Optimizing Mental and Physical Health Outcomes Through Comprehensive Medication Management

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Objectives

• Understand what comprehensive medication management (CMM) is

• Discuss the potential value of CMM and those who may benefit from it

• Explore what a CMM practice looks like, how CMM is implemented, and how it is sustained
Polling Question

What is your practice / company doing to address medication management in your high-risk patients with mental health issues?

A. Implemented medication reconciliation during visits and transitions

B. Implemented advanced disease state medication management with clinical pharmacist services

C. Implemented comprehensive medication management with collaborative clinical pharmacist services

D. None of the above
Questions to Run on…

• What is CMM and why is it important?
The United States Health and Human Services Department Announced Timeline to Value-based Payments

• Goal: alternative payment models (accountable care organizations [ACOs], bundled payments) with quality measurement:
  – 30% of fee-for-service (FFS) Medicare payments by the end of 2016, and
  – 50% by the end of 2018

• Goal: direct incentive/penalty programs, such as the Hospital Value-based Purchasing and the Hospital Readmissions Reduction Programs, with quality and value measures:
  – 85% of all traditional FFS Medicare payments by 2016 and
  – 90% by 2018

• Implications? The most readily measured quality and value elements are medication-related:
  – 18 of the 34 medical shared savings programs 2016 ACO quality metrics, directly or indirectly, are impacted by optimized medication use

What is the Cost of ALL Drug-related Problems in Ambulatory Settings? (2004–2008 est.)

• Including untreated indication, improper drug selection, subtherapeutic dosage, failure to receive drugs, overdosage, adverse drug events, drug interactions, and drug use without indication\(^1\):
  
  – $290 billion per year in avoidable medical spending (13% of total health care expenditures)
  
  – Contributes to as many as 1.1 million deaths annually\(^1\):
    
    • This suggests that the savings from appropriate medication use could cover the majority of the ~$374 billion (2014) spent on medications.\(^2\)


Medication Safety Problems

Most chronic diseases require medications as first-line therapy; however:

- In 2007 the Committee on Identifying and Preventing Medication Errors estimated that ≥1.5 million preventable adverse drug events occurred per year in the US\(^1\)

- In a prospective study performed to determine the frequency, type, severity, and consequences of adverse drug events among outpatients, ~25% of ambulatory patients surveyed reported adverse drug events\(^2\)

“If has been estimated that for every dollar spent on ambulatory medications, another dollar is spent to treat new health problems caused by the medication.”\(^3\)

### Top 10 All Patient Refined (APR) Diagnosis-related Groups (DRGs) for Medical and Surgical Candidate Admissions With the Largest Number of Potentially Preventable Readmission (PPR) Chains, by Severity of Illness (SOI) Level

<table>
<thead>
<tr>
<th>APR DRG Number</th>
<th>Medical APR DRG Description</th>
<th>Number of PPR Chains/Rate</th>
<th>All Patients</th>
<th>SOI 1</th>
<th>SOI 2</th>
<th>SOI 3</th>
<th>SOI 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>194</td>
<td>Heart Failure</td>
<td>Chains: 15 053 Rate: 12.5</td>
<td>1304</td>
<td>8.9</td>
<td>8151</td>
<td>11.7</td>
<td>4675</td>
</tr>
<tr>
<td>140</td>
<td>Chronic Obstructive Lung Disease</td>
<td>Chains: 8271 Rate: 9.7</td>
<td>1737</td>
<td>7.3</td>
<td>3745</td>
<td>9.3</td>
<td>2416</td>
</tr>
<tr>
<td>750</td>
<td>Schizophrenia</td>
<td>Chains: 7592 Rate: 17.7</td>
<td>3382</td>
<td>17.1</td>
<td>3931</td>
<td>18.1</td>
<td>251</td>
</tr>
<tr>
<td>139</td>
<td>Other Pneumonia</td>
<td>Chains: 7579 Rate: 7.7</td>
<td>393</td>
<td>2.7</td>
<td>3295</td>
<td>6.5</td>
<td>3394</td>
</tr>
<tr>
<td>751</td>
<td>Major Depressive Disorder</td>
<td>Chains: 5608 Rate: 10.9</td>
<td>1814</td>
<td>8.3</td>
<td>3391</td>
<td>12.6</td>
<td>339</td>
</tr>
<tr>
<td>198</td>
<td>Angina Pectoris and Coronary Atherosclerosis</td>
<td>Chains: 5151 Rate: 5.6</td>
<td>1414</td>
<td>3.7</td>
<td>2685</td>
<td>6.2</td>
<td>982</td>
</tr>
<tr>
<td>753</td>
<td>Bipolar Disorders</td>
<td>Chains: 4830 Rate: 14.0</td>
<td>2366</td>
<td>12.7</td>
<td>2260</td>
<td>15.3</td>
<td>179</td>
</tr>
<tr>
<td>720</td>
<td>Septicemia and Disseminated Infection</td>
<td>Chains: 4370 Rate: 12.6</td>
<td>46</td>
<td>3.6</td>
<td>881</td>
<td>8.3</td>
<td>1808</td>
</tr>
<tr>
<td>460</td>
<td>Renal Failure</td>
<td>Chains: 4288 Rate: 12.8</td>
<td>92</td>
<td>11.0</td>
<td>471</td>
<td>10.6</td>
<td>3250</td>
</tr>
<tr>
<td>201</td>
<td>Cardia Arrhythmia and Conduction Disturbance</td>
<td>Chains: 4066 Rate: 6.3</td>
<td>898</td>
<td>4.0</td>
<td>1950</td>
<td>6.4</td>
<td>1070</td>
</tr>
<tr>
<td>All Other Medical APR DRGs</td>
<td></td>
<td>Chains: 41 412 Rate: 2.9</td>
<td>8036</td>
<td>1.7</td>
<td>15 942</td>
<td>2.5</td>
<td>13 011</td>
</tr>
<tr>
<td>Total Medical APR DRG</td>
<td></td>
<td>Chains: 108 220 Rate: 5.0</td>
<td>21 482</td>
<td>3.2</td>
<td>46 702</td>
<td>4.7</td>
<td>31 375</td>
</tr>
</tbody>
</table>

3 of the top 10 DRGs with the largest number of PPR’s are Mental Health

## Impact of Mental Health Diagnosis on Readmissions

### Actual Versus Expected PPR Rates for Patients With and Without Substance Abuse Problems

<table>
<thead>
<tr>
<th>Age Group</th>
<th>No Major Mental Health or Substance Abuse Diagnosis</th>
<th>Major Mental Health or Substance Abuse Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Candidate Admissions</td>
<td>Actual PPR Rate</td>
</tr>
<tr>
<td>0–5 Years</td>
<td>72,643</td>
<td>3.77</td>
</tr>
<tr>
<td>6–18 Years</td>
<td>72,826</td>
<td>4.21</td>
</tr>
<tr>
<td>18–35 Years</td>
<td>211,084</td>
<td>5.12</td>
</tr>
<tr>
<td>36–55 Years</td>
<td>601,197</td>
<td>5.63</td>
</tr>
<tr>
<td>56–75 Years</td>
<td>929,102</td>
<td>6.98</td>
</tr>
<tr>
<td>76–85 Years</td>
<td>577,790</td>
<td>9.14</td>
</tr>
<tr>
<td>85 Years or Over</td>
<td>255,705</td>
<td>11.15</td>
</tr>
<tr>
<td>Total</td>
<td>2,720,347</td>
<td>7.23</td>
</tr>
</tbody>
</table>

**SOURCE:** Florida inpatient hospital data, calendar years 2005–2006.

PPR increased from 7.23 to 12.48

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The Patient-centered Primary Care Collaborative Defines CMM

• Defined how to integrate a systematic approach to medication management into the patient-centered medical home (PCMH) / ACO environment¹

• Drew on the early work in pharmaceutical care—Hepler / Strand and others¹

• 2nd Revision with Appendix A- “Guidelines for Practice and Guidelines for Documentation”¹

• Joint Commission of Pharmacy Practitioners — patient care processes May 2014²


Definition: CMM

The standard of care:

- Ensures that each patient’s medications (whether they are prescription, nonprescription, alternative, traditional, vitamins, or nutritional supplements) are individually assessed to determine that each medication is:
  - Appropriate for the patient
  - Effective for the medical condition
  - Safe, given comorbidities and other medications being taken
  - Able to be taken by the patient as intended

CMM Requires Goals of Treatment

CMM includes:

• An **individualized care plan that achieves the intended goals of therapy**

• The appropriate follow-up to determine actual patient outcomes.

• Ensuring that the patient understands, agrees with, and actively participates in the treatment regimen, thus **optimizing each patient’s medication experience and clinical outcomes**.
Profound Effect on Provider Workforce
Shortage and Patient Engagement / Satisfaction

- CMM improves the efficiency and access to care
- Prescriber visits are also much more efficient and effective with:
  - An accurate medication list
  - Recommended drug therapeutic changes to resolve already identified drug therapy problems
  - Engaged and educated patients on their medication care plan
Questions to run on…

• What is CMM and why is it important?

• What does a CMM practice look like?
$12 Million USC / AltaMed Center for Medicare and Medicaid Innovation (CMMI) Project: Specific Aims

10 Teams
Pharmacist + Resident + Clinical Pharmacy Technician

USC National Conference on Best Practices and Collaborations to Improve Medication Safety and Healthcare Quality
Feb 20–21, 2014

OUTCOME MEASURES
✓ Healthcare Quality
✓ Safety
✓ Total Cost / Return on Investment (ROI)
✓ Patient and Provider Satisfaction
✓ Patient Access

1. Chen et al. Integration of Pharmacy Teams Into Primary Care. March 12, 2015. Available at:
http://www.careinnovations.org/uploads/USC.CEPC.pharm_webinar_FinalV.pdf

Resident and Technician Training for Expansion

Telehealth Clinical Pharmacy

Web-based Pharmacist Training and Credentialing
USC Patient Targeting and Management Strategy: 6000 Patients Enrolled

High-cost patients

Frequent and recent acute-care utilizers

Unstable

48 electronic health record-embedded triggers to detect high-risk patients

Physician referrals

Clinical Pharmacy

USC School of Pharmacy

Clinical pharmacy technician “check-ins” every 2 months

Treatment goal reached?

Yes

No

Medication-Related Problems Identified Through CMMI Clinical Pharmacy Program
67,169 problems among 5775 patients (Average 11.6 per patient)

- Medication Nonadherence: 14,059 (21%)
- Insufficient Patient Self-Management: 8267 (12%)
- Safety Issues: 13,352 (20%)
- Appropriateness / Effectiveness: 22,229 (33%)
- Miscellaneous: 9222 (14%)

Top Actions Taken by Pharmacists to Resolve Medication-related Problems (Excluding Education)

1. Change Dose or Drug Interval: 14,981
2. Add Medication: 5554
3. Order Test: 4230
4. Discontinue Medication: 3847
5. Substitute Medication: 2665

Questions to run on…

• What is CMM and why is it important?
• What does a CMM practice look like?
• What potential value does CMM provide? Who may benefit?
Outcome: Improvement in Clinical Markers

*Among those with uncontrolled hypertension at baseline

Outcome: Improvement in Clinical Markers

A1C Levels

<table>
<thead>
<tr>
<th>Category</th>
<th>Baseline</th>
<th>6 months</th>
<th>Most Recent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 7</td>
<td>10%</td>
<td>25%</td>
<td>30%</td>
</tr>
<tr>
<td>7 to 8</td>
<td>15%</td>
<td>20%</td>
<td>25%</td>
</tr>
<tr>
<td>8 to 9</td>
<td>20%</td>
<td>15%</td>
<td>20%</td>
</tr>
<tr>
<td>9 to 10</td>
<td>25%</td>
<td>10%</td>
<td>15%</td>
</tr>
<tr>
<td>Greater than 10</td>
<td>30%</td>
<td>5%</td>
<td>10%</td>
</tr>
</tbody>
</table>

# Summary of Difference-in-Differences Results (Treatment – Control)

<table>
<thead>
<tr>
<th>Clinical results</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HbA1C average change in 6 months, uncontrolled at baseline</td>
<td>-11%</td>
</tr>
<tr>
<td>Blood pressure percentage under control in 6 months, uncontrolled at baseline</td>
<td>-9.3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Utilization results (Probit analysis)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Readmissions per year per patient (6 month panel)</td>
<td>-16%</td>
</tr>
<tr>
<td>Readmissions per year per patient primarily attributed to medications (6 month panel)</td>
<td>-33%</td>
</tr>
</tbody>
</table>

Untreated (Cohort) Versus Treated Patients, USC CMMI Program

Mortality rates

- 25.7% absolute difference

Months after enrollment

Physician Satisfaction

<table>
<thead>
<tr>
<th>Item</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy team is accessible</td>
<td>10.4</td>
<td></td>
<td></td>
<td>89.6</td>
<td></td>
</tr>
<tr>
<td>Pharmacy team is respectful and courteous</td>
<td>6.3</td>
<td></td>
<td></td>
<td>93.7</td>
<td></td>
</tr>
<tr>
<td>Pharmacists are knowledgeable</td>
<td>8.3</td>
<td></td>
<td>24.4</td>
<td>73.3</td>
<td></td>
</tr>
<tr>
<td>Agree with pharmacists' recommendations</td>
<td>4.4</td>
<td></td>
<td>6.7</td>
<td>88.9</td>
<td></td>
</tr>
<tr>
<td>SOAP notes are completed and forwarded in a timely manner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encourage the utilization of CPS</td>
<td>14.6</td>
<td></td>
<td></td>
<td>85.4</td>
<td></td>
</tr>
<tr>
<td>CPS improves my patients' care</td>
<td>8.3</td>
<td></td>
<td></td>
<td>91.7</td>
<td></td>
</tr>
<tr>
<td>Support having CPS in my clinic</td>
<td>6.3</td>
<td></td>
<td></td>
<td>93.7</td>
<td></td>
</tr>
</tbody>
</table>

CPS, clinical pharmacy service; SOAP: subjective, objective, assessment, and plan.

Optimizing Medications for Patients with Psychiatric Disorders

- CMM services were provided to 154 patients with psychiatric disorders during 256 encounters
- Patients averaged 10.1 medical / psychiatric conditions and 13.7 medications
- A mean of 5.6 drug therapy problems per patient were identified and resolved
- Cost savings were estimated at $90,400 or $586.55 / patient with an estimated service cost of $32,100 with an ROI 2.8:1

Questions to run on…

- What is CMM and why is it important?
- What does a CMM practice look like?
- What proven value does CMM provide? Who benefits?
- How is CMM implemented and sustained?
Stepwise Process for CMM Implementation

1. Secure support from senior medical leadership
2. Align CMM program with financial incentives
3. Identify high-risk populations, consider gap analysis and who could benefit / pay (Medicare, Medicaid, commercial, self-insured employers)
4. Staffing options:
   - Part-time pharmacist
   - College of pharmacy faculty
   - Resident
5. Funding options:
   - 340B contribution
   - Local foundation grants

Stepwise Process for Implementation (continued)

5. Develop CMM collaborative practice agreements that integrate program into existing workflow:
   – Flow diagram
   – Disrupt support workflow → No support

6. Ensure that reliable data are available for program evaluation

7. Drive quality:
   – Host frequent team and leadership calls / meetings
   – Merge peer review process with partner’s quality assurance program

8. Maximize efficiency and productivity

Polling Question

Which of the following best matches your response to the material presented?

A. I am NOT interested in integrating CMM services

B. I am interested in offering CMM services, but don’t know where to start

C. I already offer advanced disease state or CMM services for high-risk patients and would like to improve it

D. I already offer a well-developed CMM service
DISCUSSION
CLOSING