January 2011

United Way of Dane County

Safe and Healthy Aging Mobilization Plan

Seniors and people with disabilities are able to stay in their homes.

Introduction

With a rapidly growing senior population in Dane County, United Way has been keenly interested in helping our older adults live healthy and independent lives. Our Agenda for Change highlights this issue, "Seniors and people with disabilities are able to stay in their homes". It is a positive that we have expanded life-expectancies, but one result is that many chronic and degenerative health problems prevalent in an aging population will become more widespread. The main reason for the admission of elderly people to institutions and for the disproportionate use of health services by the aging population is the functional decline that accompanies aging. In 2007, people 65 and over accounted for 39% of public health care expense for hospitalizations in Dane County while they represent only 10% of the population.[1]

Another factor contributing to increased health care needs of seniors is that over recent years medical science has learned how to treat major diseases such as cancer and cardiovascular diseases. The decrease in the incidence and morbidity rates of these diseases has resulted in a longer life expectancy and a corresponding increase in chronic and disabling syndromes such as arthritis and dementia. Thus, the acute and fatal conditions that used to occur at a younger age are being replaced by the disabling events of advanced age.

United Way of Dane County launched the Caregiver Mobilization Plan in 2006, in recognition of the fact that providing help often poses special challenges for caregivers. Much research evidence and our local community engagement between 2005 and 2006 indicated that family caregivers of all ages feel isolated and overwhelmed by their responsibilities, leading to high levels of stress, depression, and physical health problems. Much of the responsibility for married older people with disabilities falls on spouses, who are generally elderly themselves and often coping with their own health problems. Adult children frequently help their frail parents, but many are employed outside the home, forcing them to juggle family responsibilities with work demands.

Meanwhile, the senior population in Dane County has grown by 20% since 2000, and is expected to grow 130% by 2030. Four years of implementation of the Caregiver Mobilization Plan has passed. The reality of a rapidly growing senior population surpassing the capacity of limited resources forced the United Way Board of Directors and the Self-Reliance and Independence Community Solution Team to think strategically about the area of greatest impact that United Way could add on. Could we identify the tipping points that precipitate the preventable disability of older adults

Members of Delegation on Safe and Healthy Aging are discussing on new mobilization plan and public launch in small groups

[1] Data source: Dane County Public Health Profiles, State of Wisconsin

which also increases the level of burden on their unpaid caregivers? Our hypothesis is that by leveraging resources on focused triggers, we will prevent or delay the functional decline of aging adults - thus seniors can maintain a level of independence minimizing deep support from caregivers and need for institutional care.

In April-October of 2010, we convened the Delegation on Safe and Healthy Aging, the ad-hoc group of 38 local professionals representing various professions, to identify these triggers based on research, professional practices, and on personal insights of caregivers and senior citizens.(Appendix A) After extensive review of local data and research as well as consultation with experts, the Delegation has found that the four main reasons seniors end up in hospitals and skilled nursing facilities are falls, adverse drug events, incontinence, and dementia. The Delegation concluded that falls and adverse drug events are the acute triggers that need our community's immediate attention.

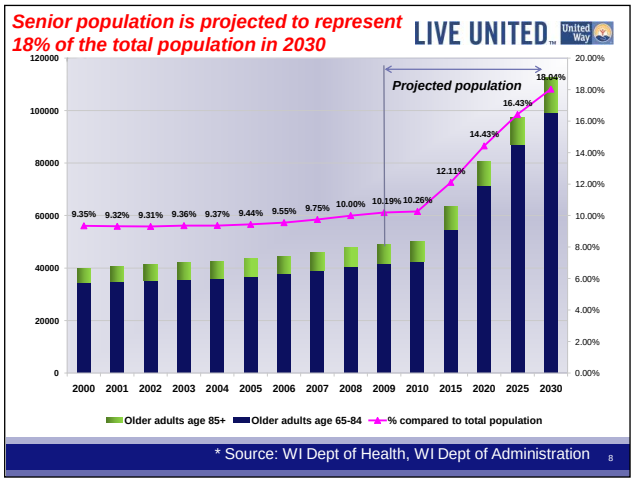
Dr. Steve Barczi from VA Hospital and UW-Madison is in a group discussion on how to engage with medical community and other stakeholders

The good news is that we have qualified and enlightened resources in place including local pharmacies, physicians and other medical professionals at hospitals and clinics, policy makers at insurance companies, a network of social service providers and churches, and interested media. However, improved coordination to eliminate existing service silos and ways to provide direct support for seniors to detect their current risk for falls and adverse drug events need to be developed further. This report highlights critical research evidence and learnings from the Delegation, declares a community goal, and outlines the blueprint of strategies that United Way will implement for the next five years to improve safe and healthy aging in Dane County.

I. Problem Statement

A. Dane County is aging; senior population will represent 18% of the County in 2030

In 2009, Dane County had 48,883 residents age 65 and older. It currently represents 10.2% of the total population, and has grown 23% since 2000 (39,869 residents). Nationally, in 2011, the first of the baby boomers, those born from 1946 to 1964 will turn 65, and the number of seniors is expected to increase dramatically within next few decades. 2030 is the year that all baby boomers will have turned 65 or older. The 65-plus age group will be markedly different from previous generations, with higher levels of education, lower levels of poverty, more racial and ethnic diversity, and fewer children. Their most striking characteristic, however, will be their numbers.

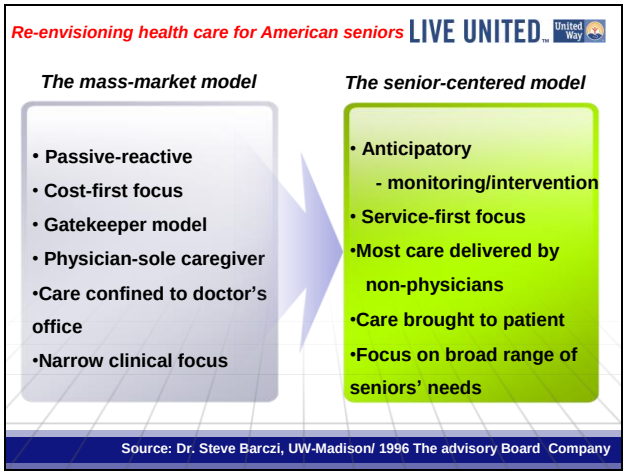


Dane County is not exceptional with this national trend. The population age 65 and older is projected to grow 130% (112,642 residents) by 2030[2] and will represent up to 18% of the total population in 2030. The 85-plus age group (7,212 residents) will grow 84% (to 13,284 residents) by 2030. The aging of the baby boom population, combined with a increase in life expectancy and a decrease in the relative number of younger persons, will create a situation where older adults make up a much larger percentage of the U.S population than has ever before been the case. Demographers and social policy analysts predict that aging boomers will have a major impact on the health care delivery system as they age. Studies indicate that if current patterns of health care utilization continue, there will be a tremendous shortage of health care workers with appropriate geriatric training to provide high-quality care to these older adults, and tremendous cost pressures on Medicare and Medicaid budgets[3].

B. The physician-dependent care model alone may not be a solution for seniors' independence.

Over 80% of older adults suffer from at least one chronic condition including dementia, diabetes, hypertension, and heart disease. Unlike most infectious diseases or acute illnesses, chronic conditions last for years, place limits on the activities of older adults and require ongoing care. In addition to having a higher prevalence of chronic disease, older adults have greater vulnerability to unintentional fall injuries and have more limitations on their activities of daily living. These high rates of health service utilization coupled with the large rise in the number of older adults can be expected to result in a dramatic increase in the demand for health and long-term care services in the coming decades.

Meanwhile, studies estimate that on average, patients can expect to spend 10 to 16 minutes on each appointment with their doctor[4]. For the best use of their limited time, their face-to-face meeting may focus on the most urgent and pressing health concern of the patient rather than assessing the comprehensive issues that have influenced the health problems. Physicians are challenged to balance medication use with non-pharmacological approaches that may take extra time and effort. Geriatric studies emphasize the importance of greater focus on wellness and prevention. Interventions designed to prevent functional decline have the potential not only to generate large health care savings but also to lead to important reductions in the physical, emotional, social, and financial problems attributable to disability. Dane County is at the critical point to design a collaborative community care model by broadening the role of care providers, older adults and unpaid caregivers to become part of a long-term solution to meet the growing care needs of older adults.



C. Adverse Drug Events (ADE) are an unseen hazard

[2] State-County Age-Sex Population Projections, 2000-2035, State of Wisconsin- Dept of Administration
[3] Committee on the future health care workforce for older Americans, Retooling for an Aging American: Building the health care work force, Institute of Medicine, 2008
[4] Relationship between patient age and duration of physician visit in ambulatory setting, Journal of American Geriatrics Society, 2005

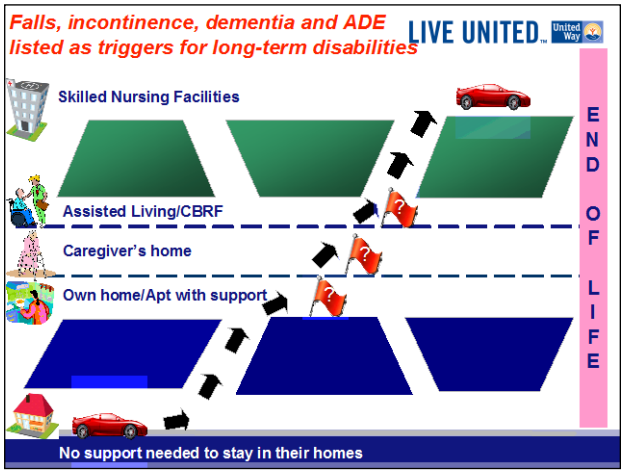
The use of many medications places older adults at risk for falling, for negative drug reactions, for the worsening of existing illnesses, and even for reversible cognitive impairment. Chronic use of some potentially inappropriate medications and use of multiple drugs (poly-pharmacy) are associated with impaired physical abilities and a greater rate of hospitalization in Dane County. Because older adults are likely to have complex drug regimens to treat their multiple health conditions, they are also at high risk for medication mismanagement, such as mixing medications, and taking wrong doses. Unintended disconnection in provider-patient communication and insufficient patient knowledge contribute to medication mismanagement. Older adults and their caregivers need to be aware of the issues to prevent adverse drug events, and subsequent falls. In Dane County, 10.79% of total hospitalizations (13,914) occurred in 2008 were caused by adverse drug reactions, a growing trend.

D. Falls are responsible for declines in health

Older adults are at significant risk for falls and injuries, which often lead to chronic and disabling problems, and loss of independence and potential institutionalization. Falls are the leading cause of unintended injuries: 17.49% of emergency department visits and 8.64% of hospitalizations of elderly persons result from falls in Dane County. Falls are also the leading cause of traumatic brain injuries for older adults, leading to more than 1,400 emergency department visits each year. The economic costs of falls are significant, with a mean hospital cost for fall-related injuries among older adults (reflecting an average of 7 days of hospitalization) of $17,483[5].

II. Why this matters

- In 2009, Dane County had 48,883 residents age 65 and older. This population is projected to grow 130% (to 112,642 residents) by 2030[6]. The 85-plus age group (7,212 residents) will grow 84% (to 13,284 residents) by 2030. Women who are now 65 years old can expect to live 21 more years on average, while men can anticipate living 18 more years.
- The 4 conditions of adverse drug events, falls, incontinence, and dementia are most likely to create functional decline and cause seniors to be sent to institutional care or more likely to place their caregivers in a higher, more time-consuming level of burden.
- The acute condition of adverse drug events and falls are preventable. Yet, they represent 11.8% of emergency department visits and hospitalizations.
- Dane County is estimated to have 70,679 unpaid caregivers who provide hands-on daily assistance for seniors and people with disabilities.
- Following adverse drug events and falls-related hospitalizations, the functional decline in an older adult's life forever changes the role, health, finance and relationship of their family caregivers.

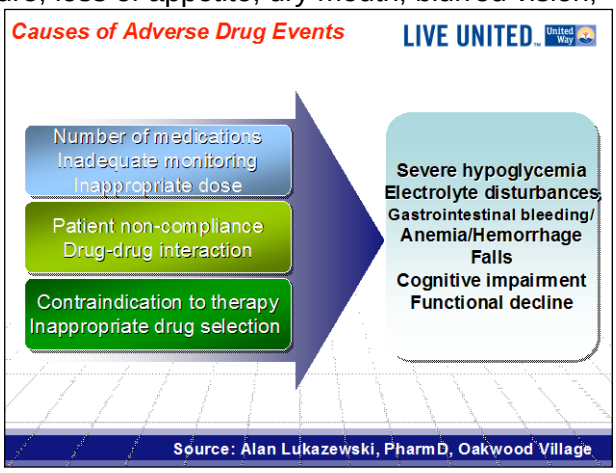


[5] Roundsari et el, The acute medical costs for fall-related injuries among U.S. older adults, Injury, 2005
[6] State-County Age-Sex Population Projections, 2000-2035, State of Wisconsin- Dept of Administration

III. National research

A. Medication mismanagement creates Adverse Drug Events

Older Americans comprise 13% of the total population, but they consume an average of 34% of all prescription drugs[7]. Older American consumers spend an average total of $3 billion annually on prescription medications. While any single medication may help people live longer, healthier lives, a number of studies warn the risk of experiencing adverse drug events (ADE). ADE refers to unintended effects of a drug that may result in mortality, morbidity or symptoms sufficient to prompt a patient to seek medical attention. The symptoms may include falls, hip fractures, delirium, nausea, hyper/hypoglycemia, heart failure, loss of appetite, dry mouth, blurred vision, and high risk of bleeding. However, studies show that 95% of these reactions are predictable, and 28% are preventable.[8]



The Beers list

The metabolic and other changes of aging can cause the body to react to medications differently than younger patients. There is a list of medications called The Beers List that was developed by Dr. Mark Beers, a researching geriatrician, which is a list of potentially inappropriate medications (PIM) for older adults over 65 years old (See Appendix B). The list was developed in 1991 for use in the elderly nursing home population and was subsequently expanded and generalized to the whole population aged 65 and older in 1997 and revised in 2002. The list categorizes 41 medications or medication classes as potentially inappropriate under any circumstances and 7 medications or medication classes as potentially inappropriate only when used in certain doses, frequencies, or durations.

Studies demonstrated that community-dwelling seniors with chronic use of the medications on the list experience impaired physical performance and greater rate of hospitalization. Some studies indicate that prevalence of elderly patients using at least one inappropriately prescribed drug ranged from a high of 40% for a population of nursing home patients to 21.3% for community dwelling older adults[9]. Antihistamines, muscle relaxants/antispasmodics, Propoxyphene, amitriptyline, long-acting benzodiazepines (cholordiazepoxide, diazepam, flurazepam), and dipyridamole are among the most commonly occurring inappropriate prescriptions among older adults.

Here is an example of how the medication on the Beers list works with an aging body. Drugs such as diphenhydramine, which have an anticholinergic effect, are important medical therapies available by prescription and also sold over the counter under various brand names such as Benedryl, Dramamine, Excederin PM, Nytol, Sominex, Tylenol PM, and Unisom. Older adults most commonly use drugs with anticholinergic effects as sleep aids. However, anticholinergic effects block the action of acetylcholine, which is a neurotransmitter-a chemical messenger that helps nerve cells communicate to memorize, learn, and concentrate. It also helps control the functioning of heart, blood vessels, airways, and organs of the urinary and digestive tracts.

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[7] American Public Health Association, 2007
[8] Pham & Dickman, Minimizing adverse drug events in older patients, American Family Physician, 2007
[9] Liu & Christensen, The continuing challenge of inappropriate prescribing in the elderly: an update of the evidence, Journal of American Pharmacy Association, 2002

Older people are more likely to experience anticholinergic effects as their aging body produce less acetylcholine. However, drugs with anticholinergic effects disrupt the normal functioning of these organs even more, and generate confusion, blurred vision, constipation, dry mouth, light-headedness, difficulty starting and continuing to urinate, and loss of bladder control.

Medications on the Beers list may need to be avoided if possible, or replaced with safe and effective alternatives if available. However, if these medications are necessary, seniors need to consult with physicians and/or pharmacists to assess the risk versus benefit based on profile on an individual basis, and select the best tolerated agents at the lowest effective doses for the shortest possible duration.

Poly-pharmacy

Seniors have a higher risk of adverse drug events, as they take a greater number of medications to treat the illnesses and conditions that often accompany aging. Studies indicate that older Americans take an average of three to five medications, and some studies indicate that 30% of adults aged 65 and older were on five or more prescription medications at once. The data does not include the use of over-the-counter medications or herbal therapies. An estimated 40% of older Americans have used some form of dietary supplement within the past year. The physician who cares for aging patients with numerous chronic medical conditions must make daily decisions about appropriate drug therapy, and more than 60% of all physician visits include a prescription for medication.

Poly-pharmacy refers to a use of multiple medications including prescriptions and over the-counter drugs. Studies demonstrate that increasing the number of medications increases the risk of drug-to-drug interactions, and especially require attention to the empiric use of five or more medications. ***Physicians and pharmacists indicate that using 5-8 medications expose older adults to 50% chance of experiencing adverse drug events[10], and 8 or more medications to 100% chance of experiencing adverse drug events.*** When two drugs with the same effect are taken, their side effects may be intensified, while two drugs with opposing actions can interact, thereby reducing the effectiveness of one or both.

Poly-pharmacy, as a cause of ADE, may be overlooked as the symptoms it causes can be confused with symptoms of normal aging or another disease, many times, resulting in more drugs being prescribed to treat the new symptoms. Some signs that are caused by drug interactions include sleepiness or decreased alertness, constipation or incontinence, confusion, falls, depression, anxiety, tremor, hallucination, skin rashes and/or feeling dizziness. This prescribing cascade is a preventable problem that requires the physician to be certain that all medications being taken by the patient are appropriately indicated, safe and effective.

Professor Bob Breslow from School of Pharmacy at UW-Madison is making points on community strategies to reduce adverse drug events and falls at the small group discussion

Poly-pharmacy can be appropriate when multiple drug regimens are necessary for

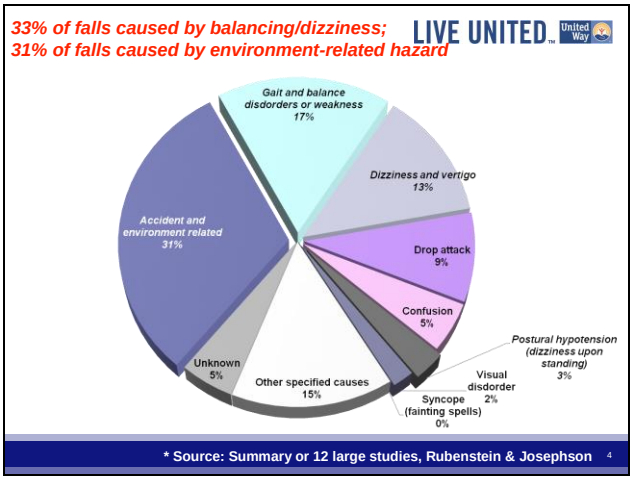
[10] Pham & Dickman, Minimizing adverse drug events in older patients, American Family Physician, 2007

the treatment of conditions and are carefully monitored by clinicians for achieving a therapeutic goal and for drug-related problems. Illnesses such as cardiovascular disease, arthritis, gastrointestinal disorders, and bladder dysfunction are common in the elderly, and may need multiple agents to treat them. Even with specialized attention, balancing the multiple medications and their potential related side effects can be challenging for clinicians and patients. The key question is how to address the overall care needs of these patients, while ensuring appropriate medication use.

And thus, older adults may need to consult with physicians or pharmacists to get initial assessment on the drug regimen, every 6-12 months thereafter, and with any medication change. The brown bag method is used widely by physicians and pharmacists, in which patients are asked to bring all of their medications to each visit so the physicians or pharmacists can see exactly what they are taking. Studies show that this type of intervention led to change in medication in 29% of patients. Consultation with physicians and pharmacists may include exploring nonpharmacologic treatment options as well. For instance, the use of physical therapy and exercise for musculoskeletal complaints is effective and much less toxic than chronic use of nonsteroidal anti-inflammatory drugs. Lifestyle modification can help patients lower high blood pressure and elevated cholesterol and obviate the need for antihypertensives and statins.

B. Falls

Approximately 28-35% of Americans age 65 and over fall each year increasing to 32-42% for those over 70 years of age.[11] A fall is defined as an event that results in a person coming to rest inadvertently on the ground or other lower level, other than as a consequence of the following: sustaining a violent blow, loss of consciousness, or sudden onset of paralysis, as in a stroke and an epileptic seizure[12]. Twenty percent of falls cause serious injuries such as fractures or head traumas. Non-fatal injuries are associated with considerable morbidity including decreased functioning and loss of independence as well as significant use of health care services. Additionally, psychological trauma, often referred to as fear of falling, may develop after a fall, and lead to self-imposed restriction of activity and loss of confidence despite the fact that the injuries experienced may not be functionally limiting[13]. In 2002, over 12,900 older adults in the United States died as a result of falls. 1.67 million older adults were treated in emergency departments for fall-related injuries and 388,000 were subsequently hospitalized. According to World Health Organization, the average cost of hospitalization for fall-related injury for 65 year and older is $17,483 in the United States. A number of studies in the US reported that direct medical costs and productivity losses totaled $20.2 billion.[14]



Falls occur as a result of a complex interaction of risk factors. No single risk factor causes all falls, but the greater the

[11] World Health Organization, WHO Global report on falls prevention in older age, 2007
[12] Mahoney et el, Trends, Risk Factors, and Prevention of falls in Older Adults in Wisconsin, 2005
[13] Fletcher & Hirdes, Restriction in activity associated with fear of falling among community-based seniors using home care services, Age and Ageing, 2004
[14] Stevens et el, The costs of fatal and non-fatal falls among older adults, Injury Prevention, 2006

number of risk factors to which an individual is exposed, the greater the probability of a fall and the more likely the results of the fall will threaten the person's independence. The World Health Organization categorized risk factors into four dimensions; biological, behavioral, environmental, and socio-economic factors. However, the delegation focused on six risk factors throughout the Delegation meetings. However, the good news is that falls are not an inevitable part of aging and are preventable. Physicians report that timely community and/or medical interventions can reduce the risk of falls by 30-65%. Lack of knowledge about risk factors leads to lack of preventive action and results in falls. They are

1. ***Lack of physical activity***: failure to exercise regularly results in poor muscle tone, decreased strength, and loss of bone mass and flexibility. All contribute to falls and the severity of injury due to falls.
2. ***Medications***: Sedatives, anti-depressants, and anti-psychotic drugs can contribute to falls by reducing mental alertness, worsening balance and gait, and causing drops in systolic blood pressure while standing. Additionally, people taking multiple medications are at greater risk of falling.
3. ***Environmental hazards***: At least one-third of all falls in the elderly involve environmental hazards in the home. The most common hazard for falls is tripping over objects on the floor. Other factors include poor lighting, loose rugs, lack of grab bars or poorly located/mounted grab bars, unsteady furniture.
4. ***Poor bone health***: Osteoporosis is a condition wherein bones become more porous, less resistant to stress, and more prone to fractures. Caused by hormonal changes, calcium and vitamin D deficiency, and a decrease in physical activity, osteoporosis is a chief cause of fractures in older adults, especially among women.
5. ***Impaired vision***: Age-related diseases can increase the risk of falling. Cataracts and glaucoma alter older people's depth perception, visual acuity, peripheral vision and susceptibility to glare. These limitations hinder their ability to safely negotiate their environment.
6. ***Incontinence***: The need for frequent toileting and/or urgency to void increases the risk of falls by 26% and bone fracture by 34%.

The good news is that falls among older adults are preventable. The studies recommend that the evaluation for underlying risk factors should be followed by a multi-factorial intervention to reverse or treat remediable causes, and should be based on findings from the evaluation. Health and social service agencies need to work together to prioritize fall prevention as part of their overall strategy for promoting healthy aging. A number of studies suggest that all primary physicians should ask their older adult patients about falls at least once a year, as comprehensive individualized approach used by health care professionals may reduce morbidity and mortality from falls in older adults[15]. However, some studies demonstrate successful application of the models in a community setting[16]. Sometimes, it is difficult to determine the definitive risk factors for falls. However, it would appear that intrinsic factors are more important among people 80 and over, since loss of consciousness, suggesting a medical cause of fall, is more common in this group. Falls among older people under 75 years of age are more likely to be due to extrinsic factors (Skelton & Todd, 2004).

A number of studies emphasize the importance of implementing multi-factorial intervention based on comprehensive fall risk assessment. Effective interventions used in multi-factorial program include:

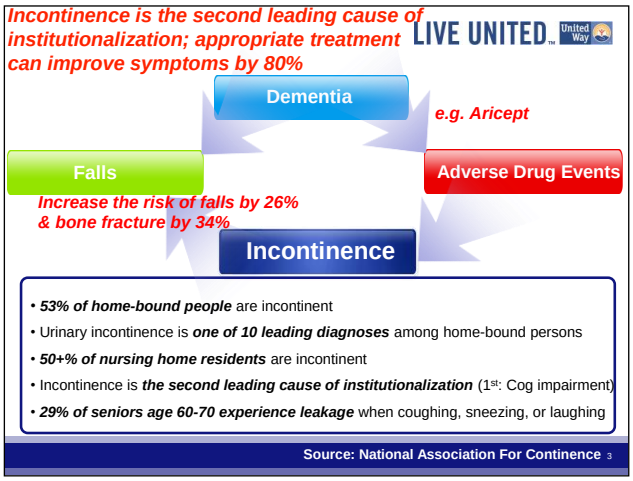
- Home-based professionally prescribed exercise, to promote dynamic balance, muscle strengthening and walking.
- Group programs based on Tai-Chi type exercises or dynamic balance and strength training as well as floor coping strategies right after falls.

[15] Mahoney et el, Trends, risk factors, and prevention of falls in older adults in Wisconsin, Wisconsin Medical Journal, 2005
[16] Stevens et el, Preventing falls: what works, Center for Disease Control and Prevention, 2008

- Home visits and home modification for older people with a history of falling
- Medication review, particularly for those on four or more medications and withdrawal of psychotropic medications where feasible.

C. Incontinence

Incontinence refers to loss of bladder control, and is the second leading cause of institutionalization following cognitive impairment. It was hard to capture the local data on incontinence, because of its chronic and private aspect. But according to the National Association for Continence, 53% of home-bound people are incontinent, and 29% of all seniors age 60-70 experience leakage when coughing, sneezing, or laughing.



Incontinence is closely correlated with other geriatric syndromes as well. Some medications are known to cause incontinence as a side effect. For example, Aricept, the medication for cognitive impairment may cause incontinence as a side effect. In addition, according to the research, incontinence increases the risk of falls by 26% and increases the risk of bone fracture by 34%. Even though incontinence is such a prevalent and unpleasant issue for older adults, most do not seek professional services because of embarrassment, misperceptions about the issue or not knowing what is available in the community. Various types of treatment can cure or significantly improve the symptoms for about 80% of patients with urinary incontinence.

D. Reversible Dementia

Dementia is the loss of mental functions such as thinking, memory, and reasoning that is severe enough to interfere with a person's daily functioning. Dementia is not a disease itself, but rather a group of symptoms that might accompany certain diseases or conditions. Dementia is irreversible when caused by disease or injury, but might be reversible when caused by side effects of multiple medications. Common forms of reversible dementia include excessive alcohol consumption, hormone, or vitamin imbalances (such as thiamin, B6 and B12), or depression.

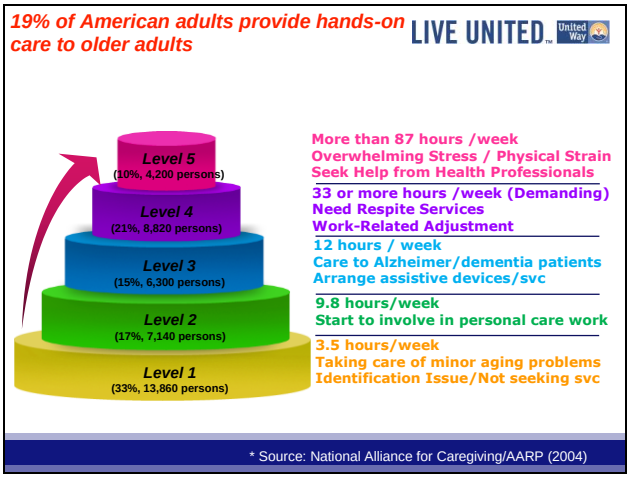
According to Wisconsin Department of Health Services, Dane County is estimated to have 6,325 community-dwelling seniors suffering dementia in 2008. But, there are no local data on the population suffering reversible dementia. The literature estimates the range as 0-20% for partial reversal, and 0-10% for full reversal. It is known to be important to evaluate dementia symptoms comprehensively so as not to miss potentially treatable conditions.

E. Family and unpaid caregiving

Research has shown that the range and intensity of medical and health care services being provided by family caregivers is growing[17]. They not only assist with activities of daily living,

[17] Informal Care of the Frail Elderly: Policy and Practices to Support Family Caregivers, National Health Policy Forum, 2007

they may also provide assistance with pain management, supervision of medications and use of medical equipment, and skilled nursing care, as well as arrange medical and health care services and providers. According to the national study from National Alliance for Caregiving & AARP, 19% of the adult population provides hands-on care to our aging population. The average age of today's caregiver is 50, and the average age of today's care recipient is 77, a majority of them are aging mothers. There are typically five successive levels of caregiver burden ranging from the least amount of responsibility at level 1 to the great amount of responsibility at level 5. Caregivers at level 5 commit 87+ hours to help their care-recipients with a wide range of household tasks and personal care including feeding, dressing, bathing, and toileting. The study indicated that 96% of caregivers assisted aging people with taking prescription medication as their care-recipients needed help with medication management.



Even though much of the care for older adults falls to informal caregivers, yet these unpaid workers receive very little preparation for their responsibilities. To the extent that patients are better able to manage their conditions, they will be less likely to depend upon members of the already limited health care workforce. Unpaid caregivers' most pressing concern about their care-recipients is keeping recipients safe at home. And, studies demonstrate that they generally turn to physicians or other health care providers at hospitals or clinics to seek information about some aspects of helping their care recipients. In redesigning the care model for older adults, it is critical to include unpaid caregivers in the loop and help them understand their roles and ways to reduce the risks of adverse health issues among older people.

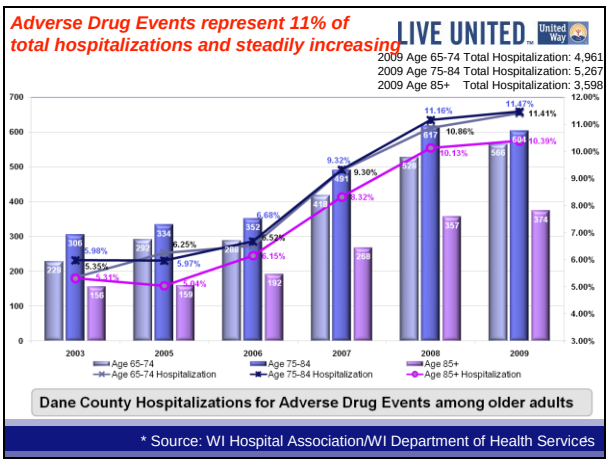
IV. Local data

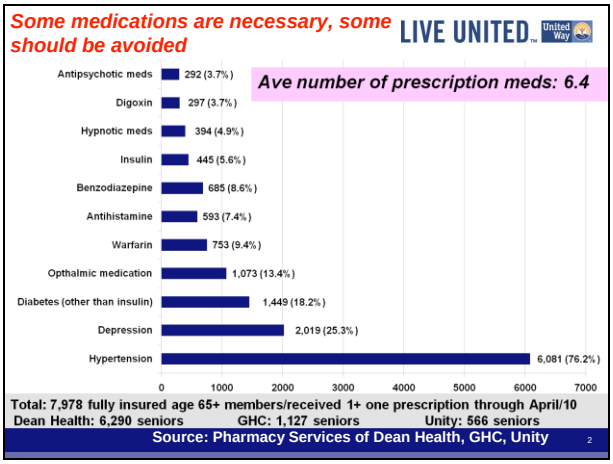
A. Adverse Drug Events (ADE)

According to the data from Wisconsin Department of Health Services and Wisconsin Hospital Association, ADE represented 11% of total hospitalizations of older adults in Dane County, and its number has increased steadily over years. ADEs are defined as "drugs, medicinal, and biologic substances causing adverse effects in therapeutic use". ADEs in Dane County produced more hospitalizations rather than receiving treatment at emergency department and discharged home. There have been only 50-70 emergency department visits for ADEs among older adults, compared to 1,400-1,500 hospitalizations every year. Contrast to the local data on falls, it is interesting that the group aged 75-84 has been the group with highest incidences of ADEs, followed by the group aged 65-74, and then the group aged 85+. Local physicians and pharmacists on the Delegation indicated that the common symptoms for hospitalizations by ADEs were severe hypoglycemia, hemorrhage, cardiovascular effects, gastro-intestinal bleeding, falls, delirium, and electrolyte disturbances.

The Delegation collaborated with Group Health Cooperative, Dean Health system, and Unity Health Insurance, to gather data on the number of medications prescribed for Dane County seniors. They found that 7,978 Dane County seniors in these three major systems (which cover 17% of seniors in Dane County) between January – April 2010 were prescribed an average of 6.4 medications. Considering the national average of 3-5 prescription medications taken by

American older adults, Dane County seniors are exposed to the higher risk of experiencing ADEs. The data did not include the over-the-counter drugs or mail-order prescriptions.





Our major hospitals and clinics in Dane County use advanced technology including computerized alerts associated with an electronic health record. The best use of the system will help reduce ADEs but the complexity of the ADE problem will still require good communication and advocacy by health care professionals, patients, and caregivers. Considering that each medication has both life saving effects and side effects, our community needs to develop good health advocates who can help seniors and caregivers make healthy judgments on whether or not to pursue using all the prescriptions.

Meanwhile, there are studies that demonstrated positive results in reducing medication problems in various health care settings, in collaboration between community pharmacists and community-based social service providers. Community-based medication management intervention, funded through Administration on Aging, incorporated key elements from an evidence-based home-health care trial into community care management, including use of structured medication-screening criteria, application of protocols with specific goals to address medication problems, use of a consultant pharmacist to recommend medication changes, and communication with physicians, care managers, and/or older adults and their caregivers regarding specific recommendations. Overall, 61% of those who received the intervention reported a medication change at the three month follow-up visit[18].

On the Delegation, we had a number of representatives from local pharmacies and a School of Pharmacy professor at University of Wisconsin-Madison. They are working with Pharmacy Society of Wisconsin, who has developed a collaborative network of pharmacies called Wisconsin Pharmacy Quality Collaborative (WPQC), to develop an evidence-based comprehensive screening tool to help detect risk of and probable adverse drug events. The local pharmacies are screened to meet the criteria of best practices to become a member of WPQC, and unified software system and quality training are offered for billing and best practices.

The Medicare Modernization Act of 2003 (MMA) requires Part D participating insurers to develop medication therapy management services for certain beneficiaries who meet criteria including suffering multiple chronic health issues and taking multiple medications. The law requires insurers to offer a comprehensive medication review (CMR) by a pharmacist or other qualified provider at least annually and perform quarterly medication reviews with follow-up interventions when necessary. A comprehensive medication review is a review of a person's

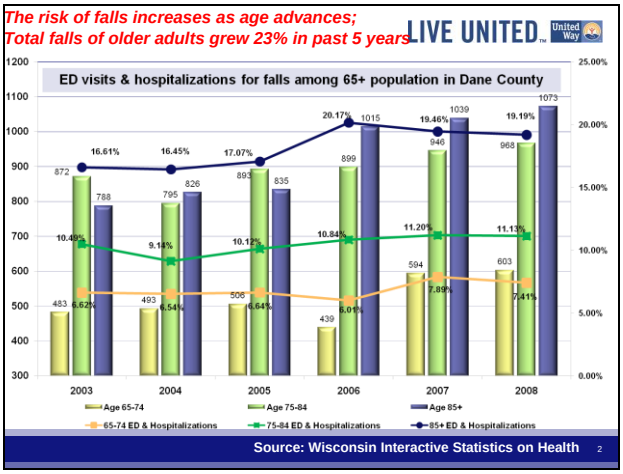
[18] Alkema et el, The role of consultant pharmacists in reducing medication problems among older adults receiving Medicaid Waiver Services, The Consultant Pharmacist, 2009

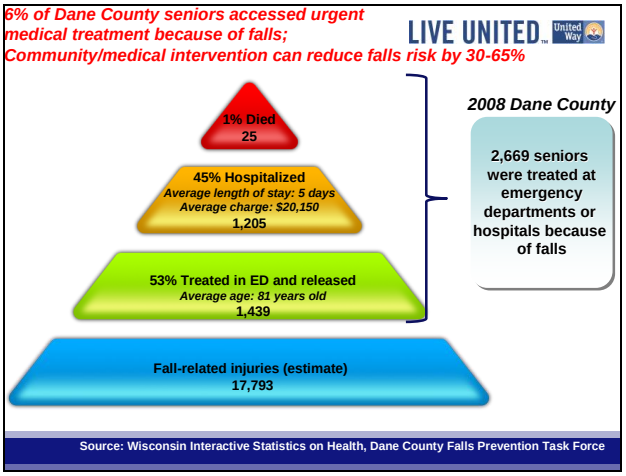
medications, including prescription and over-the-counter (OTC) medications, herbal therapies, and dietary supplements that is intended to aid in assessing medication therapy and optimizing patient outcomes. The initial comprehensive review must include an interactive person-to-person consultation, and costs $2-$3/minute for 60 minute consultation with a pharmacist. However, because of the intensive criteria for targeted older adults with extremely challenging conditions, not a lot of older adults are eligible to get benefits by this law requirement. After analyzing common practices, requirements for 2010 were revised for greater consistency among Part D medication therapy management programs to raise the level of the interventions offered to positively impact the medication use of Medicare.

Given this environmental movement, the 45 WPQC pharmacies including 15 in Dane County started to offer comprehensive medication review to older adults, and some pharmacies even deliver the pill-boxes sorted by days and time to home-bound seniors, and follow-up with them on a regular basis. The fee for the service is covered by contracted insurance companies – which are Group Health Cooperative and Unity Health (National Health Care joined the network as of 2010). But, seniors with different insurances may need to pay $120 for an hour CMR consultation, and $180 for an hour CMR consultation with communication with prescriber for recommendations.

B. Falls

According to the 2008 data from State of Wisconsin, 789 deaths, 18,432 hospitalizations, and 30,342 emergency department visits occurred as a result of falls among older adults aged 65 and over***. Wisconsin is the second-highest state for the number of older adults who die due to falls.*** Reasons for the high death rate in Wisconsin are unclear. But, state death rates are derived from death certificates. According to local research through University of Wisconsin, one possible explanation is that, compared with other states, Wisconsin's death certificate reporting may more completely report falls as the cause of death. Given this environment, Wisconsin government is on the front line of the falls prevention movement and tracking annual fall incidences among older adults. The Wisconsin Department of Health Services is monitoring 20 program performance measures, and reducing deaths and emergency department visits due to falls among the elderly is listed as one of the highest priorities.

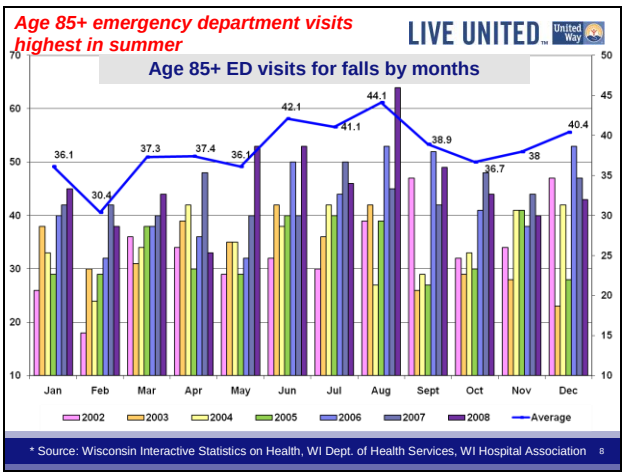


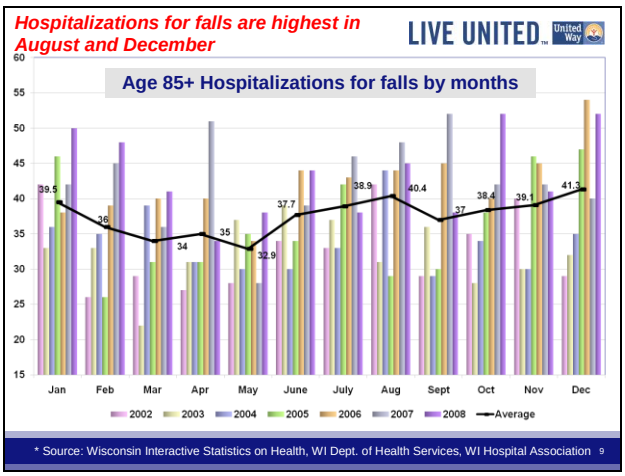


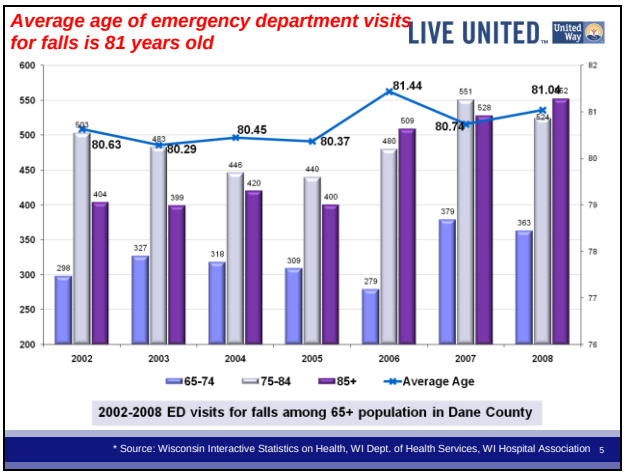
Falls are the number one cause of injury hospitalization in Dane County and ranked as the third highest county in Wisconsin. In 2008, there were 2,644 emergency department visits and hospitalizations of people over 65 in Dane County because of falls. This represents 11.8% of total emergency department visits and hospitalizations of this population. Of those 2,669 cases, 25 died, 1,439 cases were treated in emergency departments, and discharged to

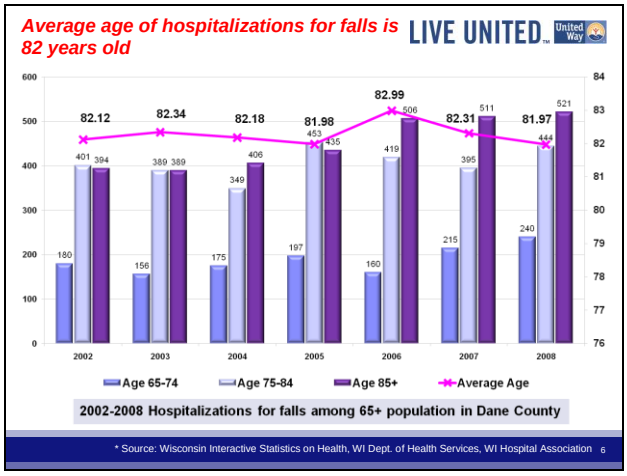
their homes, while 1,205 cases required hospitalization. This population stayed at the hospital for five days on average, with an average cost of $20,150 per person per hospital stay.

There is wider variation for the emergency department visits, but, on average, emergency department visits and hospitalizations for falls occurred most often in the months of May, June, July, and December. Medical professionals indicate that high level of daily activities with warm weather is likely to increase the risk of falls of older adults, but not in our month with most snow and ice.





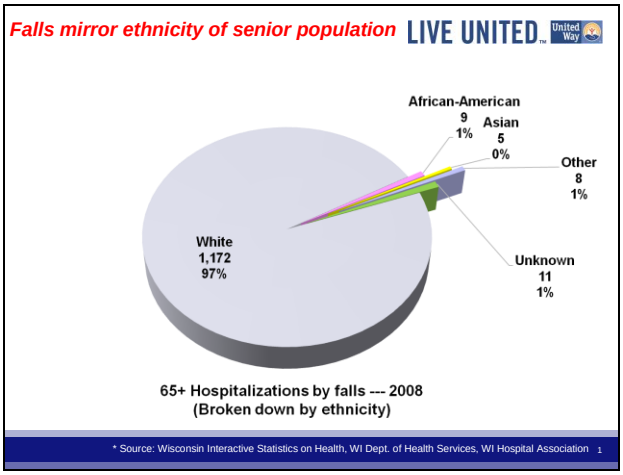


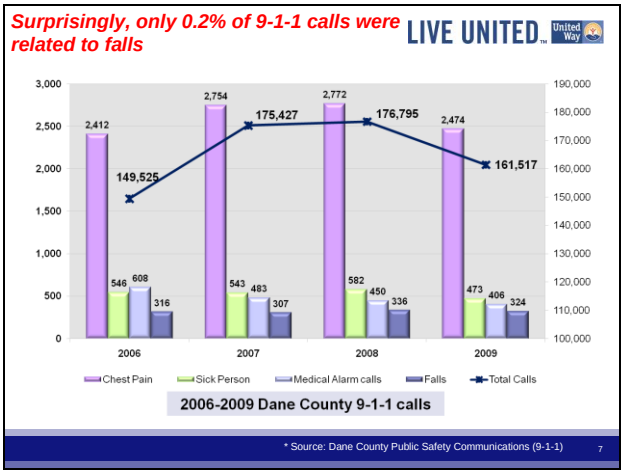


The risk of falls increases as age advances. People over age 85 are at the highest risk for falls that result in hospitalizations with serious impact on their daily independence. Dane County seniors fell and were admitted to hospitals at the average age of 82. According to the Center for Disease Control and Prevention, about 32% of older adults who sustained a fall-related injury required help with activities of daily living as a result, and among them, nearly 59% were expected to require help for at least 6 months. It is reported that 40% of older adults who suffer a serious fall will end life in a nursing home.

According to the State of Wisconsin, Caucasians represent 97% of hospitalizations for falls among adults aged 65. However, it may be hard to generalize this data considering the accessibility to health care systems by seniors of color. The other interesting data that we got from Dane County Public Safety Communications (9-1-1) indicates that only 324 calls out of 161,517 total calls were received by the 9-1-1 system for falls. The 9-1-1 staff estimates that less than 50% of 324 calls were related to senior falls. The Delegation members and 9-1-1 staff

potentially concluded that a majority of fall incidences are helped and transported by unpaid caregivers including spouses and adult children.





Given the statistics that Wisconsin older adults are more exposed to the risk of falls, the community efforts to prevent falls have begun in 2007 by Safe Communities Falls Prevention Task Force, 47 member organizations including physicians, occupational therapists or physical therapists from major hospitals and clinics, social service providers, staffs from fire/EMS services, and United Way. The group is making efforts to improve the process of care related to falls, and arrange community-based falls prevention trainings and classes to increase alertness for the risk of falls among seniors and caregivers, health professionals, and social service providers.

C. Community Engagement

1. Senior Health Fair at North/Eastside Senior Coalition (NESCO)

In May of 2010, there was a Multicultural Senior Health Fair at North/Eastside Senior Coalition partly sponsored by United Way. It offered free health screenings including risk of ADEs, and health-related information to senior citizens and caregivers. It occurred with collaboration among Dean clinics, UW clinics, Meriter Hospital, home health agencies, social service providers and United Way. Out of over 100 seniors visited the Health Fair, about 40 seniors stopped at the booth to consult with UW pharmacists. Here are the highlights from this engaging opportunity.

- More than 50% of seniors did not think medications could cause health problems at all, as those drugs were prescribed by their physicians that they trusted. Over-the-counter medications were not paid attention in general.
- A majority of seniors was not aware

A senior citizen is consulting with a pharmacist from UW-Health at the NESCO Senior Health Fair

of the medications that they were on, as well as did not keep or carry the current list of them. They remembered their medications by color and shape, and thought names of prescriptions were often too complex to remember.

- They mostly relied on their spouses or adult children in making judgment whether or not to consult with pharmacists, or take or drop any medications from their consultations.

2. Community Engagement with Tocqueville Society members

There were two community engagements conducted with Tocqueville Society donors in June and September, 2010. The Tocqueville Society members were surveyed and we received 31 responses from June and another 52 responses from September. Here are highlights of our findings.

- Out of 31 surveys, 90% of respondents listed ADEs (55%) and falls (35%) as the top two health triggers that need to be addressed for older adults in Dane County. There were strong ties between falls and ADEs in responses. Of those who answered the question on the strategy to prevent falls, 43% viewed medication management as a critical strategy, followed by maintaining home safety and balance.

Dr. Andrew Kosseff, Co-Chair of the Delegation is giving speech to the Tocqueville Society members in June, 2010

- Out of 31 surveys, 65% indicted the importance of connectedness among the medical community, pharmacies and caregivers and our seniors. We were told that physicians need to be committed to keeping the electronic records on the list of medications up to date and be willing to communicate with seniors and caregivers on the risk of falls and adverse drug events on a regular basis. Caregivers should be educated and more engaged about these risks, and have access to professional assistance in detecting risk and getting support.

- Regarding the strategies, 35% of respondents out of 52 surveys highly prioritized the strategy to implement in-home assessment by trained volunteers. 23% of respondents valued the strategy to assess the risk of adverse drug events by pharmacists, and 14% of respondents liked the strategy to work with physicians to screen with a 5th vital sign for clinic visit. Temperature, blood pressure, pulse, and respiratory rate are the current four vital signs that physicians generally use.

3. Meeting with major insurance companies in Dane County

In October and November of 2010, we held two meetings with representatives from major insurance companies including Wisconsin Physicians Service Insurance Corporation (WPS), Dean Health Plan, WEA Trust, Unity Health Insurance, Group Health Cooperative, American Family Insurance, and Physicians Plus. We received positive feedbacks on our new focus, adverse drug events and falls, and these representatives were willing to take leadership roles in communicating with leadership staff at their companies, and deliver the message out to employers, seniors and caregivers, and medical professionals. Some comments that we were told were

- In designing the message, meeting participants expected us to have solutions that they can offer to the general public, rather than laying out problems. We were told to get prepared with a stable infrastructure in place including United Way 2-1-1, before we send out messages to the broader community.
- The idea of developing community-based intervention model by connecting local pharmacies with social service providers was well received. However, more research may be needed to explore underutilized payment options that are possibly available through Medicare Part D, Senior Care etc. Also, we were told to identify the target senior population to focus our resources and bring greater impact.
- It is important to identify the internal champions of each health system and engage with them to make the greatest ripple effects with medical professionals.

4. Meeting with Wisconsin Pharmacy Quality Collaborative (WPQC) pharmacies

In November of 2010, we held a meeting with Wisconsin Pharmacy Quality Collaborative participating pharmacies. Representatives from Neuhauser pharmacy, Mallatt Pharmacy, UW-Health pharmacy, Hometown pharmacy, and Pharmacy Society of Wisconsin attended the meeting.

- A majority of the participating pharmacies have developed their own tool to effectively perform a comprehensive medication review and consult on other drug-related geriatric conditions. However, there was consensus that standardized criteria needs to be developed to capture the collective outcomes from pharmacists consulting at the community level. Also, the need for standardized training for pharmacists was raised at the discussion.
- It is important to engage with unpaid caregivers to have them understand the negative outcomes from adverse drug events and the significance of comprehensive medication review as they influence seniors' decisions on their life style choices.
- The idea of mobilizing trained volunteers to screen the home-bound seniors at high risk was well-received. It seemed appropriate to use existing service networks through home-delivered meals, case management, and parish nurses. The participants believed that United Way 2-1-1 can be at the center of the referral system to arrange the prompt service for seniors and service providers.
- The payment options for comprehensive medication review need to be explored in depth so that they are financially accessible to seniors.

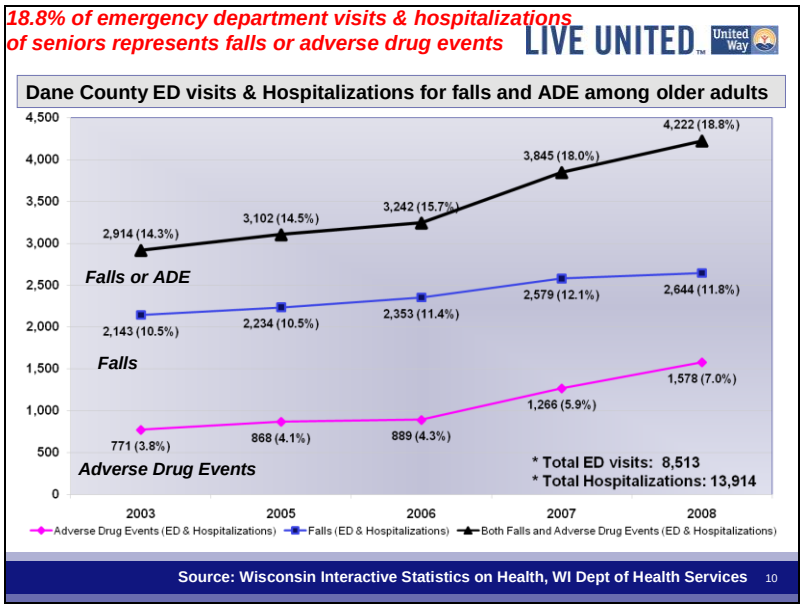
V. Hypothesis

We can keep community-dwelling seniors safe, healthy and independent by reducing the number and rate of adverse drug events and falls. We will bring our health professionals, community-based pharmacists, and social service providers together to use a multi-pronged approach to provide prevention education and resources to seniors and their caregivers. All seniors at risk for adverse drug events and falls will have access to research-based screening tools through trained volunteers, pharmacists, parish nurses, and medical professionals, and have resources to minimize their behavioral and/or environmental triggers. Unpaid caregivers play major roles in improving seniors' choices to be safer and healthier.

Goal: Reduce the rate of adverse drug events and falls of older adults by 15% by 2015.

Target population: age 65+ populations

Measurement: Number and rate of adverse drug events and falls compared to emergency department visits/hospitalizations of age 65+ group



VI. Strategies

1. Identify and assess the risk of adverse drug events and/or falls.
    a. In-home assessment for risk of adverse drug events and falls by volunteer corps.
    b. Create community-accessed program for medication review through pharmacies.
    c. Engage physicians and medical communities in creating a 5th, "senior" vital sign to identify at-risk patients by asking "Have you fallen within the past 6 months?"
    d. Create tools for seniors and/or informal caregivers to assess risk of adverse drug events and falls.

2. Connect physicians/health care providers to resources for non-medical needs with community-based organizations.

3. Caregivers have access to resources and tools that help seniors remain safe.

4. The community understands and advocates for the prevention of adverse drug events and falls.

VII. Resources and timeline

Strategy	Resources Directed	Timeline
Identification/assessment of risk for adverse drug events and falls	▪ $60,559 total annually- begin in mid 2011 ▪ $30,559 will be set aside for volunteer corps management and training ▪ $15,000 will be set aside for strategies to work with Wisconsin Pharmacy Quality Collaborative pharmacies ▪ Internal champions of geriatric health system will be identified and connected with United Way to create consistent 5th vital sign	▪ 2011
Improved connection between health care providers and community-based organizations	▪ United Way 2-1-1 protocols will be designed to connect between health care providers and community-based organizations ▪ Create universal checklist for volunteers, case managers, and caregivers	▪ By 2012
Caregivers' access to resources and tools	▪ Key contents for United Way 2-1-1 and caregiver website will be developed and strengthened ▪ $15,000 will be set aside to provide necessary home-modification for seniors at risk. Additional resources including necessary equipments, professional volunteers for installation will be sought to benefit more seniors at risk.	▪ By 2011
Community education	▪ Utilize United Way Caregiver Connection website as central in sending out consistent messages through Insurance companies and media ▪ Each insurance company to send out messages to their insurers. ▪ Media partnership with Morgan Murphy to get regular and consistent messaging to Dane County seniors and their caregivers. ▪ Regular articles in magazines and newsletters for caregivers ▪ Recall Delegation annually to monitor and assess results	▪ 2011

Appendix A

United Way
United Way of Dane County

2010 Delegation on Safe and Healthy Aging
(April-October, 2010)

Co-Chairs

1. Tom Walker, CEO, Mid-West Family Broadcasting Group, United Way Board Representative
2. Andy Kosseff, MD, SSM Medical Director of System Clinical Improvement, St. Mary's Hospital (Co-Chair of Safe Communities Falls Prevention Task Force)

Medical Community Related

3. Steve Barczi, MD, Director of VA Geriatric Research, Education & Clinical Center/ Professor, School of Medicine & Public Health, University of Wisconsin-Madison
4. Paul Baum, Manager of Pharmacy Services, Group Health Cooperative – South Central WI
5. Barbara Bowers, Professor, School of Nursing, University of Wisconsin-Madison
6. Annette Fox, RN, Dean Health System, Wisconsin Integrated Information Technology & Telemedicine System (WIITTS)
7. Kay Heggestad, MD, Family Medicine/Palliative Care
8. Carole L. Kretschman, RN, South Central Federation of Labor
9. Kristina Krueger, NP, Incontinence Specialist, Urogyn Health Services
10. Anne Marie Nahn Bell, PT, Program Specialist, Therapy Education & Community Outreach, Dean Health System
11. Jennifer Schauer, Pharm D, Medication Use Policy Analyst, Unity Health Insurance
12. Tracy Schroepfer, Professor, School of Social Work, University of Wisconsin-Madison

Pharmacy Related

13. Bob Breslow, Professor, School of Pharmacy, University of Wisconsin-Madison
14. Mike Flint, CEO, Mallatt Pharmacy, Independent Pharmacy Cooperative (IPC)
15. Dean Groth, Market Manager, Pfizer
16. Kevin Hoey, CEO, Cottage Grove Pharmacy, a member of WPQC
17. Kari Trapskin, Director of Health Care Quality Initiatives, Pharmacy Society of Wisconsin, WPQC (Wisconsin Pharmacy Quality Collaborative)

Government-related

18. Paul Bloom, Assistant Fire Chief, City of Madison (Ambulance/9-1-1 system)
19. Jennifer Fischer, Long-term Support Supervisor, Dane County
20. Christine Beatty, City of Madison, Executive Director of Madison Senior Center
21. Amy Ramsey, Registered Dietician, Nutrition Specialist at State of Wisconsin
22. Becky Turpin, Injury/Violence Prevention Coordinator, State of Wisconsin

Business/Foundation related

23. Denise De Long, Vice President, WEA Trust
24. Tim Heaton, Chief Operating Officer, EPIC Life Insurance/WPS (SRI CST)
25. Chris Kenyon, Senior Account Executive, M3 Insurance Solutions for Business
26. Janet Loewi, Leadership volunteer (QTI), United Way Foundation Trustee and past Chair
27. Aaron Zitzelsberger, JD, Director of Development, Corporate, and Foundation Relations, University of Wisconsin Foundation

Marketing/Media related

28. Carl Fritscher, Strategy Director, Hiebing

Faith-community-related

29. Craig Heilman, Executive Pastor, Door Creek Church
30. Eldonna Hazen, Associate Minister, First Congregational Church-United Church of Christ
31. Peggy Weber, RN, MSN, Parish Nurse Coordinator, St. Mary's Hospital

Social Service-related

32. Rick Bourne, CEO, Home Health United
33. Rita Giovannoni, CEO, Independent Living Inc
34. Paul Rusk, Executive Director, Alzheimer's/Dementia Alliance of Wisconsin
35. Kathy Stellrecht, Vice President, Catholic Charities
36. Joe Xanthopoulos, CEO, Oakwood Village Retirement Communities

Vision Council and Self-Reliance and Independence Community Solution Team

37. Gene Kroupa, Leadership Volunteer, Vision Council
38. Sandy Tordoff, Leadership Volunteer, Self-Reliance and Independence CST

Staff:

1. Ann Albert, Program Director, Supporting Active Independent Lives (SOS Emergency Pendant)
2. Deedra Atkinson, Senior Vice President, United Way of Dane County
3. Janet Bollig, Social Work Manager, Home Health United
4. Alan Lukazewski, Director of Pharmacy, Oakwood Village Retirement Communities
5. Kathy Martinson, Director of 2-1-1 and Volunteer, United Way of Dane County
6. Steve Mendez, Director, Marketing, United Way of Dane County
7. Lauren Pyszka, PharmD, Resident, VA Hospital
8. Cheryl Wittke, Executive Director, Safe Communities-Falls Prevention Task Force
9. Hooyung Young, Assistant Director, United Way of Dane County

Panelists

1. Chad Fleck, Support Services Supervisor, Dane County Public Safety Communications (9-1-1)
2. Carrie Meier, Dane county Emergency Management Specialist (EMS)
3. Ingrid Kundinger, Executive Director, West Madison Senior Coalition
4. Roberta Carrier, Pharmacist, Mallatt Pharmacy
5. Virginia Henderson, Community Leader, Former Administrator, Madison Metropolitan School District
6. Marilynn Donaldson, Wound, Ostomy, Continence Nurse(WOCN), Home Health United
7. Jane Mahoney, MD, Professor, Dept of Medicine, University of Wisconsin-Madison
8. Tom Kuplic, Account Supervisor, Public Relations, Lindsay, Stone & Briggs
9. Steve Sparks, Director of Public Relations/Marketing, St. Mary's Hospital
10. Carol Koby, WTDY 1670, Self-Reliance and Independence Community Solution Team
11. John Smalley, Editor, Wisconsin State Journal
12. Roland Beres, Assistant Director, Community Engagement, United Way
13. Dan Rashke, President & CEO, Total Administrative Services Corporation (TASC)/Chair of the Self-Reliance and Independence Community Solution Team, United Way Board
14. Leslie Ann Howard, President & CEO, United Way of Dane County

Advisors

1. Beth Martin, Assistant Professor, School of Pharmacy, University of Wisconsin-Madison
2. Jim Murphy, Executive Director, Wisconsin Assisted Living Association
3. Peter Kulinski, Administrator, Avalon Assisted Living Community
4. Gerald Kelm, Chief Financial Officer, Oakwood Village
5. Marilynn Lawler, Independent Living Inc.
6. Marie Hornes, Geriatric Social Worker, UW-Health Memory Clinic
7. Claire Culbertson, Caregiver Program Coordinator, Area Agency on Aging, Chair of Dane County Caregiver Alliance
8. Barbara Spierer, Associate Director, Jewish Social Services
9. Cheryl Batterman, Executive Director, North/Eastside Senior Coalition
10. Beverly Tillich, Former Director of Aging, Catholic Charities
11. Karen Timberlake, Secretary, Wisconsin Department of Health Services
12. Richard Miller, Wisconsin Department of Health Services
13. Chris Decker, CEO, Pharmacy Society of Wisconsin
14. Marsha Hladilek, Director of Health Improvement, Physicians Plus
15. Mary Hughs, Member Health Services, WEA Trust
16. Susan Hagan, Director of Medical Management Marketing, Wisconsin Physicians Service Insurance Corporation
17. Amy Rockhill, Community Services Coordinator, Group Health Cooperative
18. Jim Maastricht, Planning Director, American Family Insurance
19. Nelson Braslow, MD, Senior Medical Director, Dean Health Plan
20. Barb Thoni, Director, Area Agency on Aging
21. Marie Reines, Program Director, Alzheimer's & Dementia Alliance
22. Peg Breuer, Pharmacist, Neuhauser Pharmacy
23. Angela McGowan, Pharmacist, UW-Health (Hilldale location)
24. Erika Horstmann, Pharmacist, Hometown Pharmacy
25. Safe Communities Falls Prevention Task Force members
26. Dane County Caregiver Alliance members

Appendix C

Wisconsin Pharmacy Quality Collaborative Pilot Pharmacies (November, 2010)

(Dane County locations only)

	Pharmacy	Address	City
1	Community Pharmacy	341 State Street	Madison
2	Dean Pharmacy	752 N High Point Road	Madison
3	Dean Pharmacy	10 Tower Drive	Sun Prairie
4	DeForest Hometown Pharmacy	645 S Main Street	DeForest
5	Door Creek Pharmacy	431 Cottage Grove Road	Cottage Grove
6	Door Creek Pharmacy	50 N Main Street	Deerfield
7	GHC Hatchery Hill Pharmacy	3051 Cahill Main	Fitchburg
8	Mallatt Pharmacy	3506 Monroe Street	Madison
9	Neuhauser Pharmacy	1875 Monroe Street	Madison
10	Oakwood Village Pharmacy	6201 Mineral Point Road	Madison
11	Shopko Pharmacy	7401 Mineral Point Road	Madison
12	UW-Health Pharmacy- Hilldale	702 N Midvale Blvd	Madison
13	UW-Health Pharmacy- Odana	5618 Odana Road	Madison
14	UW-Health West Pharmacy	451 Junction Road	Madison

Source: Pharmacy Society of Wisconsin, 2010