

**ASHP Abstracts & Program Resources on CDROM
2006 Midyear Clinical Meeting
December 3-7, 2006 Anaheim, CA**

Strategies for Improved Continuity of Care: A National Agenda for Pharmacists, Part I

Program Number: 204-000-06-222-L04

Presentation Date and Time Tuesday, December 5, 2006; 8:00 to 11:00 AM

Moderators: **Pamela L. Stamm**, Pharm.D., Associate Professor, Pharmacy Practice, James I. Harrison School of Pharmacy, Auburn University, AL

Timothy R. Brown, Pharm.D., Director, Clinical Pharmacotherapy, Akron General Medical Center, Center for Family Medicine, Akron, OH

Learning Objectives:

- Describe the importance of continuity in medication management.
- Describe the pharmacist's role in facilitating continuity in medication management.
- Identify specific methods for improving continuity in an emergency department setting.

Title of presentations: Part I

Continuity of Care in Medication Management

Caryn M. Bing, M.S., Professional Practice Manager, Critical Care Systems, Las Vegas, NV (PI-69)

Continuity in the Emergency Department

Ernie Lukens, Pharm.D., Pharmacotherapy Specialist - Emergency Medicine, Akron General Medical Center, Department of Pharmacy, Akron, OH (PI-70)

Continuity as an Inpatient

Oralia V. Bazaldua, Pharm.D., Associate Professor, University of Texas Health Science Center at San Antonio, Department of Family & Community Medicine, San Antonio (PI-71)

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Abstract

PI-69, PI-70, & PI-71

<TI> Strategies for Improved Continuity of Care: A National Agenda for Pharmacists Parts I and II.

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<AB> Continuity of care (COC) is an important component of the medication management process, and a rallying opportunity for the profession. The 2003 ASHP policy statement on COC served as impetus for the ASHP Task Force on COC, which developed a definition of COC and continuity of care in medication management (CCMM.) The ASHP COC Task Force also identified practice gaps and barriers to continuity of care, and developed a recommended common data set for CCMM. A recent USP Medication Error Report, Institute of Medicine report, JCAHO Standards and Sentinel Event Alert, and other current publications address CCMM and the medication reconciliation process as a key component of CCMM and safe medication use practices. This presentation will provide a review and update on COC as it relates to pharmaceutical care. In addition, it will examine opportunities and strategies for improved continuity as a patient is admitted from the Emergency Department, transferred to the inpatient floor, transported to rehabilitation, and released into the community to undergo home infusion and reestablish care with his community pharmacist.

<AB> Learning objectives:

1. Identify at least three aspects and characteristics of the care process that are necessary for COC to occur.
2. Identify at least three main areas of practice gaps found in CCMM.
3. Describe a common medication management activity that can contribute to improved CCMM in all practice settings.
4. Describe methods to improve COC in multiple pharmacy practice settings.

<AB> Self-assessment questions: True or False:

1. Practice gaps found in CCMM include clinical, organizational, and technological

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2. Less than two percent of patients experience medication regimen discrepancies when transitioning from inpatient to outpatient or long term care settings.
3. Key characteristics of the care process which are essential to CCMM include: Cohesive planning, implementation, and monitoring; all entities are accountable; and it must be patient-focused.

<AB> Answers: 1, (T); 2 (F); 3. (T).

Presentation Outline: Part I

- 1) Overview of the need for improved continuity (50 min)
 - a) Definition of Continuity
 - b) Description of the Problem
 - c) Methods for Improving Continuity
- 2) Improving Continuity in the Emergency Department (50 min)
 - a) Case Introduction – Pt is in the ED
 - i) Identification of outcomes resulting from lapses in continuity in this case
 - ii) Identification of methods for avoiding these lapses and improving continuity as it pertains to the case
 - b) Overview of the lapses of continuity in the Emergency Department
 - c) Methods for improving continuity in the Emergency Department
- 3) Improving Continuity in inpatient general medicine (50 min)
 - a) Progressive disclosure of case – Pt is transferred to General medicine
 - i) Identification of outcomes resulting from lapses in continuity in this case
 - ii) Identification of methods for avoiding these lapses and improving continuity as it pertains to the case
 - b) Overview of the lapses of continuity in inpatient general medicine
 - c) Methods for improving continuity in inpatient general medicine

Part II

- 4) Improving Continuity in rehabilitation or skilled nursing floor (40 min)
 - a) Progressive disclosure of case – Pt is transferred to rehabilitation or skilled nursing floor
 - i) Identification of outcomes resulting from lapses in continuity in this case
 - ii) Identification of methods for avoiding these lapses and improving continuity as it pertains to the case
 - b) Overview of the lapses of continuity in rehabilitation or skilled nursing floor
 - c) Methods for improving continuity in rehabilitation or skilled nursing floor
- 5) Improving Continuity in Home Care (40 min)
 - a) Progressive disclosure of case – Pt is discharge and transferred to Home Care
 - i) Identification of outcomes resulting from lapses in continuity in Home Care in this case
 - ii) Identification of methods for avoiding these lapses and improving continuity as it pertains to the case
 - b) Overview of the lapses of continuity in rehabilitation or skilled nursing floor
 - c) Methods for improving continuity in rehabilitation or skilled nursing floor
- 6) Improving Continuity in Ambulatory / Community Practice (40 min)
 - a) Progressive disclosure of case – Pt is discharge home
 - i) Identification of outcomes resulting from lapses in continuity in this case
 - ii) Identification of methods for avoiding these lapses and improving continuity as it pertains to the case
 - b) Overview of the lapses of continuity in Ambulatory / Community Practice
 - c) Methods for improving continuity in Ambulatory / Community Practice
- 7) Panel Discussion with Q&A (30 min)

Slides

Attached

Continuity of Care in Medication Management

Caryn M. Bing, RPh, MS, FASHP
Las Vegas, NV

CCMM—an overview

- Background on CCMM
- Importance of CCMM to the Medication Use Processes
- Research/experience with CCMM
- Definitions for Continuity of Care
- Opportunities, next steps

Learning Objectives

1. Identify at least three aspects and characteristics of the care process that are necessary for COC to occur.
2. Identify at least three main areas of practice gaps found in CCMM.
3. Describe a common medication management activity that can contribute to improved CCMM in all practice settings.

Recent history on CCMM

- ASHP COC Policy Statement 2003
- ASHP COC Task Force 2004-2005
 - CCMM White Paper (August 2005)
- JCAHO --Medication Reconciliation
- Medicare--Opportunities with MTMS
- International initiatives in COC
 - Canadian, Australian pharmacists

Continuity of Care

To recognize that continuity of patient care is a vital requirement in the appropriate use of medications; further,

ASHP Position Statement from HACCP Section
ASHP House of Delegates approved June 2003

Continuity of Care

To strongly encourage pharmacists to assume professional responsibility for ensuring the continuity of pharmaceutical care as patients move from one setting to another (e.g., ambulatory care to inpatient care to home care); further,

ASHP Position Statement from HACCP Section
ASHP House of Delegates approved June 2003

Continuity of Care

To encourage the development of strategies to address the gaps in continuity of pharmaceutical care.

ASHP Position Statement from HACCP Section
ASHP House of Delegates approved June 2003

ASHP Task Force on COC

Task Force met from Feb '04 ---June '05

Diverse practice setting representation

Consensus development process

Defined COC and CCMM

continued→

ASHP Task Force on COC

(continued)

Identified practice gaps and analyzed barriers

Developed a recommended Common Data Set for CCMM

Identified examples of CCMM implementation

Raised a “call to action” to promote CCMM

CCMM (Task Force Definition)

Continuity of care is a longitudinal process that is coordinated and provided among practitioners and organizations over time, consistent with the ongoing needs of the individual patient.

Medication management is an essential component of continuity of care.

continued→

CCMM Task Force Definition

(continued)

All entities responsible for an individual's health care, including practitioners from multiple professions, health care organizations, and the individuals themselves, should strive for cohesive care across a continuum of sites (from intensive care to self-care) that is responsive to changes in needs over time.

Care process aspects and characteristics necessary for COC

- Accessible to the individual patient
- All entities accountable
- Multidisciplinary (across the continuum of care)
- Safe and effective
- Cohesive planning, implementation, and monitoring

continued→

Continuity of care in medication management: Review of issues and considerations for pharmacy. AJHP Vol. 62, Issue 16, 1714-1720

Aspects and characteristics necessary for COC

(continued)

- Optimal for the individual patient based on his or her physical and financial limitations and time constraints
- Timely interchange of necessary information
- Measurable outcomes that allow the process to be monitored
- Responsive to changing needs of the individual patient
- Patient-focused

Components of Continuity

- Informational
 - Specific data/transfer of information required for appropriate decisions
- Relational
 - Provider/patient relationships)
- Management
 - Patient-focused plan of care

Preventable Drug-Related Morbidity across the Continuum

- Untreated indications
- Medications not indicated
- Contraindicated
- Improper selection
- Inappropriate dosing/duration
- Therapeutic duplication
- Efficacy?
- ADR/toxicity
- Potential interactions
- Noncompliance/nonadherence to regimen
- Under-assessment (objective and subjective)

Safe & Effective Drug Therapy System

- Timely recognition of DRPs
- Safe/accessible/cost effective meds
- Appropriate based on explicit objectives
- Distribution/ dispensing and administration occurs
- Patients participate in and adhere to care (Intelligent adherence)

continued→

Safe & Effective Drug Therapy System

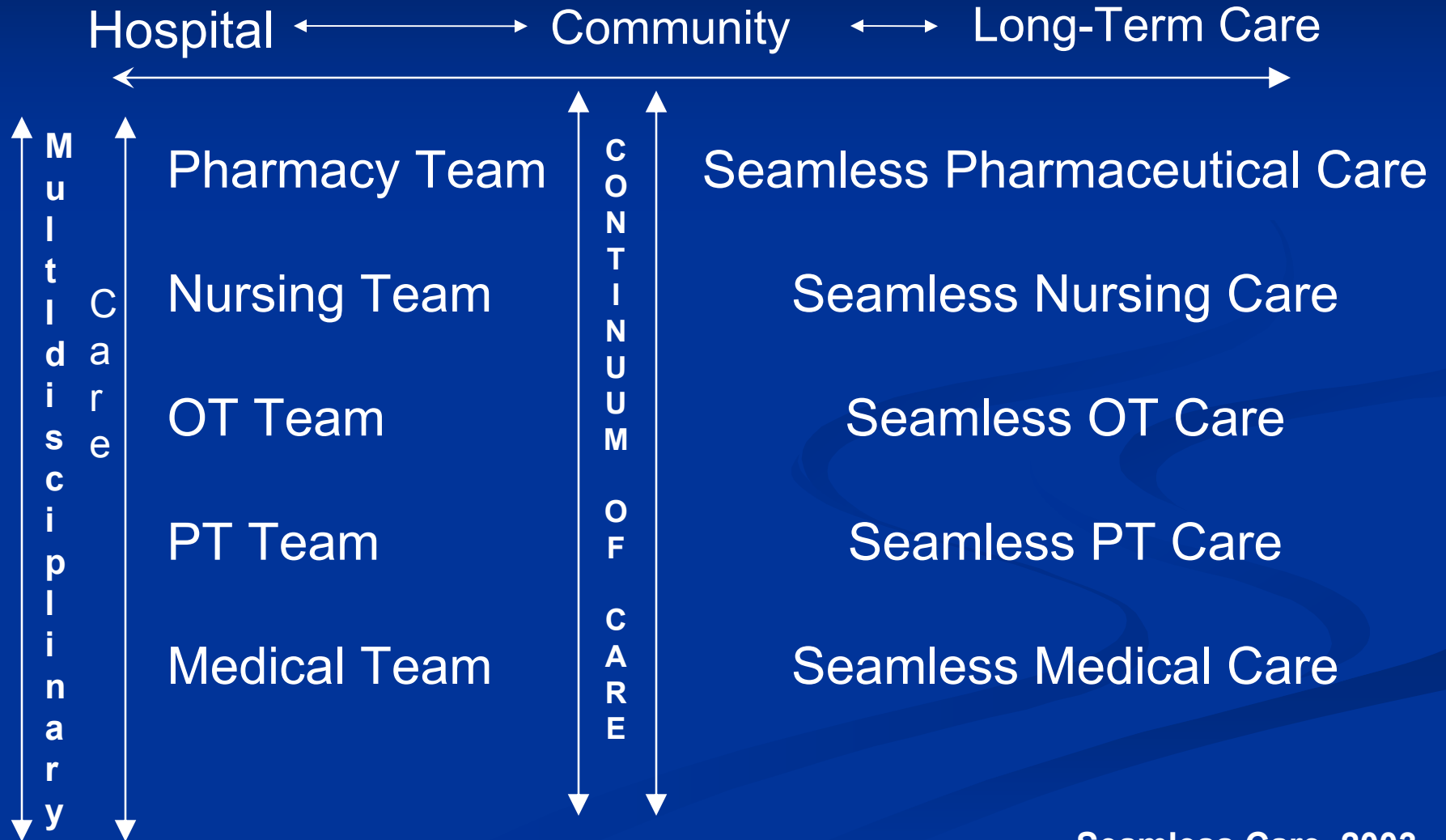
(continued)

- Monitoring (including detection/ resolution of DRP)
- Documentation and communication
- Evaluation and improvement of processes/systems

Opportunity and Need for Continuity of Care

- Patient (not therapy)-focused
- Interdisciplinary
- Within a profession
- Within a practice setting
- Across practice settings (transitions)
- Across organizational boundaries
- Temporal (over time)

Transitions in Care



Identifying and closing practice gaps

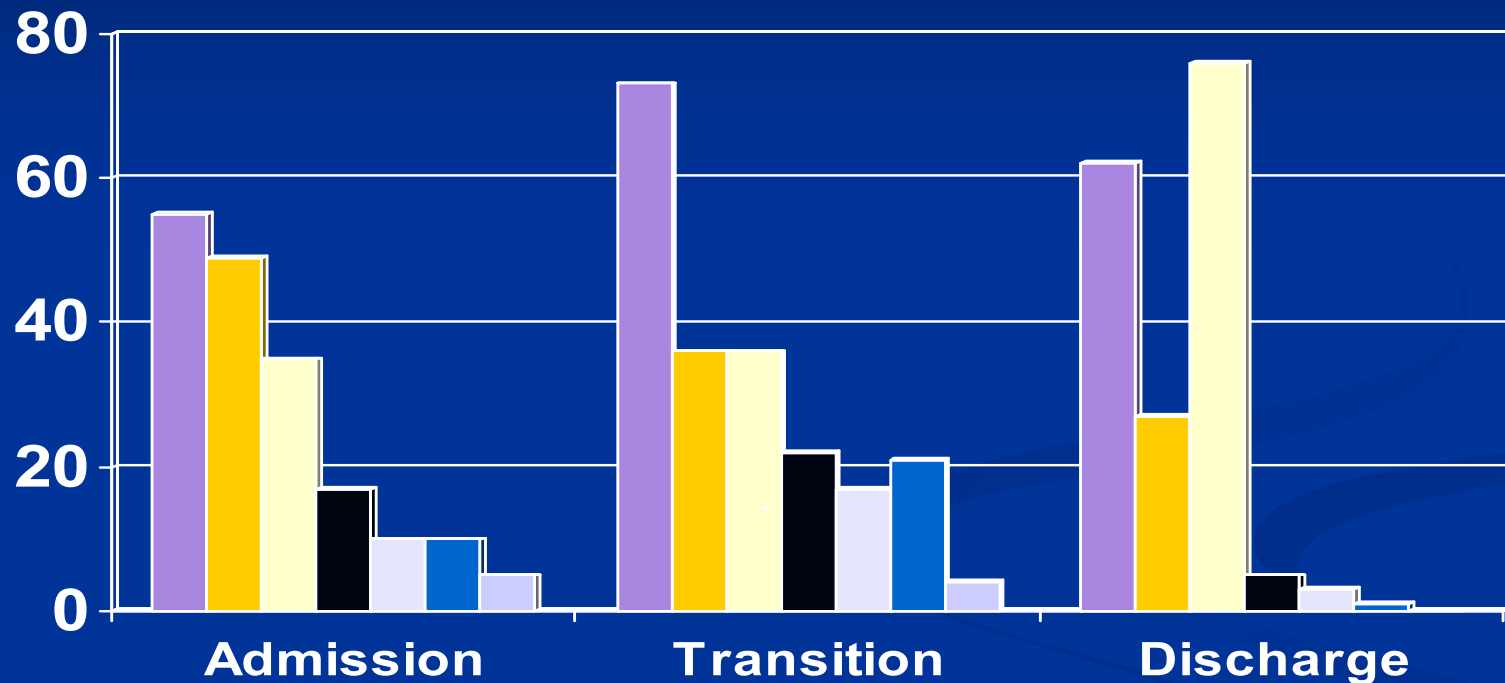
- **Clinical** (i.e. med errors, ADEs)
- **Patient** (i.e. psychosocial)
- **Communication**
- **Organization** (i.e. policies, budgets, structure)
- **Coordination** (i.e. care plans, multi-disciplines)
- **Professional** (i.e. ego, time, skills)
- **Policy** (i.e. regulatory interpretation)
- **Technology** (i.e. availability, capability)

Evidence and Impact of practice gaps in reconciliation

USP MEDMARX program: 2022 medication errors involving reconciliation (09/04 through 07/05)

- 66% during transition/transfer to another level of care
- 22% during admission to a facility
- 12% at time of discharge from facility
- 70% of errors were dose/quantity, omission, or prescribing errors. <0.2% (31) Harmful (E through I)
- Errors intercepted: 51% of Admission, 53% of Transition, 28% of Discharge reconciliation errors
- Causes: All % of reasons → significantly higher cause rates than the full MEDMARX data.

Types of Reconciliation Errors (RE) as a Percent of Reported RE

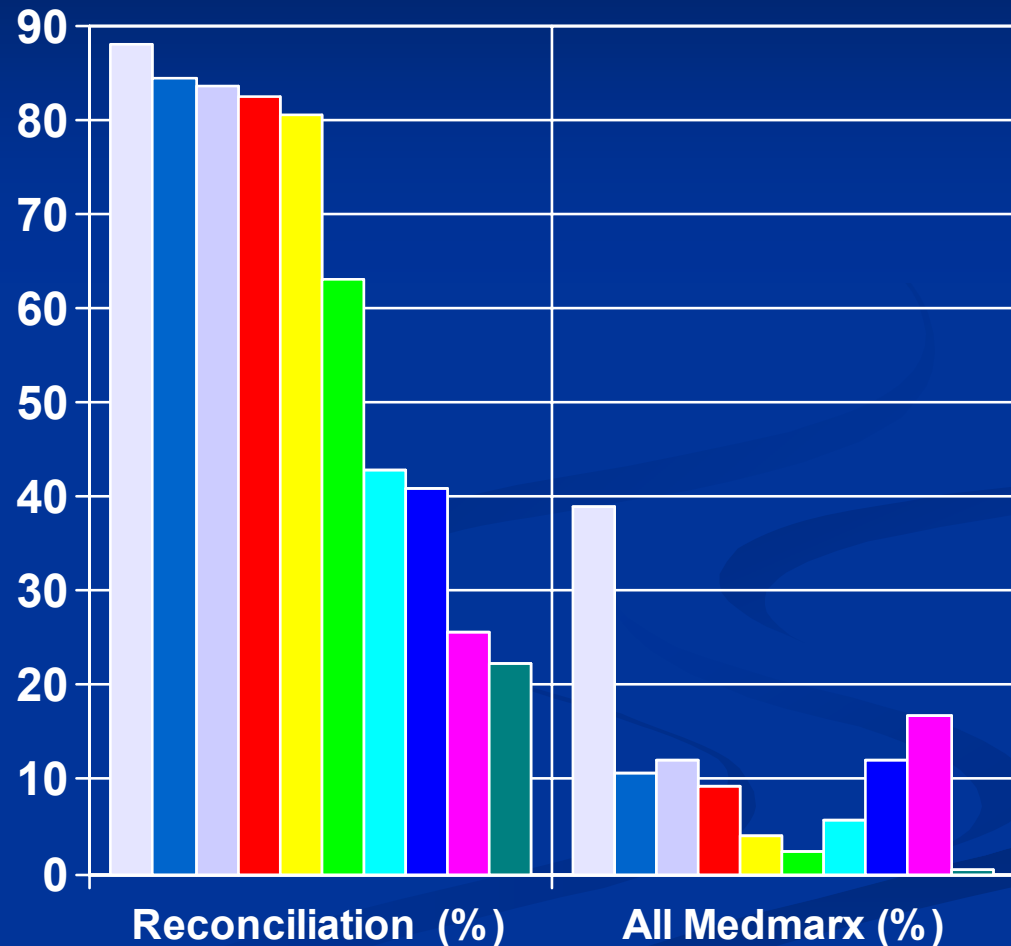


- Improper dose/quantity
- Prescribing error
- Omission error
- Wrong drug
- Wrong time
- Extra dose
- Wrong patient

Adapted from USP Patient Safety CapsLink October 2005 USP Medication Error Analysis

Causes of Error in Medication Reconciliation Failures

- Performance deficit
- Transcription inaccurate/omitted
- Documentation
- Communication
- Workflow disruption
- Monitoring inadequate/lacking
- Written order
- Computer entry
- Policy/Procedure not followed
- IT system



Adapted from USP Patient Safety CapsLink October 2005
USP Medication Error Analysis

IOM Report: (July '06)

Preventing Medication Errors

Recommends:

- Paradigm shift to a patient-provider 'partnership'
- Patient-focused rather than 'provider-centric' care; a patient/caregiver active role in medication management
- **Patients** maintain a current medication profile, to take a proactive role with each health care provider, to engage providers in a profile review and update with each patient encounter

More Evidence and Impact

ADE's due to medication changes in 20% of patients with bidirectional transfer (hospital/nursing home)

Mostly manifested after readmission to nursing home

On average 14 days after the medication change

Boockvar, K, et.al. Adverse Events Due to Discontinuations in Drug Use and Dose Changes in Patients Transferred Between Acute and Long-term Care Facilities
Arch Intern Med. 2004;164:545-550

Table 2. Adverse Events From Medication Changes in Nursing Home Residents Transferred to and From the Hospital*

Medication	Adverse Event	Type of Medication Change	Timing of Change	Location When Adverse Event Occurred	Outcome
Metoprolol tartrate	Blood pressure, 200/108 mm Hg	Discontinuation	On hospital admission	During hospital stay	Resolved with restarting metoprolol
Colchicine	Crystal arthritis (elbow)	Discontinuation	On hospital admission	During hospital stay	Caused increased hospital length of stay; resolved with treatment
Colchicine	Crystal arthritis (wrist)	Discontinuation	On hospital admission	After nursing home readmission	Resolved with treatment
Metoclopramide hydrochloride	Vomiting	Discontinuation	On hospital admission	After nursing home readmission	Resolved with treatment
Risperidone	Lethargy	Dose increase	On hospital admission	After nursing home readmission	Resolved with discontinuation of risperidone
Clonazepam	Lethargy; fall	Dose increase	During hospital stay	After nursing home readmission	Clonazepam dose not corrected
Warfarin sodium	Clotted dialysis access	Dose decrease	During hospital stay	After nursing home readmission	Readmitted to hospital to establish dialysis access
Insulin human, isophane	Blood glucose, 517 mg/dL; vomiting	Discontinuation	During hospital stay	After nursing home readmission	Resolved with restarting insulin
Metronidazole	Diarrhea (positive for <i>Clostridium difficile</i>)	Duration decrease	On nursing home readmission	After nursing home readmission	Resolved with restarting metronidazole
Carbamazepine	Seizure	Dose decrease	On nursing home readmission	After nursing home readmission	Dose increased; no additional seizures
Carbamazepine	Seizure	Discontinuation	On nursing home readmission	After nursing home readmission	Carbamazepine restarted; no additional seizures
Codeine sulfate	Severe pain	Discontinuation	On nursing home readmission	After nursing home readmission	Resolved with restarting codeine
Insulin human, isophane	Blood glucose, 68 mg/dL; lethargy	Dose increase	On nursing home readmission	After nursing home readmission	Resolved with decreasing insulin dose
Isosorbide dinitrate	Blood pressure, 94/58 mm Hg	Reversion to prehospitalization dose	On nursing home readmission	After nursing home readmission	Resolved with discontinuation of isosorbide

SI conversion factor: To convert blood glucose from milligrams per deciliter to millimoles per liter, multiply by 0.0555.

*During 71 hospitalization episodes that could be reviewed by 2 physician investigators.

Post-hospital Med Discrepancies

375 community-based adults >65 admitted to hospital:

14.1% of patients experienced ≥ 1 medication discrepancy

14.3 % of these were re-hospitalized within 30 days, vs. 6.1% of patients without discrepancies

Patient-associated and system-associated factors contributed equally to the discrepancies

Learning from others

Australia--National guidelines to achieve the continuum of QUM between hospital and community--1998

Iowa demonstration project -- Information exchange among pharmacists/practice settings --1998

South Dakota—pharmacy to pharmacy referral form --1998

Canada--“Seamless care”--2003

Other resources for CCMM

Massachusetts Coalition for the Prevention
of Medical Errors

www.macoalition.org/initiatives.shtml

Dvorak SR, McCoy RA, Voss GD. -
Continuity of care from acute to
ambulatory care setting. Am J Health Syst
Pharm. 1998;55(23):2500-4

Common Ground Definition of Pharmaceutical Care:

“...process through which a **pharmacist cooperates** with a patient and other professionals in designing, implementing, and monitoring a therapeutic plan that will produce specific therapeutic outcomes for the patient...”

**IDENTIFY...RESOLVE...PREVENT
DRUG RELATED PROBLEMS**

JCAHO Medication Reconciliation

National Patient Safety Goal #8 (2004-now)

Accurately and completely reconcile medications across the continuum of care

Sentinel Event Alert: Using medication reconciliation to prevent errors

JCAHO Med Management Standards

MM 1.10 Patient-specific information is readily available to those involved in the medication management system

JCAHO NPSG #8 Requirements

#8A: Implement* a process for obtaining and documenting a complete list of the patient's current medications upon the patient's admission to the organization and with the involvement of the patient. This process includes a comparison of the medications the organization provides to those on the list.

* 2005 Goal required development/testing for 2006 implementation

JCAHO NPSG #8 Requirements

#8B: A complete list of the patient's medications is communicated to the next provider or service when a patient is referred or transferred to another setting, service, practitioner, or level of care within or outside the organization.

COC as a risk reduction strategy in medication reconciliation (#1)

- Collect complete list on admission to service
- Validate with the patient
- Assign responsibility for collecting home list (primary → sufficient expertise, shared)
- Use list when writing orders → consistent spot, visible on chart
- Assign responsibility for comparing, identifying / reconciling variances → sufficient expertise

COC as a risk reduction strategy in medication reconciliation (#2)

- Reconcile within 24 hours of admission, shorter time frame for high risk meds
- Clear P&Ps, orientation, provider education
- Adopt and use a standard form/process to collect, reconcile variances
- Access to pharmacist & DI at EACH step
- Increase access to complete list at admission
- Feedback/monitoring of effectiveness

CCMM Task Force Call to Action

- Advocate provider continued education
- Encourage interdisciplinary efforts to address gaps/ establish practice standards
- Establish/encourage coalitions to focus on regulatory, reimbursement, and accreditation influences

continued→

CCMM Task Force Call to Action

(continued)

- Advocate research and systems development to improve
- Identify/participate forums for IT standards that can/will impact CCMM processes
- Advocate integration of COC/CCMM into educational curricula for health care professionals

COC as a rallying point!

“...There has never been a more compelling reason for professional unity in pharmacy”

Max D. Ray

AJHP Editorial Aug 15, 2005

References and Acknowledgments

- CCMM Report, *AJHP 2005: 62:1714-20*
- AJHP Editorials: Ray MD: Aug 15 2006;
Kliethermes MA: Sep 1 2003
- COC Task Force members and CCMM
Report reviewers
- HACCP Executive Committee
- ASHP Board of Directors and Staff

Case presentation: Illustrates issues in COC/CCMM

Identifies

- Practice gaps (lapses)
- Improvement opportunities
- Outcomes
- At each point and site of care
- At each transition of care
- Inter- and intra-provider
- Inter- and intra-professionally
- With the patient / caregiver in focus

Improving Continuity in Emergency Medicine

Ernie Lukens PharmD
Akron General Medical Center
Akron, Ohio

Objectives

1. Discuss the role of the pharmacist in the Emergency Department (ED)
2. Identify lapses of care that take place over the course of a patient's stay
3. List methods to reduce lapses of care in the ED

You Have to Know Where You Came From . . .

- Traditional pharmacy services
 - Distribution
 - Inventory control
 - Cost containment
- Pharmaceutical care services

Emergency Pharmacy

- Clinical pharmacy services in the ED
 - Traditional roles
 - Clinical consultations
 - Education
 - Emergency preparedness
- ASHP position statement

My Job

- Pharmacotherapy Specialist – Emergency Medicine
 - Clinical Services
 - Education
 - Administrative
- Education
- My colleagues

Akron General Medical Center



Case Introduction

- Monday at 11:30 AM of a holiday weekend
- Emergency department status
- David Carlson (DC) arrives via car with his wife
- Chief complaint “My arm hurts”

Triage History

- History of present illness
 - 64 year old BM complaining of right arm pain
 - Seen here 10 days ago for the same complaint
- Vitals
 - T 36.7, R 18, P 89, BP 167/104, PO2 92%
 - Pain 10/10 right arm
- Past medical history
 - Diabetes mellitus
 - Hypertension
 - Dyslipidemia
 - Depression

Triage History

- Medications
 - HCTZ 25 mg
 - ASA
 - “Cholesterol medication”
 - “Pain pills”
 - Oxycodone/APAP
- Social history
- Triage level = urgent/not urgent
 - “Patient wants pain medication refill”
 - Patient sent to waiting room

Patient Outcomes #1

- David Carson is waiting
 - David Carson is still in pain
 - David Carson will be frustrated before he enters the ED treatment area
- David Carson is labeled as “wanting a pain medication refill”

Lapse in Continuity #1

- The ED is understaffed and over crowded
 - High acuity patients currently in the ED
 - Many low acuity patients currently in the ED
- No system to treat a patient's pain without first being seen by a physician
- Variation in nurses triage style and ability

EMPATH Study

- Identified principle reasons why patients utilize emergency departments
- Five predominating factors
 - Medical necessity
 - Preference
 - Convenience
 - Affordability
 - Insurance limitations

Reducing ED Overcrowding

- Better hospital and community policies to “decompress” Emergency Departments
 - Decrease the number of boarded patients in the ED
 - Educate the public on how to utilize the ED

Pain Management in the ED

- A high ED census is associated with poor pain management
 - Longer time to assessment
 - Underassessment of pain
 - Delay in analgesic administration
 - Inappropriate analgesic selection
- Nursing driven pain management protocols

Case Continuation

- DC is brought to room 16 after waiting more than 1 hour
- A resident physician enters the rooms about 25 minutes later and begins his evaluation
 - HPI
 - PMH and medication history
 - Social history
 - Physical exam

Physician's History

- Second visit to the ED in 10 days
 - Previously prescribed oxycodone/APAP
- Description of the pain
- Has followed up with his primary care providers
 - DC states – “We came to the ER today because it’s a holiday and my regular doctors aren’t in the office”

Physician's History

- Review of systems
 - The family speaks up and says – “He’s been acting goofy for the past few hours too”
- “Medication history and allergies reviewed per triage history”
 - The patient and family do not know the name of the new pain medication

Physical Examination

- Well-developed, well-nourished tearful male in obvious pain holding his right hand in the air
- Vital signs per nursing triage
- The physical exam
 - Exam of the right arm and hand
 - Neurological exam

Assessment & Plan

- Right arm pain likely secondary to peripheral neuropathy
 - 2 mg IVP morphine
 - 12.5 mg IVP promethazine
 - Current pain regimen not adequate
 - Chem-7, CBC
 - CT to R/O any obvious pathology – hold for SCr

Assessment & Plan

- Altered LOC secondary to recent change in pain medications vs. CVA
 - CT R/O CVA – hold for SCr
 - Admit for STO
- DM type 2
 - Chem-7
 - F/U with PCP
- Hypertension
 - Uncontrolled not urgent
 - F/U with PCP

Pharmacist's Assessment

- History and pain assessment
- Medication history
 - Previous dystonic like reaction to promethazine – per pharmacy records
 - No other allergies stated
 - Current medications
 - Past medications
- Uses multiple pharmacies

Medication Use History

- Metformin 500 mg
BID
- HCTZ 25 mg Daily
- Enalapril 10 mg Daily
- Atorvastatin 80 mg
QHS
- Prednisone 40 mg
Daily
- Duloxetine 60 mg
Daily
- Morphine Sulfate SR
100mg Q12 hours
 - Last dose 1 hour prior
to ED arrival
- Oxycodone/APAP
5/500
 - 8 tablets in the past 24
hours
- APAP OTC 500 mg
 - 6 tablets in the past 24
hours

Pharmacist's Assessment & Plan

- Morphine dose is not adequate
 - Give an additional 4 mg
- Promethazine contraindicated in this patient
 - Monitor for dystonic-like reactions
- Possible APAP toxicity

Patient Outcome #2

- David Carson is still in pain
 - Wrong dose
 - Wrong time
- Given a medication to which he had a previous reaction
 - Uncomfortable for the patient
 - Harm to the patient

Lapse in Continuity #2

- Different histories documented in 3 different places within the chart
- No interaction with his primary care providers
- The patient is unable to recount his history
- A technology gap between pharmacy and ED
- No pharmacist evaluated the patient on his first visit to the ED

Medication Reconciliation

DATE: _____

CIRCLE: C to Continue H to Hold
DC to Discontinue

PHYSICIAN ORDER

INITIALS	MEDICATION NAME (Write Legibly)	DOSE (mg, mcg)	ROUTE (PO, gtt., SQ, IV)	FREQUENCY Please Specify		LAST DOSE DATE / TIME	Complete on Admission			Complete on Discharge		(✓) Rx Given
				DAILY			C	H	DC	C	DC	
							C	H	DC	C	DC	<input type="checkbox"/>
							C	H	DC	C	DC	<input type="checkbox"/>
							C	H	DC	C	DC	<input type="checkbox"/>
							C	H	DC	C	DC	<input type="checkbox"/>
							C	H	DC	C	DC	<input type="checkbox"/>
							C	H	DC	C	DC	<input type="checkbox"/>

MRF COMPLETED/REVIEWED BY:

SIGNATURE/INITIAL and TITLE	DATE

SOURCE OF MEDICATION LIST: (Check all used)

- Patient medication list
- Patient / family recall
- Pharmacy Name and Phone _____

- Primary care physician list
- Previous discharge paperwork
- Medication Administration Record from facility
- Other _____

Use MRF as admitting medication orders:

Physician Signature: _____ Date: _____ Time: _____

Use MRF for verification of medications at discharge:

Physician Signature: _____ Date: _____ Time: _____

Health Information Management will forward to primary care physician at discharge. Page ____ of ____ pages

Allergy Assessment



**AKRON GENERAL
MEDICAL CENTER**

400 Wabash Avenue
Akron, Ohio 44307
330/244-6000

Do not use qd or qd - Write "Daily"

DIRECTIONS:

Completed by nursing on admission.
(Check appropriate box).
Fax to Pharmacy.
Place on top of the Physician Orders.

DATE:	PATIENT HEIGHT:	PATIENT WEIGHT: lbs.
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I. MEDICATION ALLERGY/INTOLERANCE ASSESSMENT *Fax to Pharmacy*

NO KNOWN DRUG ALLERGIES OR DRUG INTOLERANCES.

MEDICATIONS CANNOT BE DISPENSED UNTIL PHARMACY RECEIVES THIS FORM	ALLERGY				INTOLERANCE					Other (fill below)	DRUG STOPPED	
	[✓] REACTION				[✓] REACTION						Yes	No
	Rhinitis	Hives	Edema	SOB	Drowsiness	Drowsiness	Headache	Upset Stomach	Diarrhea			
LIST DRUG/ROUTE												

Other (describe):

Has the patient ever had a reaction to Penicillin? (i.e. Ampicillin, Amoxicillin, Augmentin)? Yes No

ADVERSE REACTION: An adverse drug reaction is any suspected event associated with a drug that may result in an adverse outcome to a patient. This event may be unintended, unexpected, or an exaggerated pharmacologic effect of a drug. Call 62377 to report adverse drug reactions.

ALLERGY: Defined as hypersensitivity to medications. It is the result of an antigen-antibody immune reaction that occurs in the body when a drug is given to a susceptible patient.

INTOLERANCES (SIDE EFFECTS): A medication intolerance is a mild reaction to a medication that may not prohibit the use of the medication; for example, drowsiness caused by antihistamines.

Case Continuation

- The patient experiences muscle spasms
 - Prompted an ECG
- Pain re-assessed 8/10
 - 5 mg IVP morphine
- Chemistries

139	105	25	278
3.4	24	1.4	

17	10	244
	32	

Patient Outcome #3

- David Carson is being exposed to diagnostic radio contrast media that may induce adverse effects

Lapse in Continuity #3

- No measures taken to prevent RCIN
 - The physician did not address the issue
 - The pharmacist did not address the issue
- Medication histories
 - Physician was unaware the patient was on metformin
- Errors are ubiquitous in health care

Factors Contributing to Medication Errors in the ED

- Patients are strangers
- Multiple patients being treated concurrently
- Frequent verbal orders
- Many dangerous drugs
- Variety of routes
- Time pressures
- Interruptions
- Tight coupling
- ED dispensing
- Team communication problems

Pediatric Resuscitation

- Incidence of medication errors during simulated pediatric resuscitation
 - Prospective, observational, 8 “mega-codes”
- 125 orders
 - 21 (17%) ordered doses not given
 - 9 dosing errors during prescription
 - 5 intercepted (56%)
 - 9/58 syringes analyzed concentrations deviated by >20%, 4 > 50%
- Errors more likely during emergency situations

Be Prepared for Errors

- Protocols to prevent RCIN
- Morbidity and mortality conference
- Recognize how medication errors occur in a particular setting

Case Continuation

- CT showed no obvious pathology
- A short term observation admission planned
- PCP unavailable
 - Partner on call agrees to the admission
 - Residents evaluate and admit the patient
 - Orders sent to pharmacy

Case Continuation

- David Carson must remain in the ED as a room is not yet available
 - His pain is treated by nursing per admission orders
 - Medications for his chronic conditions are sent from pharmacy to ED
 - Pharmacist has left for the day
 - No pharmacist to pharmacist “handoff”

Patient Outcome #4

- David Carson and his family are upset and frustrated
 - They do not understand what the plan is for his treatment
 - They do not understand why they are still in the ED

Lapse in Continuity #4

- Lack of communication to the patient and family from physicians, pharmacists, and nurses

Patient Outcome #5

- David Carson has not taken his maintenance medications since yesterday
 - Uncontrolled DM
 - Uncontrolled HTN

Lapse in Continuity #5

- Understaffed
- Passing medications is not a regular part of ED nursing
- No systems to deliver these medications to patients in ED

Medication Turn Around Time

- Create systems to ensure timely medication delivery from pharmacy to ED
- Create systems to ensure timely administration of medications
- Create systems to care for boarded patients in the ED

Case Continuation

- David Carson leaves the ED after 8 hours
- ED progress note dictated the next day

Overview of Lapses

- Clinical gaps
- Patient gaps
- Communication gaps
- Organizational gaps
- Coordination gaps
- Professional gaps
- Policy gaps
- Technology gaps

Improving Continuity in the Inpatient Service

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Objectives

4. Discuss the role of the family medicine pharmacist in the Inpatient Service (IS)
5. Identify lapses of care that take place in the inpatient service
6. List methods to reduce lapses of care in the inpatient and methods to improve continuity of care

Introduction to Self

- Associate Professor
 - School of Medicine
 - Director of Pharmacy Education – Family Medicine
 - College of Pharmacy
- Primary Care Clinics:
 - Pharmacotherapy
 - Anticoagulation
- Inpatient Service
- Research
 - Health Literacy
 - Appropriate Medication Use



Inpatient Service

- Family Medicine Teaching Service

- Team

1st, 2nd, 3rd year residents

Medical students

PA students

MD Attending

Podiatry Students

PharmD Students

PharmD Residents

Nurse Practitioner

- Common Medical Conditions:

CHF

Asthma/COPD

CAP

Diabetic Foot Ulcers

Cirrhosis

Setting

University Hospital

- 604 bed acute care teaching hospital
- Level 1 trauma center
- Largest transplant service in South Texas
- Current census about 454

Case – Day 1

3:30pm intern completed admission orders

4:00pm meds sent to ED

5:00pm intern's shift ends; goes home

7:30pm transferred to floor

9:00pm patient seen and examined by upper level family medicine resident. ED notes were not transferred with pt & not available

History of Present Illness

- 64yo BM w/right arm pain. Admitted as STO for mental status changes & pain management
- Pt still in pain; unclear of treatment as ED notes not available. Pt is poor historian & appears confused; is asking for wife but she left home as she can not drive in the dark due to poor vision.
- Will request ED notes for review

Patient Outcome #1

- Pt waited 4 extra hrs in ED to be transferred
- Pain poorly managed; confusion as to which team responsible (ED or inpatient?)
- Treatment/evaluation delayed due to inadequate information
- Pt confused & unable to communicate; also without an advocate as wife has left

Lapses in Continuity of Care #1

- Organizational
 - No beds available
- Policy / Coordination
 - Unclear policy as to which team manages pt while still in ED after admission
- Coordination
 - ED progress notes not transferred to floor
- Communication
 - No caregiver/family member present

Improving Continuity of Care #1

- Organizational
 - Reduce length of stay for most patients
- Policy
 - Review & clarify policy re: who manages pt in ED after pt is admitted
- Coordination
 - Develop/improve systems to ensure transfer of ED progress notes & med list with patient
- Communication
 - Keep phone contact of family member/caregiver

Case Continuation

10:00pm ED notes are available & reviewed by resident - completes evaluation

Physician evaluation

- HPI
- PMH & medication history
- Social history
- Physical exam

Past Medical History:

DM-2, HTN, Dyslipidemia, CAD, Depression

Medication Use History: (per ED Rx note)

- Metformin 500mg BID
 - ASA 81mg Qday
 - Atorvastatin 80 mg QHS
 - Duloxetine 60mg qday
 - Oxycodone/APAP 5/500 1-2 Q4-6 hours PRN
 - Morphine Sulfate SR 100mg Q12 hrs
- HCTZ 25mg Qday
 - Enalapril 10mg Qday
 - Prednisone 40mg Qday
 - APAP 500mg 1-2 prn (6 tabs)

Social History

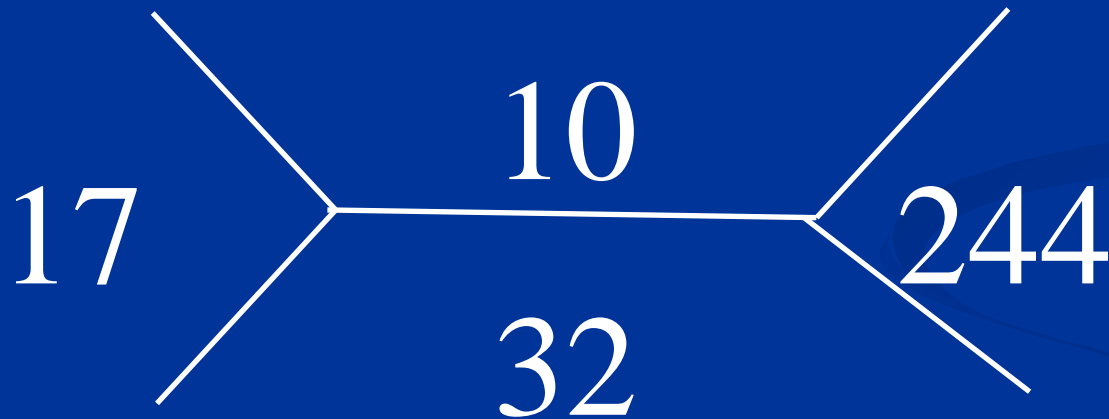
- works in chrome plating & rt hand dominant
- smokes ½ pack per day
- drinks 4-5 beers per day;
- lives with wife but 29 yo daughter is care coordinator; also has 20 yo son that lives away from home
- He is insured

Physical Exam

- restless, awake, & oriented to person but not place/time
- T 36.7, R 31, P 89, BP 164/102, pulse ox 92% RA, Rt arm pain
- Chest w/ fine crackling rales in lower base of Rt lung.
- Physical exam of the right arm is similar to that in ED

Labs

139	105	25	278
3.4	24	1.4	



Head CT is negative.

CXR on way up from ED reveals right lower lobe infiltrate

Assessment & Plan

1. Community Acquired Pneumonia
 - a. change to full admission for treatment of CAP
 - b. obtain blood/sputum cultures; start antibiotics
 - c. Start cefotaxime 1 g IV Q8hrs and azithromycin (z-pack)

2. Right arm pain
 - a. continue morphine 2-6 mg IVP q 4-6 hrs PRN
 - b. consider consult if no improvement

Assessment & Plan

4. Mental status changes
 - a. likely due to infection vs pain medications
 - b. discuss with family tomorrow & cont to monitor
5. DM-2
 - a. uncontrolled
 - b. cont metformin 500mg bid
 - c. start sliding scale insulin
6. Hypertension
 - a. uncontrolled, hold ASA
 - b. continue enalapril 10mg QD, HCTZ 25mg QD
7. Other
 - a. continue atorvastatin, duloxetine, prednisone

Inpatient Outcome #2

- CAP not diagnosed in ED
- At risk for lactic acidosis with metformin (renal dysfunction)
- Poor pain management; medication given PRN vs scheduled
- At risk for medication errors – using unapproved abbreviations

Lapses in Continuity #2

- Clinical
 - Delayed treatment due to delayed diagnosis (possibly due to understaffing/ overcrowded)
 - Medications used with potential contraindications
 - Inappropriate treatment of pain
- Professional
 - Inappropriate use of abbreviations

Improving Continuity #2

■ Clinical

- Address staffing issues
- Educate providers and staff
 - contraindications of medications
 - Pain management

■ Professional

- Educate regarding appropriate use of abbreviations

Case Continued

10:00pm No med reconciliation done. Med orders faxed to pharmacy (incomplete); meds not transferred from ED to floor; RPH not available; pt states pain was better for a while but currently in pain; last morphine dose given 6 hours ago

10:30pm receives antibiotics (cefotaxime 1g & azithromycin po) & a dose of morphine 5mg IVP

Patient Outcomes #3

- At risk for inappropriate drug regimen as no med reconciliation done
- At risk for inappropriate drug regimen as some orders are missing
- Delayed treatment of chronic conditions and pain
- Receiving inappropriate route of Azithromycin

Lapses in Continuity #3

- Communication
 - No medication reconciliation done
 - No RPh to RPh communication
- Policy
 - No RPh available when pt transferred
- Coordination
 - Meds not transferred to floor from ED
 - No office chart available/retrieved
- Clinical
 - Inappropriate dose/route of azithromycin (

Improving Continuity #3

- Communication
 - Provide consistent medication reconciliation
 - Implement standard RPh to RPh communication
- Policy
 - Consider providing clinical pharmacist 24 hours
- Coordination
 - Develop system for transfer of meds
 - Implement EMR
- Clinical
 - Practitioner education regarding appropriate treatment of pneumonia

Day 2

7:00am family confirms recent history of cough & increased confusion 2 days ago. Also report new shoes 3 months ago

07:30am Family Medicine Pharmacist conducts full medication review and discovers that the pt cannot read

Clinical Pharmacist's Assessment

- Incomplete list of medications
- No duloxetine or metoprolol for last 3 weeks
 - Miscommunication between daughter & son
 - Likely contributed to worsening pain
- Recent poor compliance due to confusion/
low literacy
- Daughter is care coordinator

Patient Outcomes #4

- Delayed diagnosis as no family available to provide HPI
- Worsening pain as no duloxetine taken
- Worsening HTN as no metoprolol taken
- At risk for poor outcomes due to miscommunication as pt with low literacy

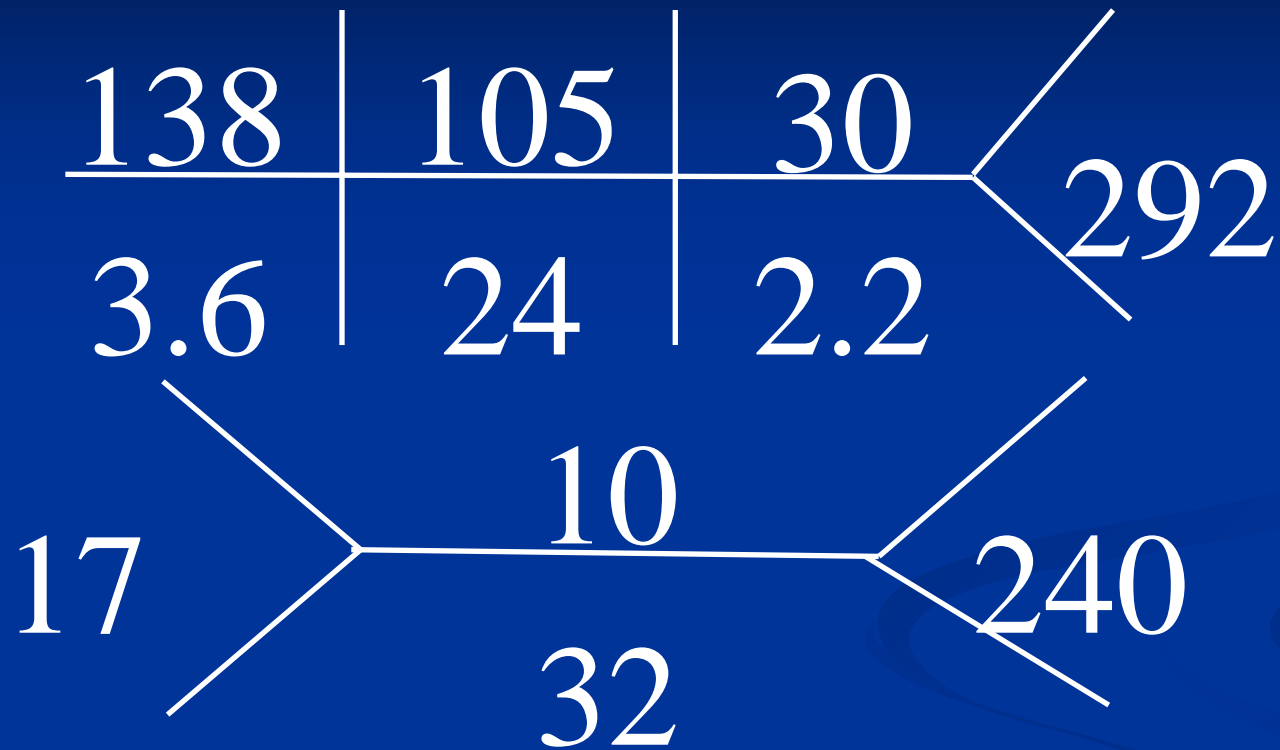
Lapses in Continuity #4

- Communication
 - History of present illness not immediately available to providers due to lack of caregivers present
 - Poor communication between family
- Patient
 - History of compliance not available
- Communication / Patient
 - Literacy not previously assessed; low literacy not communicated to health providers

Improving Continuity #4

- Communication
 - Establish family & PCP contact
 - Educate family on importance of
 - Coordinated care
 - Appropriate use of ED (not for primary care)
- Patient
 - Assess compliance at every visit
- Communication / Patient
 - Increase awareness of the prevalence low health literacy; encourage pt to disclose

Day 2 Labs



7:45am Resident writes orders to cont home meds as BP & glu are elevated. He holds the aspirin due to elevated BP & writes to restart once BP at goal.

Pharmacist Assessment & Plan

- **DAY 2 8:00am**
- hold metformin & HCTZ until SCr returns to baseline
- DM & HTN poorly controlled
 - No meds in ED – poor compliance
 - cont home meds
- Pain likely worsened due to not using duloxetine for 3 wks & recent med changes

Pharmacist's Plan cont.

- Azithromycin 500mg IV then po x 10days
- reevaluate need for prednisone & taper off if possible as there is no indication
- start enoxaparin for DVT prophylaxis
- restart NPH insulin to treat hyperglycemia.

Case continued

DAY 2

9:00am

Patient presented at morning report & all pharmacists recommendations accepted

10:00am

Patient receives morning meds but duloxetine not available due to formulary restrictions

Patient Outcome #5

- o Delayed treatment

Lapses in Continuity #5

- Policy
 - Home med (duloxetine) not continued due to formulary restrictions
- Communication
 - No communication between clinical pharmacist on floor and staff pharmacist who usually knows details of formulary restrictions and input is valuable

Improving Continuity #5

■ Policy

- Develop policy for use of home meds & address restricted formulary items
- Implementation of EMR could also identify formulary issues

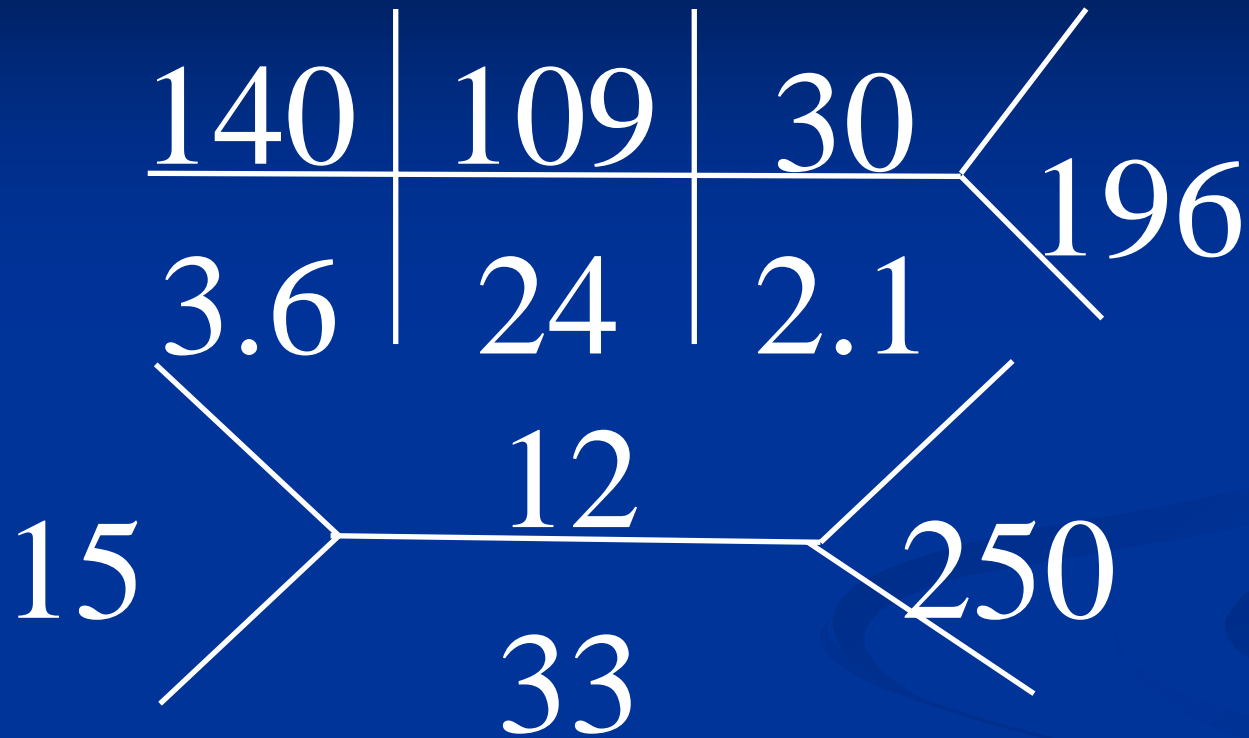
■ Communication

- Develop system where staff pharmacist knows which patients each clinical pharmacist is caring for; may facilitate communication
- Have periodic meetings to identify communication issues between pharmacists

Day 2 1:00 pm

- Attending recommends to change pain meds to fentanyl patch as this will help with compliance once discharged

Day 3 Labs



Preliminary blood & sputum cultures are negative

Day 3

- Pain worsened overnight (9/10)
- Student notices pain meds d/c'd & Fentanyl patch started
- RPh recommend to control pain with IV morphine then transition to home regimen that previously controlled pain

Patient Outcome #6

- Worsening pain

Lapses in Continuity #6

■ Communication

- Attending and/or upper level resident did not communicate appropriate method of dosing/switching to fentanyl patches to intern writing the orders

Communication / Clinical

- No discussion occurred with the pharmacist that could have prevented this error and the pharmacist did not read the note exposing the potential problem

Improving Continuity #6

■ Communication

- Improve communication with medical team
- provide education to interns regarding pain management
- Encourage discussion between medical team and pharmacists

■ Communication / Clinical

- Pharmacist to develop system for periodic review of patient notes and/or orders
- Educate team regarding kinetics of fentanyl

Day 4 Labs

140	109	29	170
3.6	24	2.0	

14	12	250
	33	

- Final blood cultures are negative
- Sputum cultures are contaminated

Day 4

- Antibiotics are continued 2 more days
- Transferred to ECF for completion of 10-day course of antibiotics
- Pt was transferred in the evening and no discharge counseling was done by the pharmacist