CSMC Safe Medication Transitions Starter Kit

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Disclosure

Both speakers have no conflicts of interest to disclose.
Learning Objectives

1. Explain why pharmacists are uniquely qualified to lead the creation of a safe medication transitions program within their institutions.

2. Identify opportunities for pharmacy residents to demonstrate improvements in patient care during transitions.

3. Design an initial transitions of care (TOC) program using existing resources.
Cedars-Sinai Medical Center

Non-profit, acute, tertiary academic teaching hospital
886 licensed beds
Level I trauma center
Department of Pharmacy Services
• Decentralized clinical pharmacy services
• Emergency department and OR services
• Solid organ transplant services
• Outpatient pharmacies
• Outpatient cancer centers
The Joint Commission National Patient Safety

**Goal 3 - Improve the safety of using medications.**

“...In medication reconciliation, a clinician compares the medications a patient should be using (and is actually using) to the new medications that are ordered for the patient and resolves any discrepancies.”

“The Joint Commission recognizes that organizations face challenges with medication reconciliation.”

“This National Patient Safety Goal (NPSG) focuses on the risk points of medication reconciliation. The elements of performance in this NPSG are designed to help organizations reduce negative patient outcomes associated with medication discrepancies.”

Medication Reconciliation requirement by TJC and CMS (Meaningful Use)
Background: Where Medication Errors Occur

• **Prior to admission (PTA):** Up to 67% of patients have med history error/discrepancies on their med list
  - 39% have potential to cause moderate/severe harm
  - CSMC Study demonstrates 7.4 errors per PTA med list

• **During hospitalization:** 33% of hospitalized patients with medication errors
  - 85% of these errors originated from the med history

• **At discharge:** 71% of patients had at least 1 discharge discrepancy

• **Readmission:** 14.3% vs. 6.1% readmission in patients with discrepancies at discharge vs. no discrepancy
Background: Other Critical Reasons to Implement A TOC program

- Institutional cost: 10-20% of readmissions are medication-related\(^7\)\(^8\)
- Patient Population:
  - Geriatric patients take an average of 15 medications\(^9\)
  - Baby boomers

$21 \text{ BILLION OPPORTUNITY}^{10}$
Transitions of Care – Not Discrete Time Points

Physicians offices / Clinics / SNFs / Assisted Living

Home / Home Health
Transitions of Care Program – Focus on PTA Medication Reconciliation

PTA Medication Reconciliation

Discharge Education and Discharge Reconciliation

Post Discharge Follow Up
Ensuring the Accuracy of the Medication List

- Prior to Admission
  - Assess PTA medication list
- Hospital Admission
  - Assess inpatient medications
- Hospital Discharge
  - Re-assess inpatient medications
- Post-Discharge
  - Assess home medications
  - Outpatient Encounters
- Patient’s clinical condition evolves throughout

Rita Shane, PharmD
Principles to Admission Medication Reconciliation - Universal Precautions for Medication Lists\textsuperscript{11}

- Medication lists should be considered contaminated or erroneous until they have been verified for accuracy.
- Each element of the medication sentence must be verified whenever possible:
  - drug, dose, dosage form, route frequency and duration
- Medication orders, especially for high risk medications and those with narrow therapeutic index, should not be continued from the medication history until the above has occurred.
Challenges and Solutions to Ensuring a Clean Medication List

• Challenges to starting a program:
  • Time consuming – resources needed
  • Interdisciplinary collaboration – physicians, nurses
  • Completing PTA medication reconciliation is a new workflow for pharmacy
  • Electronic health record

• Solutions to extend the reach of the pharmacist: Layered Learning
  • Residents
  • Technicians
  • Students
Value of Using Residents to Do Small Studies

• Small trials using rapid improvement process methods
• Quick turn around to examine a potential area of interest
• Residents learn valuable skills in project management
• Residents have flexibility in their responsibilities
• Residents have pharmacist training that allows them to be successful
Examples of Resident Projects

PGY 1 and PGY2 Residents tests of change

• 2010-2011
  o Medication Reconciliation and Discharge Counseling
  o After Visit Summary Errors and Discrepancies

• 2011-12
  o Inpatient Specialty Provider Transitions of Care
  o Pharmacist’s Impact on Reducing Drug-Related Problems Associated with Each Transition of Care

• 2012-13
  o Post-Discharge Follow Up for Surgical Cases
  o Repeat Readmission Evaluation
  o Weekend Medication Reconciliation Volume
  o Prior to Admission Medication Reconciliation Frequently Asked Questions

• 2013-14
  o After Visit Summary Errors and Discrepancies
  o Emergency Department Medication Reconciliation Evaluation
  o Medication Reconciliation Competency Exams

• 2014-15
  o Antibiotic Post-Discharge Follow Up
  o Warfarin Bridge Post-Discharge Follow Up
  o New Oral Anticoagulants Post-Discharge Follow Up

• 2015-16
  o UHC Multicenter Medication-Related Acute Care Episode (MACE) Study
  o Impact of Pharmacy TOC Services on Orthopedic Surgery Patients
  o Prior to Admission Medication Reconciliation for Elective Cath Lab Patients
Resident Project - Enhanced Care Program (Skilled Nursing Facilities)

- Pharmacy Administration resident completed discharge medication reconciliation for Skilled Nursing Facility (SNF) patients in collaboration with discharge program with Nurse Practitioners
- January 2013 – 0.5 FTE allocated to program
- December 2015 – increased FTE to 1.0
- Average 153 patients/monthly

![Graph showing readmissions from July 2014 to June 2015.]

- 16.5% for ECP
- 23.1% for Non-ECP
Pharmacy Technician Role

Technician Responsibilities:
◦ Collect medication history information from the patient
◦ Call retail pharmacies
◦ Obtain electronic pharmacy fill data
◦ Draft the medication reconciliation progress note

Benefits:
◦ Technician advancement opportunity
◦ Patient interaction
◦ Unique skill set needed (communication, broad medication knowledge base)

Training of technicians is key:
◦ Didactic training
◦ Proctoring
Transitions of Care (TOC) Program Timeline

1st Rx (12/2012)
1st Tx (12/2012)

MedAL (1/2013)

2nd Tx (11/2013)

ED med rec w/ additional Rx & Tx (7/2014)

3rd Rx (12/2013)

RCT Emergency Dept Med Rec Study (1/2014)

Additional ED Rx & Tx (1/2014)

Additional Rx, Rx PGY-2 resident, & Tx (2) (5/2016)

Multi-center MACES study (1/2016)
Minimizing Errors in Medication Histories Obtained at Hospital Admission (RCT)\textsuperscript{13}

- Pt histories independently evaluated within 24 hr by pharmacist
- Pharmacist determined number and severity of errors:
  - Low capacity for harm: vitamin, laxative
  - Serious: beta blocker for hypertension
  - Life Threatening: transplant drug
- Results
  - Adding a pharmacist or pharmacy technician to usual care reduced medication history errors by 81% per patient (p<0.0001)
Transitions of Care Program – Focus on New Phase

PTA Medication Reconciliation

Discharge Education and Discharge Reconciliation

Post Discharge Follow Up
Medical Center Quality Evaluation

• Executive medical leadership initiative evaluating patients who received a pharmacist post discharge follow up
• Incorporate physician review of cases for readmission potential
• Hospitalists groups
• Start small
• Build upon tools created from previous studies/pilots
ADHERENCE\textsuperscript{14,15}

1. Do you ever forget to take your medicine?
2. Do you ever have problems remembering to take your medicines?
3. When you feel better do you sometimes stop taking your medicine?
4. Sometimes if you feel worse when you take the medicine, do you stop taking it?

LITERACY

1. Name of medicine?
2. Indication of medicine?
3. Strength of medicine?
4. Frequency/directions of medicine?

HIGH RISK CRITERIA

• Chronic medications > 10 (excluding vitamins, supplements)
• Therapeutic anticoagulants
• CHF with EF < 40%
• Pneumonia on admission
**Medication Adherence and Literacy**

Target population: MedAL score < 6

<table>
<thead>
<tr>
<th>Medication Adherence (Scale 0-4)</th>
<th>Medication Literacy (Scale 0-4)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>High Adherence (4 points)</td>
<td>High Literacy (4 points)</td>
<td>No Post-DC Follow-up</td>
</tr>
<tr>
<td>Intermediate (2-3 points)</td>
<td>Intermediate (2-3 points)</td>
<td>No Post-DC Follow-up</td>
</tr>
<tr>
<td>Low Adherence (0-1 point)</td>
<td>Low Literacy (0-1 point)</td>
<td>Perform Post-DC Follow-up</td>
</tr>
</tbody>
</table>

- **Score 6:** No Post-DC Follow-Up
- **Score <6:** Perform Post-DC Follow-Up

DC= Discharge from hospital
Low Capacity for Harm

- **Category A**: Circumstances or events that have the capacity to cause error
- **Category B**: An error could have occurred but the error would not reach the patient (An "error of omission" does reach the patient)
- **Category C**: An error could have reached the patient but would not cause patient harm

Serious/Significant

- **Category D**: The identified and intercepted error could have reached the patient and would have required monitoring to confirm that it resulted in no harm to the patient and/or required intervention to preclude harm
- **Category E**: The identified and intercepted error may have contributed to or resulted in temporary harm to the patient and required intervention
- **Category F**: The identified and intercepted error may have contributed to or resulted in temporary harm to the patient and required initial or prolonged hospitalization

Life Threatening

- **Category G**: The identified and intercepted error may have contributed to or resulted in permanent patient harm
- **Category H**: The identified and intercepted error may have required intervention necessary to sustain life
- **Category I**: The identified and intercepted error may have contributed to or resulted in the patient’s death
Transitions of Care Model for High Risk Patients

High Risk Screening
- PTA Medication Reconciliation
- MedAL#
- Education

Resolution of Drug-Related Problems (DRPs) with MD

Call patient within 72 hours
- Med Rec/ Adherence
- Education
- Potential MACEs* avoided identified

2nd Rx Review of Potential MACEs Avoided

MD Confirmation of potential MACEs Avoided

Hospitalization

Post-discharge

#MedAL – medication adherence & literacy
*MACEs – medication-related acute care episodes
Physician Involvement

Cases of potential MACEs avoided pulled at the end of each month

Second pharmacist review of identified cases for confirmation

Physician review of MACEs avoided cases for final confirmation
## CSMC Hospital Outcomes: MACES Avoided and DRPs

<table>
<thead>
<tr>
<th>Element</th>
<th>Dec 14 – Jun 15</th>
</tr>
</thead>
<tbody>
<tr>
<td># of pts with pharmacist post discharge follow up</td>
<td>302</td>
</tr>
<tr>
<td>Total MACEs avoided, confirmed by physician</td>
<td>36.4%</td>
</tr>
<tr>
<td># of drug-related problems (DRPs) identified and resolved</td>
<td>1070</td>
</tr>
<tr>
<td># of significant/life-threatening DRPs (% of total DRPs)</td>
<td>847 (79%)</td>
</tr>
<tr>
<td># of DRPs/patient</td>
<td>3.5</td>
</tr>
</tbody>
</table>
## CSMC Hospital Outcomes: Readmission Rate

Quality improvement/qualitative project  
Not designed with a control arm/small control group

<table>
<thead>
<tr>
<th>Patient Group (High Risk Patients with MedAL &lt; 6)</th>
<th>30-day Readmission Rate (12/14-4/15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacist post discharge follow up completed (n=185)</td>
<td>16.2%</td>
</tr>
<tr>
<td>No pharmacist post discharge follow up (patient refused, unable to contact) (n=31)</td>
<td>29%</td>
</tr>
</tbody>
</table>

- Cost effectiveness analysis of an expanded model

<table>
<thead>
<tr>
<th>Comparator Group</th>
<th>5/15 – 6/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>High risk patients with no pharmacist follow up</td>
<td>21.6%</td>
</tr>
</tbody>
</table>
Example of Post-Discharge DRPs Identified and Resolved

<table>
<thead>
<tr>
<th>Case</th>
<th>DRPs Identified and Pharmacists Actions</th>
<th>Avoidable MACE</th>
</tr>
</thead>
</table>
| 59 yo F with ESRD s/p renal transplant x2, DM, admitted for DKA/AKI UTI and bacteremia | DRPs identified:  
1) Tacrolimus not listed and wrong dose of mycophenolate listed on After Visit Summary (AVS)  
2) Multiple AVS entries for insulin lispro and glargine  
Recommendations:  
1) Tacrolimus and mycophenolate dose clarification  
2) Insulin dose, type and schedule clarification | Readmission due to hypo/hyper-glycemia or transplant failure |
Post Discharge Follow Up Study Summary

• Numbers were small
• Comparator group difficult to find
• Patient cases – the power of the story
• Multi-disciplinary involvement in the study added validity
• FTEs approved to scale and expand the TOC program
Transitions of Care Program – Future Direction

PTA Medication Reconciliation

Discharge Education and Discharge Reconciliation

Post Discharge Follow Up
Focus on Discharge Medication Reconciliation and Discharge Education

• Discharge medication (meds to beds) service

• Rationale for focusing on the discharge process:
  • Improved patient adherence
  • Difficult to obtain medications
  • Education more effective at bedside, with post discharge follow up reinforcement

• Efficient post discharge follow up

• Expand the TOC program (all phases)
  • PTA medication reconciliation
  • Post discharge follow up
  • Discharge reconciliation and education
Summary / Lessons Learned

• Pharmacists are the medication experts and therefore are the ideal professionals to lead transitions of care efforts.

• Pharmacy residents, technicians, and students are effective pharmacist extenders.

• Value of TOC services can be demonstrated using small studies

• Build upon the tools created and continuously re-evaluate your high risk patient populations

• Interdisciplinary collaboration

• Transitions of care is multi-phase and challenging….baby steps....
Audience Response Q1
Determining medication adherence and literacy is a novel way to risk stratify patients who may benefit from post-discharge follow-up.

A) True

B) False
Audience Response Q1
Determining medication adherence and literacy is a novel way to risk stratify patients who may benefit from post-discharge follow-up.

A) True

B) False
Audience Response Q2
Using residents to complete many small projects at various phases of transitions of care can be an effective way to demonstrate the value of the overall program.

A) True
B) False
Audience Response Q2
Using residents to complete many small projects at various phases of transitions of care can be an effective way to demonstrate the value of the overall program.

A) True

B) False
Audience Response Q3

Major transitions of care phases that can be implemented in any order include the following:

A) PTA admission medication history and reconciliation
B) Discharge reconciliation
C) Post discharge follow up
D) All of the above
Audience Response Q3

Major transitions of care phases that can be implemented in any order include the following:

A) PTA admission medication history and reconciliation
B) Discharge reconciliation
C) Post discharge follow up
D) All of the above
References

13. Pevnick, J. Research was supported by NIH/National Center for Advancing Translational Science UCLA CTSI Grant Number KL2TR000122.
Session Code:

1. Write down the course code. Space has been provided in the daily program-at-a-glance sections of your program book.

2. To claim credit: Go to www.cshp.org/cpe before December 1, 2016.