
<td>Extent to which the intervention is implemented as intended across settings</td>
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<tr>
<td>Maintenance</td>
<td>Long-term effects of an intervention (individual level)/sustainability of a program (organization level)</td>
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</tbody>
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Discussion
Discussion

• An increasing number of internet-based interventions have been used to maintain and improve the health of older adults.

• Older adults and their caregivers are willing to learn and use information technology-based interventions.
  – Technology-based interventions must be developed using a user-centered design
Discussion

• Some evidence for the effectiveness of theory-based health websites on health outcomes of older adults and caregivers

• A significant potential for using theory-based websites to deliver sustained health promotion and disease management interventions

• Follow-up studies are needed to assess the long-term impact of theory-based interventions on health outcomes in online communities.
Questions and Answers