

**Fifteenth Annual ASHP Conference
for Leaders in Health-System Pharmacy**

**Implementing Medication-Use Systems:
Meeting Stakeholders Requirements**

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Fifteenth Annual ASHP Conference for Leaders in Health-System Pharmacy

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Christopher Urbanski, M.S., B.S.Pharm., is Director, Pharmacy Informatics and Medication Integration at Clarian Health Partners in Indianapolis, Indiana. Mr. Urbanski oversees pharmacy and medication automation system implementations and support for all Clarian facilities. He has served Clarian in an information technology (IT) role for the past 15 years, and he has been instrumental in developing, implementing, and maintaining various medication automation and information systems. He is an Adjunct Professor at Butler University College of Pharmacy and Health Sciences where he teaches pharmacy informatics.

Mr. Urbanski received his Bachelor of Science in pharmacy in 1982 and Master of Science in hospital pharmacy in 1986 from Butler University. He began his career at Riley Hospital for Children in Indianapolis where he served as both staff pharmacist and pharmacy manager.

Mr. Urbanski is the current chair of the American Society of Health-System Pharmacists (ASHP) Section of Pharmacy Informatics and Technology. He chaired the section's Advisory Group on Automation and Documentation for the past two years. He has served as Secretary, President-elect, and President of the Indiana Society of Health-System Pharmacists, Region I.

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Somers Point, New Jersey

Barbara Giacomelli, Pharm.D., M.B.A., FASHP is the Director of Pharmacy at Shore Memorial Hospital in Somers Point, New Jersey. In her position, she oversees clinical, medication safety, automation and operations for the pharmacy. She is an adjunct professor for the University of Medicine and Dentistry for New Jersey's Healthcare Administration Program. She is also a member of the hospital leadership team and actively participates on many committees and hospital projects.

Dr. Giacomelli received her Bachelor of Science in Pharmacy from the University of Connecticut and Doctor of Pharmacy from the University of Colorado. In addition, she received a Master in Business Administration from Widener University. She also completed a PGY1 residency at Newcomb Medical Center in New Jersey.

Dr. Giacomelli is a Fellow of American Society of Health System Pharmacy (FASHP). She is co-Chair of the VHA East Coast Pharmacy Council, a position she has held for the past 5 years. She was recently appointed Vice-Chair of Pharmacy Operations Automation on Pharmacy Informatics & Technology Advisory Group. She has extensive experience with pharmacy automation and technology, pharmacy operations, and medication safety. Dr. Giacomelli has given many presentations locally and nationally on the value that automation and technology brings to health care and patient safety.

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Implementing Medication-Use Systems: Meeting Stakeholders Requirements

ABSTRACT

Is medication use really managed and under pharmacy's control in your institution? In this workshop, you will explore how to assure that medication-use systems are designed to integrate the requirements of interdisciplinary stakeholders, while maintaining oversight and management by pharmacy.

LEARNING OBJECTIVES

After participating in this application-based educational activity, participants should be able to

- Determine several key requirements of systems that assure oversight by pharmacy, while meeting interdisciplinary needs for safe and efficient medication use.
- Analyze lessons learned from the implementation of medication-use technology that can assist pharmacy managers planning to evaluate and select new systems.
- Compile three key criteria for safe and effective medication-use systems.




The Changing Landscape of Health Care:
Cultivating Leadership in Health-System Pharmacy

Implementing Medication-Use Systems: Meeting Stakeholders Requirements

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What is Your Current Position? 

A. Director of Pharmacy
B. Assistant Director
C. Clinical Specialist
D. Systems Analyst
E. Other

0% 0% 0% 0% 0%

A. B. C. D. E.

Learning Objectives

- Determine several key requirements of systems that assure oversight by pharmacy, while meeting interdisciplinary needs for safe and efficient medication-use.
- Analyze lessons learned from the implementation of medication-use technology that can assist pharmacy managers planning to evaluate selected new systems.
- Compile three key criteria for safe and effective medication-use systems.

Role of Pharmacist in Medication-Use

- Pharmacists have comprehensive knowledge about safe and effective use of medications
- Pharmacists understand core pharmacy operations
- Pharmacists have knowledge to interpret clinical data
- Clinical decision support tools bring best practice information and guidelines to clinicians

Strategic Approach for Medication-Use Process

- Set priorities:
 - Feasibility
 - Potential for financial return
 - Effect on quality and safety




Strategic Approach for Medication-Use Process

- Seven dimensions of high-performance pharmacy
 - Medication preparation and delivery
 - Patient care
 - Medication safety
 - Medication-Use Policy
 - Financial Performance
 - Human Resources
 - Education

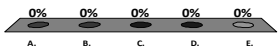
Role of Pharmacy Leadership

- Necessary to create and sustain vision and impetus for change
- Identify priority areas for improvement
- Self-assessment
- Establish short- and long-term goals
- Identify multi-disciplinary processes and issues important to organization
- Support regulatory requirements and quality mandates

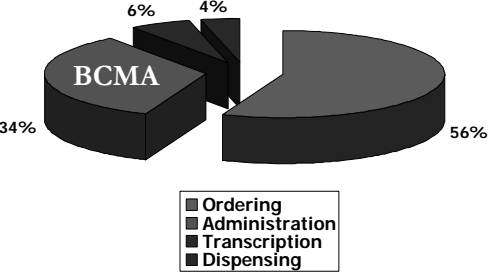
What is the percent of bar code medication administration (BCMA) implemented at your institution?



- A. 0%
- B. 25%
- C. 50%
- D. 75%
- E. 100%



Errors Resulting in Preventable Adverse Drug Events (ADE's)



Error Category	Percentage
Administration	56%
BCMA	34%
Ordering	6%
Dispensing	4%

Bates DW, Cullen DJ, Laird N et al. Incidence of adverse drug events and potential adverse drug events: implications for prevention. *JAMA*. 1995; 274:29-34.

Breakout Discussions

Case Study #1 – Bar Code Medication Administration



- Hospital has determined that bar code medication administration is safer for the patient
- Discuss approach to take if this is determined to be a priority project for hospital
- Identify key project steps to be used
- 15 minutes in small group discussions


Strategic Project Management to Increase Quality of Care

- Define scope of project
- Build team
- Foster open communication
- Analyze conflict resolution
- Break down barriers
- Realize return on investment (ROI)
- Secure buy-in from leadership
- Allocate resources to decrease cost and improve efficiency

Role of Project Management

- People
 - Administration, clinicians, physicians, staff
- Systems
 - Information systems
 - Clinical area systems
 - Benchmarking applications
- Tools
 - Templates
 - Dashboards
 - Workplans
- Disciplined approach
- Manage expectations
- Deal with politics
- Exercise leadership
- Public relations (PR) savvy
- Networking
- Address and manage change

Primary Responsibilities and Duties of Project Management

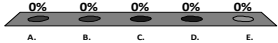


- **Tactical skills**
 - Manage scope, schedule budget
- **Strategic skills**
 - Specific objectives or activities
- **Management skills**
 - Facilitate and lead effective meetings
- **Professionalism**
 - Support team members
- **Protocol endorsement**
 - Project plan and schedule

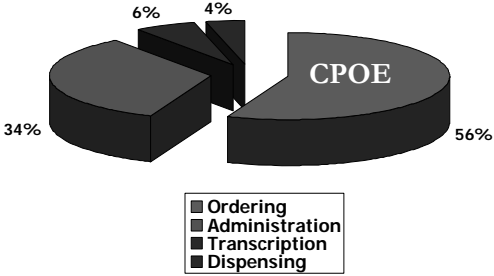
What is the percent of computerized physician order entry (CPOE) implemented at your institution?

?

- A. 0%
- B. 25%
- C. 50%
- D. 75%
- E. 100%



Errors Resulting in Preventable ADE's



Bates DW, Cullen DJ, Laird N et al. Incidence of adverse drug events and potential adverse drug events: implications for prevention. JAMA. 1995; 274:29-34.

Breakout Discussions

Case Study #2 - CPOE

- Organization wants to implement CPOE
- Discuss the role of pharmacy
- Discuss how project management could be used as framework for initiative
- 15 minutes in small group discussions



Case Study Project Management Milestones

- Engage stakeholders
- Form steering committee
- Assemble project team
- Identify physician champions (CPOE)
- System selection
- Design sessions
- Build and test
- Train
- Implementation

Medication Use System Implementations – Lessons Learned

- Evaluation and Selection of New Systems
 - Vendor selection
 - Site visits, calls with current users
 - Contract negotiation
- Project Cycle
 - Management structure and governance
 - Provide adequate resources; super-users
 - Communicate
 - Training – partially effective; build forcing functions into the system

Medication Use System Implementations – Lessons Learned

- Post-Implementation
 - Survey project team:
 - Document what worked well, what needs to change
 - Include project team and end-users
 - Incorporate changes into subsequent projects
 - Monitoring and reporting – system optimization
 - Beware of work-arounds
 - Potential to generate new kinds of errors

Features of a Safe Medication-Use System

- Safety
- Strategic planning for advancing patient safety
- Clear and obtainable consensus goals
- Medication Safety Officer
- Baseline measurement of medication errors
- Assessing progress
- Considering differences among medications, patients, and errors
- Reporting medication errors to a national database
- Failure Mode and Effects Analysis (FMEA)
- Questioning assumptions about the medication-use system
- Providing adequate resources

Kelly WN, Rucker TD. *Am J Health-Syst Pharm.* 2006;63:1461-8

Features of Safe and Effective Medication-Use Technology

- Demonstrate improved medication safety and efficiency
- Integration/interoperable
- Reputable vendor
- Promotes standardization
- Flexible design and build
- Comply with regulatory and legal requirements
- Reliable and adequate support
- Robust reporting tool/canned reports
- Supported by a downtime plan

Organizational Medication Safety Resources

- **ISMP (Institute for Safe Medication Practices) Resources**
 - High-Alert medication list
 - Confused drug name list
 - Error-Prone abbreviation list
 - Safe implementation and use of smart infusion pumps
 - Interdisciplinary safe use of automated dispensing cabinets
 - Self-assessments
 - Automated Dispensing Cabinets
 - Bar Coding Assessment

Organizational Medication Safety Resources

- **ASHP Statements**
 - Bar-Code-Enabled Medications Administration Technology
 - The Pharmacist’s Role in Informatics
- **ASHP Guidelines**
 - Remote Medication Order Processing
 - Safe Use of Automated Dispensing Devices


Organizational Medication Safety Resources

- **HIMSS (Healthcare Information and Management Systems) Topics and Tools**
 - Electronic health records
 - Clinical informatics
 - Patient safety and quality outcomes
 - Financial systems
 - Standards

Organizational Medication Safety Resources

- The Joint Commission
 - “Do Not Use” List of abbreviations
 - National Patient Safety Goals
 - Improve the safety of using medications
 - Medication reconciliation

Hooray, the system has been implemented!



But wait.... someone still has to support and maintain it...

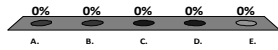
Organizational Structure for Maintenance and Support

- Pharmacy Model
 - IT resources (pharmacist analysts, technician analysts, etc.) report through Director of Pharmacy with liaison to IS (information systems) Proper
- Information Services Model
 - IT resources reside under clinical arm of IS with dotted-line reporting to department of pharmacy
- Advantages and disadvantages to both

Who do the pharmacy informatics resources report to at your institution?



- A. Pharmacy
- B. Information Services
- C. Pharmacy and IS
- D. Quality and Safety
- E. Other



Breakout Discussions

Medication-Use System Support

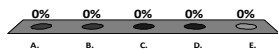
- BCMA and CPOE have been implemented;
- 3 pharmacists, 2 pharmacy technicians, and 1 nurse have been hired as the support team;
- To which department(s) should they report?
- 15 minutes in small group discussions




What is the percent of smart infusion pumps implemented at your institution?

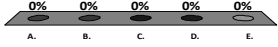



- A. 0%
- B. 25%
- C. 50%
- D. 75%
- E. 100%



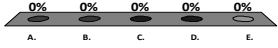
What is the percent of an electronic medical record (EMR) implemented at your institution? 


- A. 0%
- B. 25%
- C. 50%
- D. 75%
- E. 100%




What role is pharmacy playing in development and implementation of a closed-loop medication-use system at your hospital? 

- A. Pharmacy is taking the lead role
- B. Pharmacy is co-leading
- C. Pharmacy is a participant
- D. Pharmacy is not involved
- E. We don't have a project team in place yet




When making the decision to implement a closed-loop, medication-use system, what issue will influence your organization most? 

- A. Overall cost and scope of project
- B. Vendor capabilities
- C. Human resource availability
- D. IT network infrastructure issues



Implementing Medication-Use Systems: Summary

- **Safety First:** Review safety-advocacy, regulatory, and accrediting body requirements and recommendations. Pharmacy must take a leading role in examining the effects of technology and process changes on medication errors.
- Pharmacy must represent/manage at all levels and phases – Steering Committee, design workgroup, testing and user acceptance, and support maintenance.
- **System Evaluation:** Due diligence via site visit, conference calls, past experience.
- Consensus that a systems approach will be more effective than trying to change the behavior of individuals.



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CPE Session Code for this workshop:

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SELF-ASSESSMENT QUESTIONS

1. Which of the following are features of safe and effective medication-use technology?
 - a. Demonstrates improved medication-use safety and efficiency.
 - b. Flexible design and build.
 - c. Requires third-party report software.
 - d. Complies with regulatory and legal requirements.
 - e. Reliable and adequate support.
2. Conducting site visits, implementing project governance, and post-implementation surveys are examples of:
 - a. Project management milestones.
 - b. Medication-use strategies.
 - c. Project implementation lessons learned.
 - d. Failure modes and effects analysis (FMEA).
 - e. Institute for Safe Medication Practices (ISMP) recommendations.
3. Pharmacy leadership plays a key role in the development and implementation of technology related to medication use?
 - a. True.
 - b. False.
4. When determining system oversight the information technology (IT) model is the best model to ensure safe and efficient medication-use?
 - a. True.
 - b. False.

ANSWERS:

1. d
2. c
3. a
4. b

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