

# A University-Department of Health Collaboration to Improve Fitness and Quality of Life Among Seniors with Arthritis

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# Rationale for the Project

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- ⊙ Prevalence of arthritis in Vermont
  - 57% of adults over 65
  - Costs estimated at \$172 million/year
- ⊙ Mandate to address populations at risk
- ⊙ Desire to reach those who don't attend group exercise programs
- ⊙ Hope to find a sustainable approach

# Evidence of the Burden of Arthritis

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- Vermont Behavioral Risk Factor Surveillance Survey (2003)
  - Arthritis and chronic joint symptoms affect 208,000 adult Vermonters (44%)
  - More than 39% of Vermont adults report activity limitations due to joint symptoms
  - Lower income associated with increased prevalence

# Hospital Discharge Data for Vermont

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- ◎ 2002 reported discharge data show
  - Total arthritis inpatient charges in Vermont \$39.2 million
  - Seventy-eight percent (78%) for persons over 55
  - Approximately 66% were women

(Source: Vermont Dept. of Health, Hospital DataBook 2002)

# Department of Health

## State Health Plan Goals

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### GOAL 1 Promote Supportive Health Systems & Policies

- Build and maintain effective state and community partnerships.
- Use Coalition partnerships to develop models for improved health care for adults with arthritis.
- Assist occupational groups at high risk for arthritis to access appropriate medical and complementary therapeutic services.

# State Health Plan Goals-2

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## GOAL 2 Increase Awareness About Arthritis Through Education and Outreach

- Increase general public and consumer awareness about arthritis and its management.
- Increase professional understanding of arthritis management and treatment for people of different ages and diagnoses.
- Develop musculoskeletal health management resources for occupational groups with, and at high risk of arthritis.

# State Health Plan Goals-3

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## GOAL 3 Expand Adult Programs

- Expand community self-management programs.
- Promote public, consumer and professional awareness of the need of people with arthritis to manage recurring pain, psychological distress, general stress, sleep disorders, and fatigue.
- Develop *Working Healthy* arthritis prevention and management at worksites and in occupations at high risk of arthritis.

(Source: Vermont Dept. of Health (2005). *Arthritis State Plan*)



# Partners

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- ◉ Vermont Department of Health
  - Arthritis Program
- ◉ University of Vermont
  - Physical Education, College of Education & Social Services
  - Nursing, CNHS
  - Physical Therapy, CNHS
- ◉ Cathedral Square Corporation
  - (senior housing)
- ◉ Professional Nurses' Association
  - (in conjunction with the Winooski Housing Authority)



# UVM College of Nursing and Health Sciences



# Project Questions

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- ⊙ Is delivering in-home arthritis exercise using nursing students feasible?
- ⊙ Is it effective?
- ⊙ Did the PACE program change participants'
  - Self-efficacy?
  - Physical performance of a variety of functional tasks?
  - Mood?
  - Fatigue?
  - Perceived quality of life?

# Intervention

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- ◎ Home-based exercise 2 times/week
  - People with Arthritis Can Exercise (PACE)—aka Arthritis Foundation Land Exercise Program
- ◎ Use of student coaches with low-income seniors
- ◎ Pre- and post-testing by investigators
  - Physical function
  - Mood
  - Pain
  - Self-efficacy

# Cathedral Square Corporation Senior Housing

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Cathedral Square Tower

- 80 independent
- 28 assisted living units
- Most meet Section 8



McAuley Square

- Multigenerational community, including housing for young mothers and parents in school
- Section 8 included

# Winooski Housing Authority



## Spring Gardens

- Subsidized housing for seniors and persons with handicaps
- 53 apartments
- on-site elder care walk-in clinic



# Steps Toward Implementation

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2005

- Project planning
- Selection of measures (instruments)
- IRB approval
- Pre-pilot testing of intervention
- Service learning designation for nursing class

# Design

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- Quasi-experimental, pre-test/post-test
- Three intervention groups
  - Two groups of independent-living seniors in two residences
  - One group of seniors in assisted living in one residence
- One control group
- Intervention groups:
  - Exercise in home using People with Arthritis Can Exercise (PACE<sup>©</sup>) with student nurse 2x/week + social interaction, health information and routine screening
- Control group:
  - Twice weekly visit to socialize, provide health information, and do routine screening



# Measures of Function and Quality of Life

| Measure  | Description   | Psychometric Reference |
|--|---|------------------------|
| <i>Arthritis Self-Efficacy Scale (ASES)</i>                          | 20-item self-report scale<br>Items rated on a 1 (very uncertain) to 10 (very certain) scale<br>Three subscales – Self-Efficacy Pain (PSE),<br>Self-Efficacy Function (FSE),<br>Self-Efficacy Other Symptoms (OSE) | Brady, 2003            |
| <i>Arthritis Impact Measurement Scale – Short Form (AIMS2-SF)</i>    | 26 item self-report measure<br>Guttman scale, scores range from 0-10 for each section<br>Yields total health score between 0-60   | Carr, 2003             |
| <i>Physical Performance Test (PPT)</i>                               | 7-item scale of various functional tasks<br>Each task rated on a 5-point ordinal scale  | Hayes & Johnson, 2003  |
| <i>Timed Chair Stand Test (TCST)</i>                                 | Rising from chair as many times within 30 seconds   | Hayes & Johnson, 2003  |
| <i>Timed Up and Go (TUG)</i>   | Time to rise from chair, walk 3 meters, turn,<br>walk back and sit  | Hayes & Johnson, 2003  |
| <i>Multidimensional Assessment of Fatigue (MAF) Scale</i>            | 16 item self-report measure<br>Rated on scale from 1 to 10  | Neuberger, 2003        |
| <i>Center for Epidemiological Studies – Depression Scale (CES-D)</i> | 20 item self-assessment of mood and level of functioning<br>Rated on scale of 0 (rarely) to 4 (most or all of the time)   | Smarr, 2003            |

# Participant Recruitment

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- ① Housing staff approached residents with known or suspected arthritis
- ① Health Department staff provided project overview
- ① Interested participants provided clearance from primary health provider
- ① Evaluators (investigators) reviewed procedure and obtained informed consent

# 2006 Implementation

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- ⊙ Participant recruitment
- ⊙ Selection of nursing student exercise “coaches”
- ⊙ Orientation/training for students
- ⊙ Consent and pre-testing by 3 investigators
- ⊙ Matching of seniors and students
- ⊙ 10 weeks of exercise twice weekly
- ⊙ Mid-point mood evaluation
- ⊙ Completion and termination with students
- ⊙ Site parties for participants and students
- ⊙ Post-testing by evaluators/investigators

# Summary of Findings

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- No statistically significant differences pre- and post test between intervention and control groups across all sites.
- No statistically significant differences between residents of independent and assisted living residences.
- One parameter showed difference pre-/post at one site.
  - McAuley Square residents scored significantly higher post-intervention in the Physical Performance Test (PPT).

# Confounding Variables

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## ◎ Older Adults:

- Sickness unrelated to arthritis
- Forgetfulness or early dementia
- Family priorities

## ◎ Structural:

- Academic calendar, curricular changes, faculty assignments
- Student class and work schedules
- Health Department staffing limits
- Staff roles in senior apartment complexes

# Impact for Health Department

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- ⦿ Did not show objective effectiveness of the PACE exercises with elders who do not attend programs outside the home.
- ⦿ Required significant time for logistical support and resident-housing-student problem-solving.
- ⦿ A plan for sustainability was not achieved.

# Impact for Senior Participants

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- ⊙ Regular social activity
- ⊙ Some physical activity incorporated into weekly routine, esp. in winter months
- ⊙ Reciprocity in “teaching” nursing students
- ⊙ Party at end



# Impact for Student Exercise “Coaches”

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## ◎ Achievements

- Developed therapeutic relationships
- Applied course content, e.g.,
  - communication, cultural appropriateness, nursing theory, ethical principles, legal responsibilities, and nursing process early in nursing education
- Engaged in research
- Provided community service
- Learned about arthritis

# Impact on Nursing Faculty

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- ◎ 87 sophomore students, first nursing course
- ◎ 23 student exercise coaches needed for project
- ◎ Equivalent service learning opportunities
- ◎ Journals
- ◎ Scheduling
- ◎ Nursing advice
- ◎ Follow-up on problems identified by students

# Impact for Investigators

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- ⊙ Model was too complex
- ⊙ Measures were inexact for PACE
- ⊙ Intervention dependent on student enrollment
- ⊙ Investigator time in establishing inter-rater reliability, training of students, and conducting pre- and post-tests was significant
- ⊙ Debriefing and critique of method revealed new possibilities for collaboration

# Debriefing

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- ◎ Early statistical analyses
- ◎ Discussion of reasons for results
- ◎ Partners evaluate experience
  - Previously unspoken expectations
  - Problems not anticipated
  - Planning for additional work
  - Sustainability of program in target population

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# Student Exercise “Coaches”

