



Technologies for Optimizing Medication Use in Older Adults

Lynn Redington, DrPH, MBA
Senior Program Director
Center for Technology and Aging
lredington@techandaging.org

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Today's Topics

- Outcomes from the Center for Technology Aging (CTA) Medication Optimization Diffusion Grants Program
- Background information on CTA, medication issues in older adults, and relevant technologies
- Future considerations

Today's Panel

- Lynn Redington, Center for Technology and Aging
 - Program director
 - CTA developed and managed the initiative
- Sandy Atkins, Partners in Care Foundation
 - PICF evaluated this initiative
- Barbara Hanna, Caring Choices
 - Caring Choices was a grantee
- Janice Feinberg, ASCP Foundation
 - American Society of Consultant Pharmacists Foundation was a grantee



- Established in 2009 with funding from The SCAN Foundation, located at the Public Health Institute
- Mission: Accelerate diffusion of technologies that help older adults lead healthier lives and maintain independence
- Independent, non-profit resource center on issues related to diffusion of technology for older adults
- Technology Diffusion Grants Programs, e.g.:
 - Medication Optimization Diffusion Grants Program

Purpose of Medication Optimization Diffusion Grants Program (“MedOp”)

- Advance the use of technologies that improve (“optimize”) medication use among older adults
 - Better care, better health, lower costs
 - Reduce caregiver burden
 - Improve medication reconciliation, medication adherence, and/or medication monitoring
 - Enhance home and community based care
 - Foster patient activation and independent living

The Need

- Medication use is ubiquitous among older adults
 - 90% take one or more Rx medications each week
 - 41% take 5 or more . . .
 - 12% take 10 or more. . .
- Medication Adherence
 - 40% of patients do not take meds as directed
 - Responsible for:
 - Up to 69% of meds-related hospitalizations
 - 23% of nursing home admissions
 - \$290 billion opportunity for cost savings
- Medication Monitoring
 - Suboptimal monitoring involved in 61% of preventable adverse drug events



Medication Optimization Diffusion Grants Program Grant Awards

- RFP released Fall 2009
- January-December 2010 grant period
- \$500,000 in grant funds
- Five grantees selected:
 1. Association of Consultant Pharmacists Foundation
 2. Caring Choices
 3. Connecticut Pharmacists Foundation
 4. Veterans Administration (Central Calif.) Health Care System
 5. Visiting Nurse Service of New York

Grantees' Medication Optimization Technologies

- Videoconferencing, Spoken Format Technologies
 - Connecticut Pharmacists Foundation
- Remote Patient Monitoring for Medication Adherence
 - VA Central California
- Computerized Meds Dispensers
 - Caring Choices
- Computer Algorithms
 - ... that Analyze Medications & Medication Use & Guide Clinicians
 - VA Central Cal, VNSNY, ASCP Foundation

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CTA Diffusion Grants Programs

- Four in various stages of development
 1. Medication Optimization Technologies
 2. Remote Patient Monitoring Technologies
 3. Technologies for Improving Post-Acute Care
 4. Mobile Health Technologies
- 22 grantees: “learning laboratories”
- Lessons Learned, Best Practices, Tools
- Foundation for CTA mission and role
 - Collaborate, Demonstrate, Educate, Advocate



Center for
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Medication Optimization for Older Adults – Lessons Learned from the Center for Technology & Aging's First Grantees

Sandy Atkins, VP Institute for Change,
Partners in Care Foundation

Diversity of Technologies

- Oriented toward supporting providers
 - ASCP Foundation's Monitor Rx for Pharmacists to screen for potentially harmful medications
 - VNSNY Tool to help Nurses address complex medication regimens for cognitively impaired patients
 - Connecticut Pharmacists teleconferencing to facilitate communication between Khmer-speaking patients and pharmacists
- Patient support
 - Caring Choices medication dispenser
 - VA of Central California "Health Buddy"

Diversity of Organizations/Partners

- *Caring Choices* – Community agency working with home care agencies & residential care facilities
- *VNSNY* – Large home health agency in NYC
- *VA Central California* – Large healthcare system
- *American Society of Consultant Pharmacists* – Association working with clinics and community agencies
- *Connecticut Pharmacists Foundation* – Working with community groups serving Cambodian refugees

Diversity of Challenges

- Regulatory issues around medication administration
- Scope of practice for nurses in residential care
- Resistance to change
- Lack of local champion for the initiative
- Lack of broadband in low-income areas
- Low perceived value added for investment in tech
- Greater than anticipated staff time/effort for training, data entry

Diversity of Goals & Outcomes - 1

- **Goal: Improve medication use, reconciliation, adherence, and/or monitoring**
 - CPF: Reconciled 93% of 605 medication-related problems identified (34.5% reduction in inappropriate use of medications); also significantly improved adherence behaviors.
 - CC: 98% of participants received medication on time, 3% higher than anticipated.
 - ASCP: Increased referrals to consultant pharmacist for med review & advising

Diversity of Goals/Outcomes – 2

- **Goal: Reduce cost and improve quality of care.**
 - CPF project reported a total cost avoidance of \$256,998 (\$2,677 per patient) during the grant period. In addition, the percentage of patients' therapy goals achieved increased (i.e., clinical outcome status of resolved, stable or improved) by 24%
- **Goal: Reduce caregiver burden.**
 - CC reported promising trends regarding caregiver stress

Diversity of Goals/Outcomes – 3

- **Goal: Reduce need for higher cost care settings.**
 - CC reported reductions in ER visits and hospitalizations compared to baseline data.
- **Goal: Improve older adults' ability to live in preferred setting.**
 - CPF & CC stated that older adults were able to remain at home because of the services provided, noting that none had been institutionalized during the project
- *All projects successfully disseminated technologies for medication optimization!!*



Sustainability & Policy Implications

- All grantees and most partner sites intend to keep using the technology and most had already applied for additional funding.
- Grantees expressed that reimbursement needs to be addressed for long-term sustainability of the technologies and professional monitoring and review.
- Pharmacists add value to the care team and support patient safety. License reciprocity would support national programs.

Lessons Learned

- *Recruitment, training, and getting staff buy-in require substantial commitment and time investment.*
- *To the extent possible, the technology needs to take advantage of existing effort and fit into current workflow.*
- *Interventions should respond to a need perceived/expressed by those who will implement the project.*

Lessons Learned - 2

- *Consider the match between the nature of the technology and characteristics of partnering agency.*
- *Training at all levels is crucial and takes time.*
- *Professional practice issues need to be considered in planning and implementation.*
- *There will be unanticipated roadblocks—e.g. lack of broadband connection and challenges of monitoring across time zones—that will require creative problem solving.*

Lessons about grant making and grant taking

- *Buy-in from internal and external partners takes time and TLC*
 - *This should be accomplished BEFORE the grant is made – especially for short (one-year) grant periods*
- *Projects need an accountability structure that gives project manager tools to ensure success*
- *RFPs and proposals should focus on initiative goals and how they will be achieved.*

Short Grant Cycles & Diffusion Projects – Preparing for Success

- Have operational plan ready to implement on day one
 - You won't have time for staff search – use existing and hire for their replacements if necessary
 - Roles for partners must be fully developed, agreed upon, realistic – and there must be a champion at each site
 - Learn from prior “lessons learned” – schedule multiple trainings, engage implementation team in planning, etc.
 - From-scratch pilot can't be done in 12 months – this has to be replication/adaptation, not invention
 - IRB, if needed, should be parallel effort – don't stop and wait.
But it is complex – start before the funding does.



Technologies for Optimizing Medication Use in Older Adults

Aging in America

American Society on Aging Conference

April 27, 2011

San Francisco , California

Presented by: Barbara Hanna, RN, PHN,CCM



Home & Health Care[™]
MANAGEMENT





Center for Technology and Aging: Medication Optimization grant

Purpose: To improve medication adherence and monitoring by diffusing an existing technology-based medication management program to new senior service providers and service areas to improve medication use by older adults in California.

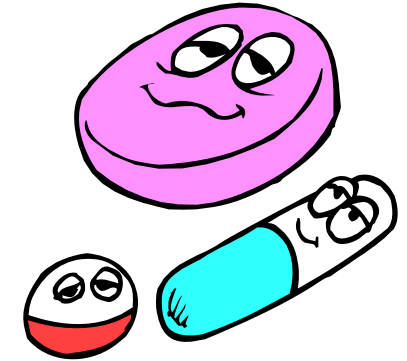
Funding graciously provided by The SCAN Foundation, the Public Health Institute and the Center for Technology and Aging.



Partners in the Project

- Caring Choices
- Home and Health Care Management
- Eskaton Senior Residences and Services
- Asian Community Center
- VNA of Riverside
- Philips
- Aging Services of California
- Alternative Home Care
- Jennifer Lillibridge, PhD Ca State University
Chico School of Nursing

UNDERLYING PROBLEMS of Medication Mismanagement



- Medication-related problems are one of the top 5 causes of death among seniors in the US, causing an estimated 125,000 deaths annually.
- The annual cost of medication related problems in the US is estimated at over \$100 billion.
- 86% of seniors take at least one prescription medication daily.
- Adherence Issues: Medication mismanagement (the failure to take drugs on time in the correct dose) leads to overdoses, exacerbations of illnesses, hospitalizations and ultimately a loss of independence resulting in long term institutionalization.

Why the Philips PMD?



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PMD Support Center - Communications Summary Report

PMD User: Joan Doe

User's Phone: 9999999999

Organization:

Facility:

Department:

Address: 1 MAIN ST, ANYTOWN, CA 12345

Serial Number: 230016571

SC Date Time	PMD Date Time	Transaction Type	AC	Batt Cond	Call-In Retries	No. SC Calls	No. Valid Disp.	No. Missed Disp.	No. Early Disp.	Next Day Early	Cups in Hold	Days of Meds Left
6/1/2009 8:26:23 AM	6/1/2009 6:26:00 AM	Normal Check-in	On	100%	0	14	7	0	0	0	0	2
5/31/2009 8:26:22 AM	5/31/2009 6:26:00 AM	Normal Check-in	On	100%	0	13	4	0	0	0	0	3
5/30/2009 8:26:22 AM	5/30/2009 6:26:00 AM	Normal Check-in	On	100%	0	12	1	0	0	0	0	4
5/30/2009 3:01:22 AM	5/30/2009 1:01:00 AM	Normal Check-in	On	100%	0	11	1	0	0	0	0	4
5/29/2009 8:26:09 AM	5/29/2009 6:26:00 AM	Normal Check-in	On	100%	0	14	29	0	3	0	0	6
5/28/2009 8:35:10 AM	5/28/2009 6:35:00 AM	Normal Check-in	On	100%	1	13	26	0	3	0	0	7
5/27/2009 8:26:09 AM	5/27/2009 6:26:00 AM	Normal Check-in	On	100%	0	12	23	0	3	0	0	8
5/26/2009 4:43:10 PM	5/26/2009 2:43:00 PM	MD.2 Power Change	On	100%	0	11	23	0	3	0	0	8
5/26/2009 8:26:10 AM	5/26/2009 6:26:00 AM	Normal Check-in	On	100%	0	10	20	0	1	0	0	1
5/25/2009 8:37:10 AM	5/25/2009 6:37:00 AM	Normal Check-in	On	100%	1	9	17	0	1	0	0	2
5/24/2009 8:26:10 AM	5/24/2009 6:26:00 AM	Normal Check-in	On	100%	0	7	14	0	1	0	0	3
5/23/2009 8:26:30 AM	5/23/2009 6:26:00 AM	Normal Check-in	On	100%	0	6	11	0	1	0	0	4
5/22/2009 8:26:51 AM	5/22/2009 6:26:00 AM	Normal Check-in	On	100%	0	5	8	0	1	0	0	5
5/22/2009 3:00:11 AM	5/22/2009 1:01:00 AM	Normal Check-in	On	100%	0	4	8	0	1	0	0	5

Displaying Last 35 Days of Transactions.



Demographics about Medication Optimization Grant Participants

- 43 total clients in the program in 4 separate agencies
- 98% average compliance rate for medication adherence
- 3 out of 4 clinical placement partners will continue with providing medication management services with the device.



Reduced Burden on Caregivers

- **Caregiver Satisfaction is extremely high**
 - “It keeps my mom from overdosing”
 - “It relieves me of some of my time..”

Reduces Costs for Formal Caregivers

Alternative Home Care reduced their nursing time
machines filled once a week rather than deliver each dose to a patient

For Further Information Contact:



Barbara Hanna BSN, PHN, CCM
1398 Ridgewood Dr.
Chico, CA 95973
(530) 899-3873

bhanna@caring-choices.org

www.caring-choices.org

jlehmann@homeandhealthcaremgmt.com

www.homehealthcaremgmt.com



Medication Optimization Using Monitor-Rx

Project Overview

Janice L. Feinberg, PharmD, JD
ASCP Foundation
Project Director



What is Monitor-Rx?

- A unique, web-based clinical tool for use in geriatric patients
- Associates medication effects with geriatric problems (e.g., falls, incontinence, depression, delirium)
- Identifies anticholinergic medications and medications inappropriate for use in the geriatric population,
- Provides medication monitoring recommendations to foster early recognition of adverse drug effects that can be avoided, managed or reversed





Why Monitor-Rx?

“Any symptom in an elderly patient should be considered a drug side effect until proved otherwise.” ~Jerry Gurwitz, MD



Symptoms—such as confusion, forgetfulness, gait instability, Parkinsonism, incontinence, and fatigue—should not be attributed to the onset of new illness or to aging itself without first assessing whether they may in fact be adverse medication effects.



Monitor-Rx Problem Areas

- Potentially Inappropriate Medications
- Anticholinergic Medications
- Urinary Incontinence
- Falls
- Cognitive Loss
- Delirium
- Visual Function
- Mood State
- Dehydration
- ADLs
- Nutritional Status
- Dental
- Behavioral Symptoms
- Pressure Ulcers
- Psychotropic Drugs



Geriatric Problem-Med Report

- Identifies medications that may cause, aggravate, or contribute to common geriatric problems
 - See potential effect of medications on patient's physical, functional, and psycho-social status
 - Identify problems the medication regimen puts patient at highest risk for
 - Give added scrutiny to monitoring indicators associated with those problems during assessment/evaluation process

Geriatric Problem-Med Report

Patient Info	Medications	Intervention Overview	Geriatric Problem-Med	Med-Problem	Communications
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Select specific problem(s):

[View specific report](#)

[View and print PDF](#)

Priority= 1

Medications Screened

donepezil, fluoxetine, Furosemide, Lisinopril, Lovastatin, memantine, Nitroglycerin, tolterodine, warfarin

[Show Medication Details](#)

Medications Not Screened May also contribute to the risk for a geriatric problem, but for various reasons (e.g., newly marketed, not for chronic use in geriatric patients, missing NDC code) were not evaluated:

Multivitamin, Pantoprazole, Potassium Chloride, Xalatan

Problem	Problem Description	Medication (effect)	Monitoring Indicators
Potentially Inappropriate Medications (PIM)	Certain medications or medication classes should generally be avoided in older persons because they are either ineffective or they pose unnecessarily high risk for older persons and a safer alternative is available.	fluoxetine (PIM Beers 2003 High Severity)	<ul style="list-style-type: none"> • Is there an indication for the medication? • Is the medication being used to treat an avoidable adverse medication effect? • Is the patient having any side effects from the medication? • Does the medication cause, aggravate or contribute to any geriatric problem? • Is non-drug therapy indicated? • Is there a safer alternative?
Anticholinergic	The use of multiple medications with anticholinergic properties in older individuals may be particularly problematic because of the cumulative effects.	<p><u>warfarin</u> (Anticholinergic Activity)</p> <p><u>tolterodine</u> (Anticholinergic Medications)</p> <p><u>Furosemide</u> (Anticholinergic Activity)</p>	<ul style="list-style-type: none"> • Are any medications with anticholinergic effects potentially inappropriate medications? If so, are there safer alternatives? • Is the patient experiencing any of the following anticholinergic side effects: <ul style="list-style-type: none"> ◦ Dry mouth, skin or eyes ◦ Urinary retention or difficulty urinating (especially in men) ◦ Constipation ◦ Rapid heart beat ◦ Blurred vision ◦ Clumsiness, unsteadiness ◦ Dizziness ◦ Drowsiness during the day ◦ Lethargy, fatigue ◦ Distress, nervousness ◦ Memory problems ◦ Confusion/disorientation ◦ Restlessness, irritability ◦ Hallucinations

Geriatric Problem-Med Report (cont'd)



<p>Cognitive Loss/Memory Impairment</p>	<p>Older adults are more likely than younger persons to develop cognitive impairment as a result of taking medications. Psychoactive and other medications can be a factor in cognitive loss, which is generally associated with a decline of:</p> <ul style="list-style-type: none"> • Memory, especially short-term • Language ability • Visual-spatial functioning • Skilled purposeful movements • Decision making 	<p><u>Citalopram Hydrobromide</u>(Cognitive Loss/Impaired Memory; Confusion)</p> <p><u>Digoxin</u>(Cognitive Loss/Impaired Memory; Confusion)</p> <p><u>Meclizine Hydrochloride</u>(Cognitive Loss/Impaired Memory; Confusion)</p>	<ul style="list-style-type: none"> • Is the patient taking a medication for Alzheimer's/dementia (e.g. Aricept, Namenda)? • Is the patient experiencing any of the following symptoms: <ul style="list-style-type: none"> ◦ Short term memory problem ◦ Difficulty in making decisions ◦ Difficulty in remembering the names of things ◦ Exercising poor judgment in decision-making ◦ Difficulty in understanding what other people are saying or asking
<p>Dehydration</p>	<p>Medications that increase urine output or cause fluid loss may contribute to dehydration. Dehydration may result in many distressing symptoms, such as dizziness on sitting/standing; confusion or change in mental status; decreased urine output; dry mucous membranes; constipation; and fever.</p>	<p><u>Citalopram Hydrobromide</u>(Diuresis, Polyuria)</p>	<p>Is the patient consuming adequate amounts of liquids?</p> <p>Is the patient experiencing any of the following symptoms:</p> <ul style="list-style-type: none"> • Dry mouth, dry mucous membranes • Rapid drop in weight (may equal several pounds in a few days) • Weakness • Lightheadedness (particularly if worsening on standing) • Darkening of the urine • Decrease in urination
<p>Delirium</p>	<p>Delirium is a common indicator or nonspecific symptom of a variety of acute, treatable illnesses, characterized by fluctuating states of consciousness, disorientation, decreased environmental awareness, and behavioral changes. The onset may vary; however, it usually develops rapidly, over a few days or even hours. The most common causes are:</p> <ul style="list-style-type: none"> • Infection, fever (e.g., urinary tract or respiratory infection) • Metabolic disorder • Medications. <p>Anticholinergic medications are important causes of acute and chronic confusional states. Recent studies have suggested that the total burden of anticholinergic drugs may determine development of delirium rather than any single agent.</p>	<p><u>Digoxin</u>(Anticholinergic Activity; Delirium)</p> <p><u>Meclizine Hydrochloride</u>(Anticholinergic Medications; Delirium)</p> <p><u>Warfarin Sodium</u>(Anticholinergic Activity; Delirium)</p>	<p>Delirium problem suggested if one or more of following symptoms are present:</p> <ul style="list-style-type: none"> • Easily distracted • Periods of altered perception or awareness of surroundings • Episodes of disorganized speech • Periods of restlessness • Periods of lethargy • Mental function varies over the course of the day • Deterioration in cognitive status, mood, or behavioral symptoms
<p>Dental Care</p>	<p>Having teeth/dentures that function properly is an important requisite for nutritional adequacy. Some medications can cause dry mouth, inflamed gums, mouth pain, or chewing problems, which may interfere with dental hygiene.</p>	<p><u>Citalopram Hydrobromide</u>(Xerostomia (Dry mouth))</p> <p><u>Ferrous Sulfate</u>(Odynophagia (mouth pain), stomatitis, oral ulcers, chewing problems)</p> <p><u>Meclizine Hydrochloride</u>(Xerostomia (Dry mouth))</p>	<p>Has the patient experienced any of the following symptoms?</p> <ul style="list-style-type: none"> • Dry mouth • Inflamed gums • Mouth pain • Chewing problems <p>If so, are the symptoms interfering with nutritional intake?</p>



Specific Problem-Med Report

- Identify medications that may cause, aggravate or contribute to geriatric problems the patient is exhibiting
- Refer to the pharmacist for a targeted or comprehensive medication review

Specific Problem-Med Report

- Cognitive Loss/Memory Impairment
 Dehydration
 Delirium
 Dental Care
 Falls
 Mood State/Depression
 Nutritional Status
 Pressure Ulcers
 Psychotropic Drugs
 Urinary Incontinence
 Visual Function

Priority=1

Medications Screened

[Show Medication Details](#)

donepezil, fluoxetine, Furosemide, Lisinopril, Lovastatin, memantine, Nitroglycerin, tolterodine, warfarin

Medications Not Screened May also contribute to the risk for a geriatric problem, but for various reasons (e.g., newly marketed, not for chronic use in geriatric patients, missing NDC code) were not evaluated:

Multivitamin, Pantoprazole, Potassium Chloride, Xalatan

Problem	Problem Description	Medication (effect)	Monitoring Indicators
Falls	Certain medications can produce falls by causing problems such as dizziness, drowsiness, low blood pressure, muscle rigidity, impaired balance, tremors, and decreased alertness.	<p><u>donepezil</u> (Dizziness; Drowsiness, sedation; Parkinsonian movements)</p> <p><u>warfarin</u> (Dizziness)</p> <p><u>tolterodine</u> (Dizziness; Drowsiness, sedation)</p> <p><u>Furosemide</u> (Dizziness; Hypotension, postural hypotension)</p> <p><u>Lisinopril</u> (Dizziness; Hypotension, postural hypotension)</p> <p><u>Lovastatin</u> (Drowsiness, sedation)</p> <p><u>memantine</u> (Dizziness; Drowsiness, sedation)</p> <p><u>Nitroglycerin</u> (Dizziness; Hypotension, postural hypotension)</p> <p>ⓘ fluoxetine (Dizziness; Drowsiness, sedation)</p>	<ul style="list-style-type: none"> • Has the patient experienced any falls in the past six months? • Does the patient worry that a fall might occur? • Is the patient experiencing any of the following symptoms, which may increase the risk for falls: <ul style="list-style-type: none"> ◦ Decreased alertness ◦ Dizziness (especially when standing or sitting up) ◦ Drowsiness ◦ Impaired balance ◦ Muscle rigidity ◦ Unsteady gait ◦ Tremors <p>Note: Patients who have experienced two or more falls in the past six months, injury from a fall, or fear of falling should be evaluated and treated to reduce or eliminate risk factors.</p>



Specific Med-Problem Report

- Support or strengthen recommendations
 - unnecessary drugs
 - anticholinergic medications
 - drugs potentially inappropriate for use in the geriatric population

Specific Med-Problem Report



Medication	Problem Description
Meclizine Hydrochloride	<p data-bbox="254 285 1955 326">Anticholinergic The use of multiple medications with anticholinergic properties in older individuals may be particularly problematic because of the cumulative effects.</p> <p data-bbox="254 350 646 371">Cognitive Loss/Memory Impairment</p> <p data-bbox="254 396 1955 436">Older adults are more likely than younger persons to develop cognitive impairment as a result of taking medications. Psychoactive and other medications can be a factor in cognitive loss, which is generally associated with a decline of:</p> <ul data-bbox="302 461 630 561" style="list-style-type: none">• Memory, especially short-term• Language ability• Visual-spatial functioning• Skilled purposeful movements• Decision making <p data-bbox="254 586 342 607">Delirium</p> <p data-bbox="254 631 1955 688">Delirium is a common indicator or nonspecific symptom of a variety of acute, treatable illnesses, characterized by fluctuating states of consciousness, disorientation, decreased environmental awareness, and behavioral changes. The onset may vary; however, it usually develops rapidly, over a few days or even hours. The most common causes are:</p> <ul data-bbox="302 712 911 769" style="list-style-type: none">• Infection, fever (e.g., urinary tract or respiratory infection)• Metabolic disorder• Medications. <p data-bbox="254 794 1955 834">Anticholinergic medications are important causes of acute and chronic confusional states. Recent studies have suggested that the total burden of anticholinergic drugs may determine development of delirium rather than any single agent.</p> <p data-bbox="254 859 380 880">Dental Care</p> <p data-bbox="254 904 1955 945">Having teeth/dentures that function properly is an important requisite for nutritional adequacy. Some medications can cause dry mouth, inflamed gums, mouth pain, or chewing problems, which may interfere with dental hygiene.</p> <p data-bbox="254 969 302 990">Falls</p> <p data-bbox="254 1015 1955 1055">Certain medications can produce falls by causing problems such as dizziness, drowsiness, low blood pressure, muscle rigidity, impaired balance, tremors, and decreased alertness.</p> <p data-bbox="254 1079 447 1101">Nutritional Status</p> <p data-bbox="254 1125 1654 1146">Adverse medication effects, such as diarrhea, loss of appetite, altered taste, swallowing problems, or mouth pain may result in weight loss.</p> <p data-bbox="254 1170 422 1192">Pressure Ulcers</p> <p data-bbox="254 1216 1955 1273">Pressure ulcers have serious consequences for the older person; however, they are one of the most common preventable and treatable conditions among the elderly who have restricted mobility. Some medications can produce or contribute to lessened mobility, worsen incontinence, and lead to or increase confusion, which may increase the risk for pressure ulcers.</p> <p data-bbox="254 1297 485 1318">Urinary Incontinence</p> <p data-bbox="254 1343 1955 1383">Many medications can affect the bladder and urethra and result in urinary incontinence (UI). Medications that can affect continence include the following classes and types of drugs:</p> <ul data-bbox="302 1408 1780 1472" style="list-style-type: none">• Diuretics, especially those that act quickly, may precipitate incontinence.• Sedative/hypnotics may cause confusion and alter the patient's ability to recognize the urge to void and lead to UI.• Drugs with anticholinergic properties may cause urinary retention with associated urinary frequency and overflow incontinence.• Calcium channel blockers can reduce smooth muscle contractility in the bladder and occasionally cause urinary retention and overflow incontinence.



Medication Optimization Using Monitor-Rx: Purpose

- Use Monitor-Rx technology to optimize the medication regimens of older adults seen in practice sites that provide pharmacist services



Medication Optimization using Monitor-Rx: Sites

- OASIS Older Adult FSP
- University of California Irvine Senior Health Center
- Alzheimer's Family Services Center
- Glendale Adventist Family Practice Clinic
- St. Louis Area Agency on Aging
- University of Iowa Geriatric Clinic



Medication Optimization Using Monitor-Rx: Project Goals

- Increase awareness/knowledge of medications as cause or aggravating factor contributing to physical, functional or cognitive decline
- Inform pharmacist's recommendations for changes in drug therapy
- Reduce anticholinergic medication burden to reduce risk for physical/cognitive decline or improve physical/cognitive function
- Reduce number of inappropriate and unnecessary drugs to reduce costs and avoid potential medication problems

Increase Awareness/ Knowledge

- Inservice *Identifying Adverse Medication Effects*
- Pre-post test: Scores across all job classifications increased by nearly 5 points; percent correct answers increased from 65.72% to 83.89%
- Survey January, 2011 indicated 90% had a better understanding of the association between medications and geriatric problems as a result of the project
- Patient-specific information from Monitor-Rx was valued highly by the staff





Barriers

- Converting paper to electronic record
 - Accuracy of paper records
 - Frontload data vs entry as needed
 - Time for data entry
- Incorporation into work flow
- Individual discomfort with (new) technology
- New system may be different than “how it was done in the past”



Lessons Learned

- Have the end users involved early in evaluating technology
- Be realistic when determining how much staff time is needed for evaluation and testing
- Set realistic timetable for beta testing, training and implementation
- Identify one or more “point people” to go to for problems



Lessons Learned

- The way you train people is important
- Individual department training is more effective than “mass” organization training
- Multiple, shorter training sessions—with practice on what is learned, then additional training—is better than trying to train on everything at once



Lessons Learned

- Importance of having the people who will actually be using the technology doing the initial data entry
- Time and effort converting from a paper chart/medication list to an electronic version **cannot** be underestimated
- Need for data interface
- Add robust FAQ on how to handle various issues (technological and process) as they occur
- Work flow chart



A joint venture of...



The Interactive Aging Network

Leadership, innovation,
and expertise in
medicines and aging

Internationally recognized web-
services developer for
professionals serving older adults

These two non-profit organizations partnered to fulfill a social mission to foster appropriate, effective and safe medication use in older persons through innovative technology.