Medication Reconciliation Toolkit: A Passport to Patient Safety

MPhA 134th Annual Convention
June 10, 2016
Ocean City, Maryland

Speakers

• Jennifer Thomas, PharmD, Delmarva Foundation
• Hoai An Truong, PharmD, University of Maryland Eastern Shore School of Pharmacy
• Regine Beliard, PharmD, Notre Dame of Maryland University School of Pharmacy
• Roxanne Ward Zaghab, MSW, DM, University of Maryland School of Pharmacy Center for Innovative Pharmacy Solutions
Acknowledgements and Disclosure

- This material was prepared in partnership by the University of Maryland School of Pharmacy’s Center for Innovative Pharmacy Solution Knowledge Enterprise, University of Maryland Eastern Shore (UMES) School of Pharmacy, the Primary Care Coalition (PCC) of Montgomery County, Notre Dame of Maryland University School of Pharmacy for the Delmarva Foundation for Medical Care (DFMC), the Disparities National Coordinating Center, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy 10SOW-MD-DNCC-071114-558.

Objectives

1. Identify the scope and impact of medication errors and medication-related problems, including adverse drug events and poly-pharmacy.
2. Describe a medication reconciliation toolkit for use in a variety of practice settings to improve medication use and continuity of care for patients.
3. Evaluate the Med-Check Passport as a toolkit for medication reconciliation and safety.
Drug Related Harm

- Medication Error – inappropriate use of drug that may or may not cause harm (2,3)
- ADE – an injury resulting from medical intervention related to a drug, including medication errors, ADRs, allergic reactions, overdoses (1)
- ADR – harms directly caused by drugs at normal doses (3)

Medication Errors

- Medication error - an error of commission or omission at any step beginning with clinician prescription and ending when the patient actually receives the medication.
- Preventable adverse drug events - a medication error that reaches the patient and causes any degree of harm, ≈50% preventable.
- 3.5 million physician office visits, an estimated 1 million emergency department visits, 120,000 hospitalizations are due to ADEs annually
- 1.5 million preventable ADEs annually in U.S.
- 1 in 3 of adverse events while in the hospital are the result of ADEs affecting about 2 million hospital stays/year

Medication Errors cont.

- **Potential ADEs**
  Medication errors that do not cause any harm—either because they are intercepted before reaching the patient, or by luck

**Example:**
- If a clinician prescribes an incorrect dose of heparin, that would be considered a medication error (even if a pharmacist detected the mistake before the dose was dispensed). If the incorrect dose was dispensed and administered, but no clinical consequences occurred, that would be a potential ADE.
Risk Factors for ADEs

• Medication errors are present in approximately half of patients after hospital discharge
• Polypharmacy is likely the strongest risk factor for ADEs
   Elderly patients, who take more medications and are more vulnerable to specific medication adverse effects, are particularly vulnerable to ADEs.
   Pediatric patients are also at elevated risk, particularly when hospitalized, since many medications for children must be dosed according to their weight.
• Limited health literacy
• Limited numeracy (the ability to use arithmetic operations for daily tasks)


Prescription Drug Use U.S. Adults

Table 1. Prevalence of Prescription Drug Use in Prior 30 Days Among US Adults—2011-2012

Kantor ED, et al. JAMA 2015;318:1818-31. National Health and Nutrition Examination Survey (NHANES). Participants included 37959 noninstitutionalized US adults, aged 20 years and older. Seven NHANES cycles were included (1999-2000 to 2011-2012), and the sample size per cycle ranged from 4861 to 6212
Prescription Drug Use U.S. Adults

Kantor ED, et al. JAMA 2015;318:1818–31. National Health and Nutrition Examination Survey (NHANES). Participants included 37,959 noninstitutionalized US adults, aged 20 years and older. Seven NHANES cycles were included (1999-2000 to 2011-2012), and the sample size per cycle ranged from 4861 to 6212.

---

Prescription Drug Use U.S. Adults
Trends 1999 2012

Kantor ED et al 2015
Adverse Drug Events

• Adverse Drug Events – Children
  ➢ Estimated 71,000 Emergency Department (ED) visits annually (unintentional poisoning)
  ➢ Children less than 5 years old are twice as likely as older children to be taken to the ED
  ➢ 1 in 180 two year olds visit the ED due to medicine poisoning annually

CDC Medication Safety Program
http://www.cdc.gov/MedicationSafety/program_focus_activities.html

Adverse Drug Events

• Adverse Drug Events – Elderly
  ➢ Older adults (65 years or older) are twice as likely as others to visit ED for ADE
  ➢ 177,000 visits each year
  ➢ Seven times more likely to be hospitalized
    ➢ Common Drugs
      ✓ Warfarin
      ✓ Insulin
      ✓ Phenytoin
      ✓ Digoxin

CDC Medication Safety Program
http://www.cdc.gov/MedicationSafety/program_focus_activities.html
The Numbers of ADEs Will Likely Grow Due to:

- Development of new medications
- Discovery of new uses for older medications
- Aging American population
- Increase in the use of medications for disease prevention
- Increased coverage for prescription medications


Costs of ADEs

- Medicaid Drug Utilization Review – 129 ADEs cost $5894/claim
- In-hospital adds about $8,750 (in 2006 dollars) to the cost of care
- 1.5 million Preventable ADEs, cost $3.5 Billion
- At least 40% of costs of ambulatory (non-hospital settings) ADEs are estimated to be preventable
Background and Goals – PCC Interprofessional Clinic

**Background:**
- At least 1.5 million preventable adverse drug events annually (IOM)
- Working on an interdisciplinary team as a core competency for healthcare professionals (IOM)
- Practitioners and students who have interprofessional training to learn about, from, and with each other are better prepared to optimize patient care (IPE)

**Goals:**
- Improve patient health outcomes and optimize medication use through integration of Medication Therapy Management (MTM) services for a population of focus at underserved clinic sites
- Foster interprofessional team approach to provide patient-centered care and improve health outcomes while training students/residents
- Expand to engage multiple partnerships within the community
Medication Related Problems Identified in a MTM Clinic

Clinical Impact
- Evaluating Indications
- Optimizing Effectiveness
- Improving Safety
- Enhancing Adherence

Economic Impact
- Avoid Outpatient Clinic Visit
- Avoid Urgent Care Visit
- Avoid Emergency Department Visit

Med-Check Passport Video Link and Instructions

- [http://www.primarycarecoalition.org/what-we-do/medicine-access/medcheck-passport-video#sthash.oLsA3oQW.dpbs](http://www.primarycarecoalition.org/what-we-do/medicine-access/medcheck-passport-video#sthash.oLsA3oQW.dpbs)
**Paper Version of the MedCheck Passport**

**Med-Check Passport**

**Bring It to Every Doctor or Pharmacy Visit**

- Name: ____________________________
- Telephone number: ____________________________
- Pharmacy: ____________________________
- Doctor: ____________________________
- Do you have any allergies (list all)?

**Med-Check Passport (Notes)**

**Med-Check Passport (Notes)**

**Patient Name:**

**Vaccinations (MM/YY):**
- Influenza (Flu Shot): __/___
- Pneumococcal: __/___
- Other: ____________________________

<table>
<thead>
<tr>
<th>Medication Name</th>
<th>What are you taking it for?</th>
<th>Dose</th>
<th>How do you take it?</th>
<th>When do you take it? (Check all that applies)</th>
<th>Special Instructions</th>
<th>Change (Please explain)</th>
<th>Which Pharmacy do you use?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>By Mouth:</td>
<td></td>
<td>Morning</td>
<td>Morning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Injection:</td>
<td></td>
<td>Noon</td>
<td>Noon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other:</td>
<td></td>
<td>Evening</td>
<td>Evening</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bedtime</td>
<td>Bedtime</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Other:</td>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Changed directions</td>
<td>Date:</td>
<td>Explain:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Stopped taking medicine</td>
<td>Date:</td>
<td>Explain:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Talk to your doctor or pharmacist if you have any questions about your medications.**
Data From Focus Group Testing

- **AGE RANGE (YEARS)**
  - < 34: 1
  - 35-49: 3
  - 50-65: 6
  - 66-75: 7
  - > 75: 2

- **NUMBER OF MEDICINES**
  - None: 3
  - 1 to 5: 2
  - > 10: 7
Data From Focus Group Testing

CONFIDENCE LEVEL IN COMPLETING A MEDICATION RECONCILIATION FORM
- Always confident
- Often confident
- Sometime confident
- Occasionally confident
- No answer

CONFIDENCE LEVEL IN COMPLETING THE MEDCHECK PASSPORT
- Very confident
- Somewhat confident
- No answer

I UNDERSTAND HOW TO USE THE MEDCHECK PASSPORT
- Yes
- No
- Somehow

AMOUNT OF TIME TO COMPLETE THE MEDCHECK PASSPORT
- Too long
- Just right
Data From Focus Group Testing

Three Focus Groups Testing:

• University of Maryland Eastern Shore (UMES) Pharmacy Students

• Primary Care Coalition (PCC) of Montgomery County Patients

• Alpha Zeta Omega Pharmaceutical Fraternity Pharmacists

Top Things Users Said about the MedCheck Passport

Strengths:

• It is informative and detailed
• Helps me organize my medicines
• Makes it easier for my doctor to see what medications I’m taking
• Great idea for medicine record
• I can see the list of all my medications in one place
• Keeps me organized
• It will surely help me to control my diabetes

Areas of Improvements:

• Translation to other languages
• “Too big” versus “need more space”
• Colors
  • Too dark
  • Lamination
• Add sections for OTC, herbals and supplements
Personalized and All In One Place

Med Rec Not Med Wreck
Educational Materials

Online Version of MedCheck Passport:  
www.medcheckpassport.com
Easy to Get Started

On the first page of the electronic version of the MedCheck Passport, the patient should include the following information: name and telephone number. Offer all information, the name of the main pharmacy where the patient usually fills medications, and a list of allergies, if any. The patient should then hit "Submit" to get to the next page and list their medications.

Add your Medications

On the next form, the patient will be allowed to enter information about their medications. This information includes:

- Name of the medication
- The direction to "what are you taking it for?"
- The dose
- The route of administration (e.g., "how is the medication taken?"
- The frequency of administration (e.g., "when do you take it?"
- Special instructions about the medication
- The name of the pharmacy where the patient usually fills medications
- Any changes including medication discontinuation or changed directions.

Other medications can be added by clicking on the "Add Medication" section. After all medications are added, the patient should hit "Create MedCheck Passport." This in turn sends the final MedCheck Passport form that includes a list of their medications and all the relevant information that was previously entered.
Next Steps:
Data from additional focus groups including online version focus groups
Visit website: www.medcheckpassport.com

MedCheck Passport (Simplified)
• Medication reconciliation tool created for non-licensed healthcare professionals and patients
• Provides framework for continuity of care across health-systems
• Tracks current medications, previous medications, reasons for medication change and medication related problems
• Engages patient in medical care

Created in collaboration between Notre Dame of Maryland University School of Pharmacy and University of Maryland School of Pharmacy
MedCheck Passport

- MedCheck Questions
  - Global assessment of medication related problems
  - Facilitate conversation between patient/caregiver and healthcare provider about medication related problems
- Directions
  - Use of medication reconciliation tool
MedCheck Passport

- Medication reconciliation tool
  - Medication changes
    - Current medications (green)
    - Medications changes (blue)
    - Date of change
  - Current Medications
    - Current medications the patient is supposed to be taking
  - Medication related problems
    - No = N
    - Yes: transportation (T), cost (C), told by family or friend not to take medication (M), side effects (S), forgets (F), I take it differently than prescribed (P), I don’t think I need this medication (D)

MedCheck Passport – Pilot Testing

- Population
  - Coalition within the Maryland Health Enterprise Zone
  - Community health workers (CHW); n=6

- Training
  - Trained CHWs via oral instruction
  - CHWs utilized documents within their practice then completed assessment tool

- Focus group assessment
  - Likert-scale questionnaire used to test MedCheck passport in “real-world” setting
    - Understanding, confidence, usability, problem identification, increased knowledge about medications, time to complete
  - Free response questions
    - Advantages, disadvantages, suggestions for improvement
MedCheck Passport – Pilot Testing

• Focus group assessment results

![HEZ CHW Focus Group Assessment Results](image)

MedCheck Passport – Pilot Testing

• Focus group assessment results
  • Advantages
    • Helps patients organize medications
    • Helps patients communicate with providers and family members
    • Education tool
  • Disadvantages
    • Accountability
    • Easy to lose documentation
    • Too large to carry around
MedCheck Passport – “Real World” Use

• Partnership between Notre Dame of Maryland University and Greater Baltimore Medical Center Healthcare
  • Gilchrist Support Our Elders Program
  • AdvoCaring program
    • Student training

Heart Failure MedCheck

• Medication reconciliation tool created for non-licensed healthcare professionals and patients
• Heart Failure MedCheck for each class of medication used to treat heart failure
• Engages patient in medical care
Heart Failure MedCheck

• Pit Stop #1
  • Identify current medications

• Pit Stop #2
  • Identify how many medications were circled
  • Inform healthcare provider

Heart Failure MedCheck

• Pit Stop #3
  • Learn about this class of medications
    • Mechanism
    • Purpose
    • How to take
    • Adverse effects
    • Monitoring
Heart Failure MedCheck

• Pit Stop #4
  • Identify adverse effects to discuss with healthcare provider
    • Common adverse effects
    • Serious adverse effects

Heart Failure Symptoms Check

• Assists in identification of possible heart failure symptoms
• Daily tracker
• Provides actionable steps for patients
Heart Failure Symptoms Check

- Symptoms identification, classification and action step
- Use the first chart to identify symptoms and track daily

Heart Failure MedCheck & Symptoms Check

Pilot Testing

- Population
  - Sister Together and Reaching, Inc. (STAR)
  - CHW (5), CHW administrator (1), registered nurse case manager (1) and physician (1)
- Training
  - Trained CHWs via oral instruction
  - CHWs utilized documents within their practice then completed assessment tool
- Assessment tool
  - Likert-scale questionnaire used to test MedCheck passport in “real-world” setting
    - Understanding, confidence, usability, problem identification, increased knowledge about medications, time to complete
  - Free response questions
    - Advantages, disadvantages, suggestions for improvement
Heart Failure MedCheck Pilot Testing

• Focus group assessment results

- STAR Focus Group Assessment Results

- Advantages
  • Medication education
  • Medication problem identification

- Disadvantages
  • Patient’s may be intimidated by not knowing medication names
  • Patient may lose confidence in healthcare provider if possible medication problem is identified
  • A little overwhelming
Heart Failure Symptoms Check Pilot Testing

• Focus group assessment results

![STAR Focus Group Assessment Results](chart)

Heart Failure Symptoms Check Pilot Testing

• Focus group assessment results
  • Advantages
    • Help CHW to better understand patient
    • Helps patients engage and communicate with providers and family members
    • Education tool
  • Disadvantages
    • Patient may not want to continue to use tool
    • Patients may fear “failure”
    • Action steps should be specific to the program
Heart Failure MedCheck & Symptoms Check “Real World” Use

• Possibly AdvoCaring Program

Train-the-Trainer Toolkit

• Components of the toolkit
  • Background
  • Purpose
  • Instructional text
  • Instructional video
  • MedCheck Passport
  • Heart Failure MedCheck
  • Heart Failure Symptoms Check
Smart Medicine + Smart Learning

Maryland Pharmacists Association
Ocean City
June 10, 2016

Purpose of the Presentation

✓ Did Smart ✓
✓ Medicine use ✓
✓ Smart Learning? ✓
Evaluate the effectiveness of the Med-Check Passport as a toolkit for Community Health Workers to learn about medication reconciliation and safety in at-risk older adults.

Effective = Smart
PATIENTS learning about Medication Safety

Knowledge Flow

Bank of Knowledge

Pharmacists

Transfer of Knowledge

Community Health Workers

How?

Demonstrate Medication Safety

Challenge #1: Multiple levels

Patients

Medication Safety
Low Health Literacy in Older Adults

• 2/3 of U.S. adults >60 years of age have inadequate literacy skills
• Unable to understand and follow instructions
• Confused by forms or instructions

Lay Health Workers

• Less knowledgeable about health
• Focuses on relevant and urgent issues
• Lack of exposure to a wide range of medications
• Biases from their own experience

“If [patient] understanding is incorrect or incomplete, we did not find the right way to reach them.”

Dr. Regina Benjamin, MD, MBA
former Surgeon General
Adopting a New Practice Innovation

**Variables Determining the Rate of Adoption**

**Challenge #3: Adoption of a New Practice**

1. Perceived Attributes of Innovations
   1. Relative advantage
   2. Compatibility
   3. Complexity
   4. Trialability
   5. Observability

2. Type of Innovation-Decision
   1. Optional
   2. Collective
   3. Authority

3. Communication Channels (e.g., mass media or interpersonal)

4. Nature of the Social System (e.g., its norms, degree of network interconnectedness, etc.)

5. Extent of Change Agents' Promotion Efforts

---


---

**Challenge #4: Transferring Knowledge to Adult Practitioners**

- Demonstration of skill is required. Practice Behaviors associated with practice change. (Martz & Shepherd, 2003)
- Authentic learning environments.
- Learning and the context of learning cannot be separated.
- Knowledge must be "relevant to solve problems.
- Actionable knowledge for practice. (Herrington & Oliver, 2000)
- Practitioners learn in a way that will prepare them for complexity and performance in real life. (Brown, Collins & Duguid, 1989)
- enable practitioner-learners to utilize critical thinking and reasoning in clinical decisions
- structure experiences to elicit learner’s response. (Moore, Green & Gallis, 2009)
- Metacognition or self-assessment improves practice. Reflection facilitates meta-learning. (Osman & Hannafin, 1992)

“Knowing is not enough; we must apply.
Willing is not enough; we must do.”
- Goethe
The Prepare CHWs for Med Safety

Use the Smart Medicine Safety Checklist to identifying common medicine problems in older adults.

Use the Med-Check Passport practice documenting an older adults medicine regimen and changes to their regimen.

Recommend at least one resource to address a medicine safety problem found.

Process for Online Course Development

© 2016 University of Maryland School of Pharmacy Baltimore for the CIPS Knowledge Enterprise. All Rights Reserved.
Educational Approach

- Evidence-based
- Hands-on, practice-oriented
- Multimedia & Interactive learning technologies
- Practice-based tools
- Delivered using understandable language

Collaborative Content Development

- Pharmacist Ethno-gerontology
- Adult Educator
- Instructional design
- Community Health Workers
- Students & Residents
- Pharmacist Community Experience
Transferring Knowledge to Adult Practitioners

<table>
<thead>
<tr>
<th>The Literature</th>
<th>Recommended/Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Demonstration of skill</td>
<td>• Learning environment simulate authentic settings</td>
</tr>
<tr>
<td>• Authentic learning environments.</td>
<td>• Evidence-based tools for decision-making</td>
</tr>
<tr>
<td>• Relevance and Problem Focused</td>
<td>• Complex case studies and real-life challenges</td>
</tr>
<tr>
<td>• Actionable knowledge for practice.</td>
<td>• Testimony from CHW about relevance</td>
</tr>
<tr>
<td>• Preparation for complexity and performance in real life.</td>
<td>• Model behavior for learner</td>
</tr>
<tr>
<td>• Use critical thinking and reasoning decisions</td>
<td>• Reflection exercises</td>
</tr>
<tr>
<td>• structure experiences to elicit learner’s response.</td>
<td>• Accessible</td>
</tr>
<tr>
<td>• Self-assessment &amp; Reflection</td>
<td>• Try-able</td>
</tr>
</tbody>
</table>

Module 1: Smart Medicine Training Overview
https://youtu.be/3WyktHqIzeg

Module 2: Smart Medicine Safety Checklist
https://youtu.be/haqBhhOYwsY

Module 3: Module 3 - Med Check Passport:
https://youtu.be/1LQC9Fo3EAw

Module 4 - Fishbowl Demonstration for Facilitators: https://youtu.be/c7MDKMI79eE
Evaluation
Assessment

Smart Medicine +
Smart Learning
Did Smart Medicine use Smart Learning?

Check back on the Purpose of the Presentation

University of Maryland School of Pharmacy Smart Medicine Team

Chanel Agness Whitaker, PharmD, BCPS, CGP, FASCP
Director, Smart Medicine Project
Geriatric Pharmacy Specialist
University of Maryland School of Pharmacy

Leah Sera, PharmD, BCPS
Pain and Palliative Care Specialist
University of Maryland School of Pharmacy

Regina Atim, PharmD
Consultant Pharmacist
University of Maryland School of Pharmacy
References


Contact Information

Hoai-An Truong, PharmD, MPH
htruong@umes.edu

Regine Beliard, PharmD
rbeliard@ndm.edu

Jennifer Thomas, PharmD
thomasj@delmarvafoundation.org

Roxanne Zaghab, MSW, DM
rzaghab@rx.umaryland.edu