A Decade of Dissemination: The Connecticut Collaboration for Fall Prevention

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Canadian Fall Prevention Conference Public Health Agency of Canada British Columbia Ministry of Healthy Living and Sport US Centers for Disease Control and Prevention Vancouver, British Columbia March 2010
Objective:

Attendees will be expected to describe strategies developed and implemented in Connecticut to move fall prevention evidence into practice and state policy.

Research funded by:
National Institutes on Aging
Donaghue Medical Research Foundation
State of Connecticut
Trajectory of studies regarding falls

✓ 1980’s Falls are a major public health problem
✓ Who falls - what are their characteristics
✓ The human & financial consequences
✓ 1994 Many falls can be prevented
✓ 1996 The most effective methods of prevention
✓ 1996 Fall prevention saves money
?
2000-2010 So then what?
Can this evidence benefit those at risk, those who care for them and those who pay for that care?
Percent falling by number of factors

Tinetti et al, NEJM 1988; 319:1701
Multifactorial Etiology

Risks accumulate like a tower of blocks. The more risks the greater the instability.
Yale FICSIT: Results

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Usual Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>People who fell</td>
<td>35 %</td>
<td>47 %*</td>
</tr>
<tr>
<td>Number of falls</td>
<td>94</td>
<td>164</td>
</tr>
<tr>
<td>n</td>
<td>147</td>
<td>144</td>
</tr>
</tbody>
</table>

Adjusted** Risk Reduction .69; (95% C.I. .52-.90) 
$p = <.05$ adjusted for age, gender, previous falls and number of risk factors
## Yale FICSIT Fall Study

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Usual Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>$5,430</td>
<td>$7,802</td>
</tr>
<tr>
<td>Nursing Home</td>
<td>212</td>
<td>752</td>
</tr>
<tr>
<td>Outpatient</td>
<td>1,578</td>
<td>1,603</td>
</tr>
<tr>
<td>Home Care</td>
<td>183</td>
<td>282</td>
</tr>
<tr>
<td>Intervention</td>
<td>907</td>
<td>0</td>
</tr>
<tr>
<td>Mean Total Costs</td>
<td>8,310</td>
<td>10,439</td>
</tr>
<tr>
<td>Mean Total Cost 4+ risks</td>
<td>10,500</td>
<td>14,200</td>
</tr>
</tbody>
</table>
All-Injury Hospitalization Rates by Intent & Age Group
Connecticut Residents, 2000 - 2004
(n = 86,967; average = 17,393/year)

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### Unintentional Injury Hospitalizations by Mechanism

**Connecticut Residents, 2000 - 2004**

(n = 72,888; average = 14,578/year)

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Number (n)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>42,418</td>
<td>58.2%</td>
</tr>
<tr>
<td>Motor vehicle traffic</td>
<td>12,098</td>
<td>16.6%</td>
</tr>
<tr>
<td>Poisoning</td>
<td>3,437</td>
<td>4.7%</td>
</tr>
<tr>
<td>Struck by / Against</td>
<td>2,134</td>
<td>2.9%</td>
</tr>
<tr>
<td>Overexertion</td>
<td>1,667</td>
<td>2.3%</td>
</tr>
<tr>
<td>Transport, Other</td>
<td>1,509</td>
<td>2.1%</td>
</tr>
<tr>
<td>Fire / Burn</td>
<td>1,329</td>
<td>1.8%</td>
</tr>
<tr>
<td>Cut / Pierce</td>
<td>965</td>
<td>1.3%</td>
</tr>
<tr>
<td>Pedal cyclist, Other</td>
<td>921</td>
<td>1.3%</td>
</tr>
<tr>
<td>Natural / Environmental</td>
<td>830</td>
<td>1.1%</td>
</tr>
<tr>
<td>Machinery</td>
<td>596</td>
<td>0.8%</td>
</tr>
<tr>
<td>Suffocation</td>
<td>303</td>
<td>0.4%</td>
</tr>
<tr>
<td>Firearm</td>
<td>243</td>
<td>0.3%</td>
</tr>
<tr>
<td>Pedestrian, Other</td>
<td>133</td>
<td>0.2%</td>
</tr>
<tr>
<td>Drowning / Submersion</td>
<td>91</td>
<td>0.1%</td>
</tr>
<tr>
<td>Other / Unspecified</td>
<td>4,214</td>
<td>5.8%</td>
</tr>
</tbody>
</table>

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EXHIBIT 2
The Eight-Stage Process of Creating Major Change

1. Establishing a Sense of Urgency
   - Examining the market and competitive realities
   - Identifying and discussing crises, potential crises, or major opportunities

2. Creating the Guiding Coalition
   - Putting together a group with enough power to lead the change
   - Getting the group to work together like a team

3. Developing a Vision and Strategy
   - Creating a vision to help direct the change effort
   - Developing strategies for achieving that vision

4. Communicating the Change Vision
   - Using every vehicle possible to constantly communicate the new vision and strategies
   - Having the guiding coalition role model the behavior expected of employees

5. Empowering Broad-Based Action
   - Getting rid of obstacles
   - Changing systems or structures that undermine the change vision
   - Encouraging risk-taking and nontraditional ideas, activities, and actions

6. Generating Short-Term Wins
   - Planning for visible improvements in performance, or “wins”
   - Creating these wins
   - Visibly recognizing and rewarding people who made the wins possible

7. Consolidating Gains and Producing More Change
   - Using increased credibility to change all systems, structures, and policies that don’t fit together and don’t fit the transformation vision
   - Hiring, promoting, and developing people who can implement the change vision
   - Reinvigorating the process with new projects, themes, and change agents

8. Anchoring New Approaches in the Culture
   - Creating better performance through customer- and productivity-oriented behavior, more and better leadership, and more effective management
   - Articulating the connections between new behaviors and organizational success
   - Developing means to ensure leadership development and succession

1. Establish a Sense of Urgency

CT Costs: Unintentional Injury Hospitalizations

- Falls: $203.6
- Motor Vehicle Traffic: $85.4
- Struck By / Against: $29.7
- Poisoning: $24.6
- Cut / Pierce: $19.8
- Overexertion: $16.1
- Non-Motor Vehicle: $11.4
- Firearms: $9.3
- Fire / Burn: $8.6
- Suffocation: $5.6
- Bites / Stings: $4.3
- Machinery: $3.9
- Natural / Environmental: $2.5
- Drown: $5.5
2. Create a Guiding Coalition

Diffusion Plan

1. Executive Committee
2. Working Groups
3. Practicing Clinicians
4. Older Adults
3. Develop Vision & Strategy

Intervention and usual care regions for the Connecticut Collaboration for Fall Prevention
4. Communicate the Change Vision

Methods for Increasing Awareness

Develop “brand” and messaging via graphic artists

Brochures and posters: health care & community sites

Engage clinicians: Developed discipline and site specific continuing education and mentoring: in-service education, grand rounds, one-on-one detailing

Media: Newspaper and radio stories; TV and bus ads

CCFP monthly newsletter: Email and fax to 4000+ providers and reprinted in organizational newsletters

Letters from key organizations: Hartford County Medical Society, Physician - Hospital Organizations, CAHCH, CT Hospital Assoc.

Website (www.fallprevention.org)

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Levels of Prevention

Primary
- Reduce risks to prevent the first fall
  - Education
  - Early intervention

Secondary
- Strong bones
- How to get up
- How to get help

Tertiary
- Rehabilitation to prevent another fall
- Decrease serious consequences

5. Empower Broad-Based Action
5. Empower Broad-Based Action

## Collaborating Providers and Facilities

### Health Care Providers
- EDs and hospitals (N=7)
- 1° care offices (N=234)
- Home care agencies (N=28)
- Rehabilitation Offices (N=131)

### Community Facilities
- Senior Centers (N=53)
- Assisted Living (N=37)
- Congregate hsing (N=145)
- Adult Day Center (N=23)
- PERS (N=19)
- Others: EMS, MoW
Direct outreach to older adults: Identify risks and encourage action

Executive Committee

Working Groups

Practicing Clinicians

Older Adults

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6. Generate Short-Term Wins

Case Study: One CCFP Home Care Agency

Trending Emergent Care For Falls

<table>
<thead>
<tr>
<th></th>
<th>Q3 2003</th>
<th>Q4 2003</th>
<th>Q1 2004</th>
<th>Q2 2004</th>
<th>Q3 2004</th>
<th>Q4 2004</th>
<th>Q1 2005</th>
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</thead>
<tbody>
<tr>
<td>CT-HCA</td>
<td>2.72</td>
<td>2.88</td>
<td>2.84</td>
<td>2.21</td>
<td>1.99</td>
<td>1.83</td>
<td>1.16</td>
</tr>
<tr>
<td>NBM</td>
<td>1.39</td>
<td>1.41</td>
<td>1.33</td>
<td>1.38</td>
<td>1.40</td>
<td>1.38</td>
<td>1.34</td>
</tr>
</tbody>
</table>
7. Consolidate Gains and Produce More Change

**CCFP Publications**


Effect of Dissemination of Evidence in Reducing Injuries from Falls

Mary E. Tinetti, M.D., Dorothy I. Baker, Ph.D., RN-CS, Mary King, M.D., Margaret Gottschalk, P.T., M.S., Terrence E. Murphy, Ph.D., Denise Acampora, M.P.H., Bradley P. Carlin, Ph.D., Linda Leo-Summers, M.P.H., and Heather G. Allore, Ph.D.


Funded by the Donaghue Medical Research Foundation, West Hartford, Connecticut and by a grant to the Yale Pepper Center from the National Institute on Aging 2000 -2008

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Results:
Evaluation period 2004-2006

- Fall-related ED and hospital admissions: 11% lower in the intervention area
- Fall-related ED and hospital admissions for serious fall injuries*: 9% lower in the intervention area
- Preventing 1800 fall admissions saved $21 million** in acute care costs alone.***

* hip & other fractures, head injuries & joint dislocations
** 1800 X national average of $12,000/ fall-related injury
*** In CT, over 53% of patients hospitalized for falls are discharged to a skilled nursing facility. Estimate saving CT Medicaid another $5 million in 2 years

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CCFP Worked!
Congratulations and Thank You to All Our Collaborators

THE RESULTS

- 11% decrease in fall-related ED & hospital admissions
- 9% decrease in serious fall-related ED & hospital admissions

The relative 11% reduction in the use of fall-related medical services in the intervention area (greater Hartford) as compared to the usual care area translates into approximately 1,800 fewer fall-related ED & hospital admissions with a potential savings of more than $21 million in acute care costs over two years.

Over a four-year intervention period (2001-2004) through the Connecticut Collaboration for Fall Prevention (CCFP), hundreds of healthcare providers representing multiple disciplines and facilities in the greater Hartford area were encouraged to incorporate evidence-based falls risk assessment and management strategies into clinical practice. Administrators and relevant health policy, government and community agencies were also engaged in the collaboration. The CCFP fall risk assessment and risk management strategy was based on protocols used in the multi-component Yale frailty and injuries: Cooperative Studies of Intervention Techniques (FRICCST). The fall risk factors targeted in the CCFP strategy were problems with walking and transfers, balance impairments, postural hypotension, use of four or more medications, foot problems, vision problems, and home hazards. Interventions known to ameliorate each risk factor were translated into site-specific training materials for clinicians and older adults. Provider “working groups” and a multidisciplinary core intervention team served as the primary forums for planning and implementing training activities, as well as customizing the training and practice-change materials (workbook, brochures, posters). The CCFP website (www.fallprevention.org) was launched and monthly newsletters continued to be sent to thousands of recipients. Outreach to older adults occurred in multiple venues such as senior centers, assisted living and senior housing communities, AARP meetings, health fairs, and flu clinics.

The evaluation period (2001-2006) analyzed the intervention effect in the greater Hartford area compared to a matched usual care area in Connecticut. The outcome was rates of serious fall-related injuries (hip and other fractures, head injuries, and joint dislocations) and fall-related use of medical services among persons aged ≥70 years at any of the study hospitals (seven in the intervention area and seven in the usual care area) utilizing information from the Connecticut Health Information Management (CHIME) database which is maintained by the Connecticut Hospital Association.

Study findings are listed above and suggest that when evidence about fall prevention is presented to clinicians along with practice change interventions, they will adopt effective strategies to prevent falls. Subsequently the number of falls and fall-related injuries sustained by older adults may be reduced, preventing use of expensive health care services. This project is unique not only because it was successful, but because it is the first attempt to disseminate evidence regarding fall-related injuries from randomized, controlled trials into clinical practice.

The CCFP investigators are indebted to the Donaghue Foundation for supporting this effort. We are also grateful to the more than 3,000 clinicians, administrators and policy experts in the greater Hartford area who shared their expertise and participated in the project. Presently, CCFP is continuing statewide dissemination, having received support from the State of Connecticut.

For more information about the Connecticut Collaboration for Fall Prevention, visit the website www.fallprevention.org

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Footnotes:

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8. Anchor New Approach in the Culture

State Policy Implications

- Decrease human suffering
- Decrease municipal spending for first responders
- Reduce overcrowding in ERs
- Prevent catastrophic injuries that force families onto Medicaid
- Help CT balance community-based vs nursing home care
- Help achieve spirit of Olmstead decision re providing care in least restrictive environment
- Important component of nursing home diversion and Money-Follows-the-Person
CT Practice Sites of CCFP-2 “Train-the-Trainer” Clinicians

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Suggestions within clinical settings

• Form multidisciplinary workgroup of interested nursing and therapy staff/opinion leaders. Fall prevention is not the purview of any one discipline. Involve aides in every setting.

• Develop methods to identify all risks and track that interventions occurred.

• Weigh all risks equally and consider all older patients at risk rather than “scoring”.

• Nurses refer to Rehab even if not “rehab case”. Rehab therapists check and refer re: postural BPs & med list.

• Institutionalize by developing system wide responsibility: Embed fall prevention in intake, QI, outcome reports, staff feedback, new staff orientation, etc.

• Provide materials to cue clinical staff: to complete assessments and interventions. Have patient education materials readily available.

Help staff “do the right thing”

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THE CASCADE TO DEPENDENCY

HAZARDS OF BED REST AND HOSPITALIZATION

Immobilization
High bed
Bed rails

Plasma
Volume

Accelerated
Bone Loss

Closing
Volume

Sensory
Deprivation
Isolation
No Glasses or
Hearing Aid

Barriers
"Tether"
Rx Diet

Immobilization
Shearing
Force

Barriers
Tethers

Dehydration

Malnutrition

Functional
Incontinence

Syncope

↓ pO₂

Delirium

Tube

Aspiration

Catheter

Family
Rejection

Fall

Physical
Restraint

Chemical
Restraint

Pressure
Sore

Fracture

False
Label

Tardive
Dyskinesia

Infection

NURSING HOME

[Ref: Creditor 1993]
THE CASCADE TO DEPENDENCY

HAZARDS OF BED REST AND HOSPITALIZATION

Immobilization: High bed
Plasma Volume
Accelerated Bone Loss
Closing Volume
Sensory Deprivation
Isolation
No Glasses or Hearing Aid
Barriers: "Tether" Rx Diet
Immobilization: Shearing Force
Barriers: Tethers

Dehydration
Malnutrition
Syncope
pO2
Delirium
Tube
Aspiration
Catheter
Family Rejection
Pressure Sore
Infection
False Label
Tardive Dyskinesia

Deconditioning
Fall
Physical Restraint
Chemical Restraint
NURSING HOME

[Ref: Creditor 1993]
Suggestions

• Local data makes a big impact
• Pictures worth a 1000 words: Easy to interpret; graphic artists; digital & video cameras
• Photoshop and Access
• Credible sources—State Health Dept, Medical Society, academics, local clinicians
• Older adults listen mostly to each other
• The 3 F’s: Free, Food, Fun
Objective:

Attendees will be expected to describe strategies developed and implemented in Connecticut to move evidence into practice and state policy.