Improving Medication Delivery and Adherence While Integrating a New Pharmacy in an Established PACE Program: Lessons Learned

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OBJECTIVES

• 1. Identify several strategies to promote members’ medication understanding and improve adherence

• 2. Describe the process of developing a plan within a PACE program to provide safe medication transitions from one setting to another.

• 3. Identify potential cost savings by decreasing waste of medications
Medications & the Elderly

- >80% of the older population take at least 1 prescription medication
- On average, the older adult takes 5 or > medications daily
- 25% of older adults account for ER visits for adverse drug events
- About 50% of hospitalizations for adverse drug effects involve the elderly
"I'm bored. Want to see whose medications have more side effects?"
Philadelphia, PA
History of Our PACE Program

• University of Pennsylvania School of Nursing began the LIFE program [Living Independently for Elders] in 1998

• Serves the needs of the elderly in West Philadelphia

• Current enrollment is approximately 430 members

• Medication room and med delivery to members

• Medication dispensing machines
Medication Issues at Penn LIFE

- Lack of clinical pharmacist input real-time
- All meds brought to the Center
- Nurses at the Center responsible for repackaging
- Lack of ER access to member information
- Delays in ability to effect med changes during transitions
- Difficulty obtaining medications to start treatment same day
“We really need to upgrade our Pharmacy!”
Changing Pharmacies? But Why??

• Staff concerns
• Why change?
• Concerns regarding what the change would mean to LIFE staff and to our members
• Unsure if another pharmacy will provide the services we need
Transition Timeline

- **October 30th, 2013**: Dispense Transition Planning Meeting
- **November 11-14th, 2013**: Training week for MDs, NPs, Mednurses, RNs
- **December 1st, 2013**: All new Rxs to CareKinesis

<table>
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<th>Cycle 2: D-I</th>
<th>Number of Participants</th>
<th>Medication Start Date</th>
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Our 1st Performance Improvement Opportunity

• Reviewed each member’s medication profile prior to the change
  – Internally
  – Clinical pharmacist

• Resulted in an 8% reduction in the number of medications on participants profiles.
• “Between the two med loads we received from Penn we saw a significant reduction in total number of meds. The first file had 7,275 meds and the second load was reduced by 565 medications, to total just 6,710 across all members!!” - Nov 27, 2013
• Went through previous pharmacy system to d/c meds that had not been filled, should have been short term therapies, discontinued therapies.
How the Change Impacted Penn LIFE

• Case Management and Transitions
• On Call Nurse
• Ease of access via Internet
• Ability for students to access med lists
• Ongoing communication with clinical pharmacists
• Community pharmacy
• ATM dispensing
• Changes in medication delivery systems with cost savings
Facilitating Safe Transitions

- Med reconciliation between settings
- HC nurse visit
- Transitions nurse phone call to home after discharge
ATM Medication Usage
(Access to Medication)

• 1 week or full course at usual dosage available
• Types of meds available to our program now:
  – Pain meds
  – Antibiotics
  – Antifungals
  – Steroids
  – Antianxiety and antipsychotic meds
  – Antiemetics
  – Potassium
  – Kayexelate
  – Cough medicine
On-site Cabinet Utilization

- Oct-14: 10
- Nov-14: 9
- Dec-14: 11
- Jan-15: 11
- Feb-15: 24
- Mar-15: 15
- Apr-15: 16
- May-15: 17
- Jun-15: 19
- Jul-15: 14
- Aug-15: 14
- Sep-15: 18

Living Independently For Elders
First Quarter Hospitalization Trend

First Quarter Hospitalization Trend (admissions/census)
Sedative and Anticholinergic Burden

Sedative Burden By Comparison

Aggregated AChB By Comparison

Goal: 95% < 6

Participants with AChB < 6
Aug 2015

93.7%
FINANCIAL IMPACT

Our in-home medication dispensing machines decreased with availability of different dispensing methods via the new pharmacy.

Gradually Decreasing PMPM

Q4-2013
Q1-2014
Q2-2014
Q3-2014

PMPM without Admin

$580.00
$600.00
$620.00
$640.00
$660.00
$680.00
$700.00
$720.00
$740.00
$760.00
Current Performance Improvement Projects

**Adherence Initiative for Medication Management [AIMM] / Home Review of Medication Excess (HoRdE)**

- LIFE UPENN, in collaboration with CareKinesis Pharmacy, is identifying participant adherence patterns and excess medications to understand and improve adherence and compliance.

- The PI Initiative is composed of the following:
  - AIMM helps to identify participants who struggle with adherence, assess the potential barriers and then intervene.
  - HoRdE helps to identify participants who may have excess medications in their home, assess current medication management and prevent potential waste/cost.

- HomeCare nurses perform an observational in-home assessment.
This short assessment is to help us understand how you take your medications. Your answers will NOT be used to change your medications or packaging. Please circle your answers. Thank you for your assistance.

1. Do you sometimes forget to take your medication?  
   YES  NO

2. Over the past 2 weeks, were there any days when you did not take your medication?  
   YES  NO

3. Have you ever cut back or stopped taking your medication without telling your doctor because you felt worse when you took it?  
   YES  NO

4. When you travel or leave home, do you sometimes forget to bring along your medications?  
   YES  NO

5. Did you take your medication yesterday?  
   YES  NO

6. When you feel like your symptoms are under control, do you sometimes stop taking your medication?  
   YES  NO

7. Do you ever feel hassled about sticking to your medication treatment plan?  
   YES  NO

8. How often do you have difficulty remembering to take all of your medications?  
   Rarely/Never  Sometimes  Always  Once in a While  Usually

9. Do you understand why your medications have been prescribed for you?  
   YES  NO

10. Is there a medication(s) in your regimen that you usually do not take?  
    YES  NO

   If yes, describe: ____________________________________________

11. Are there times when you use any other medications in your home? (i.e. over-the-counter or a relative’s medication)  
    YES  NO

   If yes, describe: ____________________________________________

12. How is your medication packaged? Circle all that apply:  
    Weekly Cards  Vials  Pouches  Other__________________________

13. Do you or your aide/caregiver transfer your medications into a separate pill box or container?  
    YES  NO

14. Does an aide/caregiver help you take your medication?  
    YES  NO (I take medication independently)

15. Can the participant easily open his/her medication packaging?  
    YES  NO

16. Is the participant following instructions (time/dates on target)?  
    YES  NO

17. Does the participant have excess medications? (i.e. in their home)  
    YES  NO

**COMMENTS:**

PACE Organization/Center: ___________________________  Date ______________  
Participant Name: ___________________________  Date ______________  
☐ Recent ED / Hospitalization / SNF, include date if known: ______________  
Survey Administrator:  ☐ Self  ☐ Physician  ☐ Nurse  ☐ Caregiver  ☐ Other: ______________  
Survey Type:  ☐ Self-Report  ☐ Observational

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Questions 1-8 are from the Morisky Medication Management Assessment Scale, which is owned and copyrighted by Donald E. Morisky, ScD, ScM, MSPH, Professor of Community Health Sciences, UCLA School of Public Health, Los Angeles, CA 90095-1772.

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Fax to QAPI Dept: 1-856-234-7957

Living Independently For Elders
AIMM / HoRdE PI Initiative

- Assessments are performed as Pre-PACE to obtain a baseline of adherence and for early intervention as well as initial for current enrollees.
- Participants may have excess medications in their home despite high adherence scores. Observational assessments are important to obtain the true picture.
AIMM / HoRdE PI Initiative

- To date, initial and one or more follow-up adherence assessments have been performed for approx. 120 participants.
- Following identification of non-adherence and implemented interventions, follow-up adherence scores have improved overall.
Current Performance Improvement Projects

Falls Risk Assessments

LIFE UPENN, in collaboration with CareKinesis Pharmacy, is performing targeted reviews for participants that have a reported fall to assess whether they may have potentially been medication-related and potential interventions considered by IDT to prevent fall recurrence.

Medication Changes w/n last 30 days

- Initiation of a New Medication
- Medication Change
- Dose Change
- Frequency Change
- Discontinuation

Clinical Indicators

- Number of medications
- Beers Criteria
- Aggregated Anticholinergic Cognitive Burden Score
- Aggregated Sedative Burden Score
- Renal Function
**E.W. 82 y.o. female Case Study**

<table>
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<tr>
<th>Active Patient Information</th>
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<tr>
<td><strong>Center:</strong> LIFE UPenn (Spruce)</td>
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<tr>
<td><strong>DOB:</strong> 01/04/1933</td>
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<tr>
<td><strong>Enrolled:</strong> 01/30/2008</td>
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<tr>
<td><strong>Phone:</strong> 215-877-6134</td>
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<tr>
<td><strong>BMI:</strong> Severely Underweight (16)</td>
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<tr>
<td><strong>Creatinine Clearance:</strong> 20</td>
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<td><strong>PGx Results:</strong> ACB Score: 2</td>
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<tr>
<td><strong>Start:</strong> 11/14/2013</td>
<td>08/16/2014</td>
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- **Issues** - many hospitalizations
## Pharmacist Intervention

### Clinical Indicators:
- Total Number of Routine Medications: 14
- Total Number of PRN Medications: 3
- Medications on the Beers Criteria: 3 (Aspirin in individuals aged > 80, Duloxetine, Nitroglycerin)
- Aggregated Anticholinergic Cognitive Burden Score: 1 (Metoprolol [1])
- Aggregated Sedative Burden Score: 4 (Duloxetine [2], Lisinopril [1], Metoprolol [1])
- Renal Function / Calculate Creatinine Clearance: 20 mL/min
- Medication Adherence Score: None to date

<table>
<thead>
<tr>
<th>Medication-Related Problem</th>
<th>Pharmacist Recommendation</th>
<th>Pharmacist Suggestions</th>
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<tr>
<td>Actual or Potential ADR</td>
<td>Recommend Laboratory or Symptom Monitoring</td>
<td>Serotonin-norepinephrine reuptake inhibitors (SNRIs) like Duloxetine may exacerbate or cause syndrome of inappropriate antidiuretic hormone (SIADH) secretion or hyponatremia. In addition, this participant is prescribed a thiazide diuretic (Hydrochlorothiazide). Therefore, it is recommended to monitor sodium level closely, particularly when starting or changing dosages of these medications.</td>
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<tr>
<td>Drug-Disease Interaction</td>
<td>Start Alternative Therapy</td>
<td>According to pharmacy records, this participant’s estimated creatinine clearance (CrCl) is 20 mL/min. Hydrochlorothiazide is reportedly ineffective when CrCl is &lt; 30 mL/min, unless used in combination with a loop diuretic. You may wish to consider discontinuing this therapy, adding a low-dose loop diuretic, or changing to an alternative therapy (e.g., dithalidone). Also, please note that Lisinopril is primarily eliminated by the kidneys as unchanged drug; among the angiotensin-converting enzyme (ACE) inhibitors, it has the highest renal excretion. You might consider changing to an alternative ACE inhibitor (e.g., fosinopril).</td>
</tr>
<tr>
<td>Drug-Drug or Drug-Food Interaction</td>
<td>Recommend Laboratory or Symptom Monitoring</td>
<td>Metoprolol and Duloxetine are metabolized by the same cytochrome P450 (CYP) isoenzyme, namely CYP2D6. Since Metoprolol is the substrate with the highest dose, we expect the concentration of Duloxetine to increase, which could result in toxicity/intentional overdose. Additionally, Duloxetine is primarily eliminated by the kidneys. Some references suggest avoiding Duloxetine in CrCl &lt; 30 mL/min. It would therefore be prudent to monitor the participant’s response to Duloxetine, particularly for side effects (e.g., drowsiness, fatigue, headache, xerostomia).</td>
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<tr>
<td>MEDICATIONS</td>
<td>Enzyme</td>
<td>CYP1A2</td>
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<tr>
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<tr>
<td>Acetaminophen (Acetaminophen) Liquid</td>
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<td>Metoprolol (Metoprolol Succinate Er) Tablet, Extended Release</td>
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<tr>
<td>Albuterol-pratropium (Duoneb) Solution</td>
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<tr>
<td>Albuterol-pratropium (Duoneb) Solution</td>
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<td>Aspirin (Aspirin) Delayed Release Tablet</td>
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<td>Furosemide (Lasix) Tablet</td>
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<td>Lisinopril (Lisinopril) Tablet</td>
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<td>Nitroglycerin (Nitrostat) Tablet</td>
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<td>Artificial Tears Solution (Artificial Tears Solution) Solution</td>
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Medication Room Work Flow
Med Room Work Flow 2
What’s to consider?

- Workflow and process for day to day operations
- Per-member/Per-month (PMPM) cost and number of meds in profile
- Fraud Waste and Abuse (FWA)
- Medication changes (how do you handle them)
- Packaging preference for participant/ caregiver
- Medication adherence and concordance
- Medicating individuals during center hours
- Resource allocation
- Scalability of current process and workflow – will it work as we grow
LIFE U-Penn - PA

- Number of participants: 430
- Years in operation: 17 years
- Number of participants routinely medicated in the center: 80 variable
- Medication room staffing:
  - 1 RN manager, med nurse
  - 1 RN med nurse
  - 1 LPN med nurse
Workflow talking points

• Who enters medication orders?
• Do nurses enter verbal orders?
• Does the program use an E-MAR or paper?
• How are monthly administers tracked and recorded?
• How are participants “screened” for center administration? How often is that need reviewed?
Workflow talking points (2)

• Does transportation deliver medications/narcotics to the home - how are they tracked?
• How often are adherence checks done for medications administered in the home?
• What strategies are employed to monitor for narcotic diversion and misuse?
• How does the program measure for concordance and adherence?
• What outcomes are being tracked from a QA perspective that track success or identify opportunities for improvement
What are your program stressors?

- Excessive medications changes during a cycle
- Lack of knowledge from the other staff (RN’s/NP’s) of the task CK can perform and accessibilities of CK-Ex: refilling meds, tracking orders
- Over medicating
- Telephone volume
What is working?

• The comprehensive medications reviews (CMR’s) are working for LIFE @ UPenn with our goal of reducing medication waste and burden. Communicating with the nurse practitioners in reference to this is an ongoing process but we have seen some success with reduction.

• We have redesigned our medication room, process of managing medications and staffing, this is working out wonderfully.

• Also working with our homecare nurses and reinforcing during home visits that they assess if medications are actually being taken and findings are reported to NP’s and med nurses.
What is working? (2)

• Getting critical meds and med changes to the member in a timely fashion has improved greatly, especially during times of transition from hospital to home, etc.

• Less burden on the med room staff because many medications are now delivered directly to the home.

• Less waste with prn medications because they are only refilled when specifically requested by the member and not automatically with the monthly meds.
What is working? (3)

- There are less calls to our On Call nurse regarding medication refills, medications not delivered, etc.

- The ability to access the medication list for our members from any computer, anywhere because the system is web based. This facilitates medication reconciliation during transitions and allows our Home Care nurses to have up to date medication lists to review with our members during the post transition home visit.
What are some Lessons Learned?

• Lessons learned is how more doesn’t always mean better when it comes to ordering medication for our members. Overmedicating is huge and we as a team have been working diligently with reduction.

• It was important to review all medication orders internally to cut down on waste, redundancy and lack of med adherence.
What are some Lessons Learned? (2)

• We were very glad we enlisted the OT dept. to assess all members who were using medisets and automated med machines to see if some or all could be switched to CK’s mac packaging.

• We should have updated our medication policies and procedures before switching pharmacies. This would have helped with changes like how to order a med on the weekend. Because everyone didn’t know and all our providers take call, it lead to some confusion and frustration initially that could have been avoided.
Pill Burden
• Thank you!

• Questions??
More references???
REFERENCES

• Blank, L.; Benyo, E; Glover, J. (2012) Bridging the Gap in Transitional Care: A Closer Look at Medication Reconciliation; Geriatric Nursing, 33, 5: 401-409

• Holt, E; Rung, A; et al. (2014) Medication Adherence in Older Adults: A Qualitative Study; Educational Gerontontology; 40, 3: 198-211