Improving Healthcare Quality and Safety While Reducing Costs Through Clinical Pharmacy Service Integration

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Questions to Run on...

• What are some successes your organization has had in improving medication-related quality and safety for patients at risk for cardiovascular disease?

• How can your organization adapt the approaches shared to provide optimal medication therapy outcomes for your patients?

• What barriers prevent your organization from integrating clinical pharmacy services?
Outline

• Overview of the USC / AltaMed Healthcare Innovation Award (HCIA) program from CMMI
• Early results from the HCIA program
• Medical leadership perspective
• Patient perspective
• Stepwise process for implementation
• USC Telehealth MTM program
Medication Safety Problems in U.S.

- 1.5 million people are injured each year due to medications
- ~25% of ambulatory patients experience adverse drug events
- 90% of chronic diseases require medications as first-line therapy
- “...for every dollar spent on ambulatory medications, another dollar is spent to treat new health problems caused by the medication.”

School of Pharmacy receives $12 million grant for safety-net project

By Kukla Vera
June 18, 2012

The Centers for Medicare & Medicaid Services (CMS) has awarded the USC School of Pharmacy a $12,007,677 grant, the largest ever received by the school, that will bring pharmacists into safety-net clinics in Southern California as a way to improve medication adherence and safe and appropriate use of prescription drugs, with the intended result of optimizing patient health while reducing avoidable hospitalizations and emergency visits.

**USC Personnel:**
Geoffrey Joyce, PhD- CoPI
Steven Chen, PharmD
Kathleen Johnson, PhD, PharmD
R. Pete Vanderveen, Ph.D.
Kathy Johnson: Innovative leader who championed for underserved patients

Tributes from colleagues of Kathy Johnson

The University of Southern California School of Pharmacy is a model for success achieved through community engagement, and Kathy was the unassuming leader who brought vision and partnerships together to create this success. I admired how she balanced the unique needs of underserved communities and the resource limitations of safety net organizations with the scholarship expectations of an academic institution.

A key to Kathy’s success was that she realized that pharmacy practice needed to adapt to the needs of the patients and the organizations served, not the other way around. With that philosophy, she was able to build a strong base of support that spanned local and federal government agencies, private foundations, commercial payers, health systems, and the pharmacy practice community. While it is true that our profession is better because of Kathy’s work, more importantly, underserved patients of Los Angeles are healthier because of her leadership.

Todd D. Sorensen, PharmD
Professor and Associate Head, Department of Pharmaceuti- cal Care and Health Systems
University of Minnesota College of Pharmacy

One thing about Kathy Johnson was her infectious enthusiasm and compassion for her work. No matter what we were doing, it didn’t take long to get excited about the potential to do something innovative that would help others. Maybe it was studying the evolution of MTM services in the United States, or maybe we were discussing her work with pharmacists providing services to needy patients in the Los Angeles area. Kathy would focus on the benefits of completing the work, as if no obstacles were present. She was able to bring energy to projects to pull them together, obtain support, and then conduct them effectively. In addition to being a skilled scientist, Kathy Johnson was committed to advancing the profession of pharmacy by addressing the needs of vulnerable patients. She serves as a role model for us all.

William R. Doucette, PhD
Professor and Head, Health Services Research Division
University of Iowa College of Pharmacy

There are so many positive words I could use to describe Kathy Johnson: Enthusiastic. Leader. Advocate. Collaborator. Role model. Researcher. Devotee. The pharmacy community has lost a positive force.

I knew Kathy professionally and had the privilege of working with her on several initiatives. Her success and leadership in the practice-based pharmacy research community are remarkable, and her impact will be felt among us for decades to come.

Her bright soul was an indescribable influence on those with whom she interacted. I extend my heartfelt sympathy to her family, friends, and USC colleagues. Kathy Johnson was a tremendous individual, and I am so very glad that I knew her.

Karan B. Farris, PhD
Charles R. Walgreen III Professor of Pharmacy Administration
University of Michigan College of Pharmacy

www.pharmacytoday.org
USC / AltaMed CMMI Project: Specific Aims

10 teams
Pharmacist + Resident + Clinical Pharmacy Technician

Telehealth clinical pharmacy

Resident and technician training for expansion

OUTCOME MEASURES
✓ Healthcare Quality
✓ Safety
✓ Total Cost / ROI
✓ Patient & provider satisfaction
✓ Patient access

Web-based pharmacist training and credentialing

UNIVERSITY OF SOUTHERN CALIFORNIA
National Conference on Best Practices and Collaborations to Improve Medication Safety and Healthcare Quality
Feb 20-21, 2014
USC Patient Targeting and Management Strategy

High cost patients

Frequent and recent acute care utilizers

48 EHR-embedded triggers to detect high risk patients

MD referrals

Clinical Pharmacy

USC School of Pharmacy

Comprehensive Medication Management

Treatment Goal Reached?

No

Yes

Unstable

Clinical pharmacy tech “check-ins” every 2 months

Clinical Pharmacy TECH "check-ins" every 2 months
Outline

• Overview of the USC / AltaMed Healthcare Innovation Award (HCIA) program from CMMI

• Early results from the HCIA program
Outcome: Recruit high risk patients

- Enrolled 6,000 patients since Oct 2012
  - Predominantly Hispanic, non-elderly women
- 3/4ths have hypertension, 36% uncontrolled
- 2/3rds have diabetes, 60% uncontrolled
- High rates of hospitalizations
Outcome: Improvement in Clinical Markers

Systolic Blood Pressure

Diastolic Blood Pressure

* Among those with uncontrolled hypertension at baseline
What blood pressure level should be targeted for most patients under the age of 60?

A. 130/80
B. 135/85
C. 140/90
D. 145/95
Outcome: Improvement in Clinical Markers

A1C Levels

- Less than 7
- 7 to 8
- 8 to 9
- 9 to 10
- Greater than 10

Baseline
6 months
Most Recent
Outcome: Hospitalizations are declining
Control Group Selection

Propensity scoring to match CPS enrollees (treatments) to similar patients receiving care at non-treatment clinics (controls) in three steps:

• Wave 1 treatment patients
• PACE treatment patients from Wave 2
• Non-PACE treatment patients from Wave 2

Covariates used to model the propensity score:

• Demographics
• Health status
• Utilization
• Other
Summary of Difference-in-Differences Results (Treatment – Control)

Clinical results
HbA1C average change in 6 months, uncontrolled at baseline -11%
BP % under control in 6 months, uncontrolled at baseline -9.3%

Utilization results
Inpatient hospital visits per year per patient (12 month panel) -10%
Emergency room visits per year per patient (12 month panel) -10%
Which of the following is the most common medication-related problem that pharmacists identify and resolve in integrated collaborative practices?

A. Medication misuse / nonadherence
B. Medication safety (adverse drug events, potential adverse drug events)
C. Medication therapy appropriateness / effectiveness
Medication-Related Problems Identified Through CMMI Clinical Pharmacy Program, 10/112-8/28/13
19,696 problems, 1,993 patients (9.9 per patient)

- **Medication Nonadherence, Misuse**: 5313, 27%
- **Safety Issues**: 3495, 18%
- **Misc**: 2343, 12%
- **Appropriateness / Effectiveness**: 8545, 43%
Appropriateness / Effectiveness of Drug Therapy Problems Identified Through CMMI Clinical Pharmacy Program 10/1/12 to 8/28/13 (N = 8,545)

- Inadequate dosing for Tx goals: 4613
- Tx not optimal per guidelines / evidence: 2045
- Monitoring stds not followed: 1439
- Untreated medical problem: 487
Top Actions Made by Pharmacists to Resolve Medication-Related Problems

- Change Dose or Drug Interval: 5699
- Patient Education: 5621
- Add Medication: 1708
- Discontinue Medication: 1248
- Substitute Medication: 668
Physician Satisfaction

- Pharmacy team is accessible: 10.4% strongly disagree, 89.6% strongly agree
- Pharmacy team is respectful and courteous: 6.3% strongly disagree, 93.7% strongly agree
- Pharmacists are knowledgeable: 8.3% strongly disagree, 91.7% strongly agree
- Agree with pharmacists' recommendations: 22% strongly disagree, 24.4% disagree, 73.3% strongly agree
- SOAP notes are completed and forwarded in a timely manner: 4.4% strongly disagree, 6.7% disagree, 88.9% strongly agree
- Encourage the utilization of CPS: 14.6% strongly disagree, 85.4% strongly agree
- CPS improves my patients' care: 8.3% strongly disagree, 91.7% strongly agree
- Support having CPS in my clinic: 6.3% strongly disagree, 93.7% strongly agree
Unsolicited letter from AltaMed Physician

”I am writing to you today of my own accord, I have offered to make my opinion known about the excellent work that USC pharmacy team is doing without solicitation because I think pharmacy team has done an extraordinary job.”

“Both Dr. Oh and Dr. Lin are extremely diligent and knowledgeable professionals, with very good rapport with their patients. I know that most of my patients actually look forward to having their sessions with the pharmacy team and have learned a great deal regarding their chronic disease self-management. Improving patient clinical parameters are an excellent proof of that.”

“Dr. Oh in particular has been an integral part of the work that we do here, as a resident she goes above and beyond to make sure the patient are well care for. We have had some really mutually beneficial academic discussions and she has helped changed my practice on a few occasions while bringing in new research to my knowledge. I am really grateful to have the opportunity to work with Dr. Oh and Dr. Lin and look forward to their continued mutually beneficial relationship with us.”
What are some successes you have had in improving medication-related quality and safety for your most challenging patients?
Outline

• Overview of the USC / AltaMed Healthcare Innovation Award (HCIA) program from CMMI
• Early results from the HCIA program
• Medical leadership perspective
WHY WE DID THIS
WHY WE DID THIS
WHY WE DID THIS
WHY WE DID THIS

• Doctors don’t like to follow protocols …
• Pharmacists manage drug therapy better through collaborative practice agreements!
OVERCOMING ANXIETY

• Can pharmacists do this?
• Will they communicate with us?
• Why did I go to medical school?
• Liability?
FEEDBACK SO FAR

• Staff love it
• Patients love it
• Quality team loves it
• Unexpected benefits:
  - patient assistance programs
  - help with medication errors
  - staff education
MAJOR CHALLENGE
BUSINESS CASE

• Does clinic pharmacy save money?
• Is clinical pharmacy a high-value service?
• If yes, how do we pay for it?
OPTIONS

• Billing policy changes
• Pay for performance
• Health Home Demonstration
• More risk-bearing, capitated payment arrangements
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Patient Satisfaction

Year 1 (n=168)
- 3.6 (0-6)
- 92.2 (9-10)
Average score = 9.6

Year 2 (n=269)
- 6.3 (0-6)
- 93.3 (9-10)
Average score = 9.7
I wanted to take this time to commend and congratulate Alta Med Healthcare in implementing such a vital and useful program for their patients. The Clinical Pharmacy Service is a benchmark that all other Health Care providers could learn from and try to emulate. And in an era where severe cuts are the norm at the State and Local levels, I can’t begin to express how fortunate I feel to be a benefactor of this program. It is well staffed with professionals who seem to want to make a positive difference in their community outreach. I was made aware that the Clinical Pharmacy Service was established through a grant to maintain a more efficient protocol between Dr. and patient. In reflective thought I can’t think of money better spent.

However when I was first introduced to this program I was quite leery to say the least... I’m quite busy and after seeing my primary care physician the last thing I wanted to do is spend more time with a clinical pharmacist... But after my first visit with Dr. Hamai I became a true believer. I was so taken back and impressed with her immeasurable knowledge and seasoned professionalism.
• Being insulin dependent for over a quarter century I thought I had a real grasp on my condition, but she opened my eyes to a number of things that I wasn’t even aware existed. Long term complications from diabetes can be quite devastating; to say the least and I really felt she had my best interest in mind. Not only was Dr. Hamai instrumental in shedding insight regarding my condition, but her team of Gabriella and Wendy also proved to be more than worthy on the support side. In fact Gabriella brought to my attention that I might not be getting the most efficient readings from my glucometer given the way I was administering my blood sample. Wendy’s phone follow-up was more than I could have asked for with respect to having a trusted liaison to the program.

• As I look at this program in retrospect, I can only see the positive long term effects and cost savings to the community at large. Cost savings in the way of much needed education and support that can make all the difference from falling victim to one’s disease or gaining the upper hand in living and controlling it. My hopes are that the Clinical Pharmacy Service program does not fall victim to any budget shortfall in the future and continues to thrive in the community. Knowledge is power and this program embraces that statement ever so.
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• Stepwise process for implementation
“...medication management services demonstrated an ROI of as high as 12:1 and an average of 3:1 to 5:1.”
The Expanding Role of Pharmacists in a Transformed Health Care System

Executive Summary
Pharmacists practice in a variety of health care settings. Although they are most often associated with dispensing medications in retail pharmacies, their role is evolving to include providing direct care to patients as members of integrated health care provider teams.

The critical role that medication management plays in treating chronic diseases suggests that the integration of pharmacists into chronic-care delivery and regulations governing the profession to address the challenges to pharmacists practicing to the full scope of their professional training.

Introduction
The health care system is undergoing a significant transformation in both the finance and delivery of health care services. States, in particular, are examining their health care systems to define policies that create efficient models of care focused
Value Proposition - USC Clinical Pharmacy Services

Integration of clinical pharmacy services for high-risk patients:

- Lowers total healthcare costs (↓ hospitalizations / readmits)
- Improves healthcare quality measures (Pay for performance)
- Improves medication safety (priority for CMS, others)
- Improves provider access (PCMH measure, video telehealth) and satisfaction (less staff turnover)
- Improves patient satisfaction (retention)
USC School of Pharmacy
Collaborations to Develop High-Impact, Sustainable Results
Stepwise Process for Implementation

1- Secure support from senior medical leadership

2- Align program with stakeholder / partner incentives
   • ↑ Value-based payment system, ↑ $ Incentives (many aligned w/ pharmacy)
   • Readmissions, pay for performance
   • 340B program
Stepwise Process for Implementation

3- Identify high-risk populations with the greatest potential benefit from clinical pharmacy
   – *Consider pre-program data audit*

4- Develop clinical pharmacy collaborative practice agreements for targeted patient populations and integrate program processes into existing workflow
   – *Flow diagram recommended*
   – *Disrupt support staff workflow = No support*
Stepwise Process for Implementation

5- Ensure that reliable data is available for evaluating program impact
6- Host frequent team + leadership calls and integrate into key committees
7- Pay attention to hazardous or misaligned partnerships
8- Maximize efficiency and productivity
Clinical Pharmacy Tech Competencies

1. Collect accurate information about medications from patients (Rx, OTC, supplements, herbals)
2. Prepare medication adherence tools (pill boxes, charts, etc.)
3. Behave and communicate professionally
4. Solicit participation of targeted patients in pharmacy program
5. Perform appointment support functions (scheduling appointments, lab orders, etc.)
6. Manage a Patient Assistance Program (PAP) including
7. Provide education reinforcement / support
8. Conduct follow-up check-ins with patients after reaching treatment goals
Impact of Clinical Pharmacy Technician on Team Efficiency

Time of visit: 20 - 40 minutes
Dependent on initial vs. follow up visit
40-50% more patients seen each day
Clinical Pharmacy Tech Competencies

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Modes of Clinical Pharmacy Service Delivery

1. **Medical Groups** (Pay for Performance, Chronic Disease Management)
   - Cedars-Sinai, Sharp, USC

2. **Integrated into Medical Homes**
   - VA, Kaiser, safety net clinics including AltaMed, QueenCare, LA Christian

3. **Community Pharmacies**
   - Ralphs, Walgreens, independents

4. **Video Telehealth** - VA, USC, Heritage ACO

5. **Telephonic**
   - MEDCO, Kaiser Permanente, USC, Heritage ACO

http://www.pcpcc.net/files/medmanagepub.pdf
Mindray Accutorr V
Linear Deflation measure

Welch-Allyn’s Connex
15 second measure during inflation BUT defaults to Stepwise Deflation if no reading
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• USC Telehealth MTM program
The USC Medication Management Center helps MAPDs, health plans, and PBMs exceed CMS-mandated MTM goals. With the spiraling costs of health care and an increased need for optimization of medication use and safety, the USC MMC provides solutions for improving medication adherence and patient satisfaction with MTM services.
Where medication adherence breaks down

Breaking Medication Non-Adherence up into manageable components

100%

NOT FILLED -12%

- Common Barriers
  - Understanding the benefits of therapy
  - Denial
  - Financial
  - Health literacy

88%

NOT STARTED -12%

- Common Barriers
  - Perceived side effects
  - Not understanding the Benefit:Side effect ratio
  - Taking too many meds
  - Denial

76%

NOT FINISHED -29%

- Common Barriers
  - Forgetfulness
  - Side effects
  - Financial
  - Taking too many meds
  - Minimal provider feedback ongoing reinforcement

47%

Medication Prescriptive Process in the Prescriber’s office

Medication Dispensing Process in the pharmacy

Medication Taking Process at Home

Source: Adapted from American Heart Association, 2009 Statistics You Should Know. www.americanheart.org/presenter.jhtml?identifier=107
Snapshot of 2014

- > 3800 Comprehensive medication reviews served
- 27,869 targeted medication reviews served
- Prescription change cost savings: $1,055,371.53

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<th>Safety Alert Interaction Type</th>
<th>Cost Savings *</th>
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<tr>
<td>Drug-AgeGender</td>
<td>$18,579.12</td>
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<tr>
<td>Drug Allergy</td>
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<td>Drug-Age</td>
<td>$35,582.45</td>
</tr>
<tr>
<td>Total</td>
<td>$1,055,371.53</td>
</tr>
</tbody>
</table>
The pharmacist was courteous and respectful.
The pharmacist explained things in a way that I am able to understand.
I am satisfied with the quality of information provided by the pharmacist.
The pharmacist explained things in a way that I am able to understand.
I understand the use and purpose of my medications better after today's session.
I would recommend this service to my friends and family members who are using multiple medications.
I am satisfied with the overall services provided during this session.
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- I am satisfied with the overall services provided during this session: 91.1% Strongly Agree, 7.7% Agree, 84.7% Neutral, 11.5% Disagree, 87.4% Strongly Disagree.
- I would recommend this service to my friends and family members who are using multiple medications: 84.7% Strongly Agree, 11.5% Agree, 87.4% Neutral, 10.4% Disagree, 89.3% Strongly Disagree.
- The pharmacist thoroughly answered any questions I had during this session: 78.1% Strongly Agree, 16% Agree, 87.4% Neutral, 10.4% Disagree, 89.3% Strongly Disagree.
- I understand the use and purpose of my medications better after today's session: 78.1% Strongly Agree, 16% Agree, 87.4% Neutral, 10.4% Disagree, 89.3% Strongly Disagree.
- I am satisfied with the quality of information provided by the pharmacist: 89.3% Strongly Agree, 8.9% Agree, 87.4% Neutral, 10.4% Disagree, 89.3% Strongly Disagree.
- The pharmacist explained things in a way that I am able to understand: 91.0% Strongly Agree, 6.3% Agree, 87.4% Neutral, 10.4% Disagree, 89.3% Strongly Disagree.
- The pharmacist was courteous and respectful: 91.6% Strongly Agree, 6.3% Agree, 87.4% Neutral, 10.4% Disagree, 89.3% Strongly Disagree.
Benefits of Telehealth

- Improve access
- Expand reach
- Improve patient satisfaction
• How can you adapt the approaches shared to provide optimal medication therapy outcomes for your patients?

• What barriers prevent you from integrating clinical pharmacy services?

• What can you do next Tuesday to begin offering clinical pharmacy services in your organization?