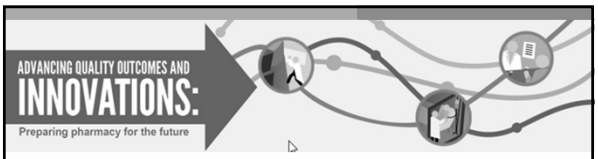


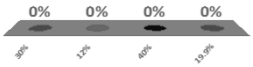
Leading the Pharmacy Workforce for the Future- Introduction

Roy Guharoy
PharmD, MBA, FASHP

Lynn Eschenbacher
PharmD, MBA, FASHP

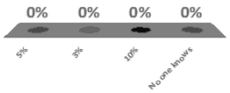
What percentage of GDP is projected for health care spending in the United States by 2022?

a. 30%
b. 12%
c. 40%
d. 19.9%



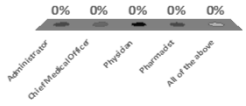
Average pharmaceutical cost in the United States is expected to grow annually by

A. 5%
B. 3%
C. 10%
D. No one knows



Which of the following are critical partners in delivering value based care

a. Administrator
b. Chief Medical Officer
c. Physician
d. Pharmacist
e. All of the above

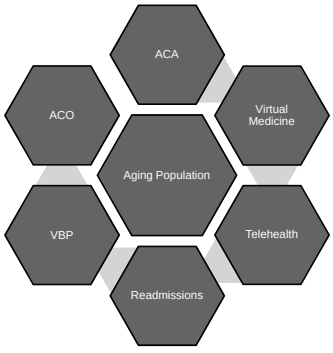


Future of Healthcare

Today's healthcare looks dramatically different than yesterday and will be different tomorrow.

- How do we prepare?
- What can we do now to be ready for tomorrow?
- How do we close the medication management process gaps in the continuum of care?
- Employees are the most valuable asset and how do we ensure they can meet the demands of a changing healthcare environment?
- How to we improve work flow to ensure health system pharmacists leading the efforts to optimize patient care outcome?
- How do we help the staff take ownership and accountability for this?

Healthcare's Changing Dynamic



Fixing Health Care on the Lines

- Key points
  - Redesign and revamp core clinical processes, organizational structures, management systems and cultures supporting them so that health care providers excel.
  - Rigorously applying scientifically established best practices for diagnosing and treating diseases that are well understood
  - Manage care (decisions, tasks, work flow crucial to optimizing care)
  - Reduce variability

Bohmer RM, Harvard Business Review 2010, April

Leading clinicians and clinical leadership

- Key points
  - Need for leadership by clinicians in organization without any formal title, authority or leadership job description
  - A shared goal
  - Work with team focusing on shared goal, population accountability, accountability and outcome

Bohmer RM NEJM 2013;368:1468-70

Developing an Effective Health Care Workforce Planning Model

- Key Points
  - Aging population and need to develop more effective and efficient workforce planning models (WPM)
    - Evaluate WPM annually
  - Organizations should closely examine their competencies that are required for every position
    - Competencies can determine the success of failure of an organization
    - If healthcare professional is competent he or she will add value to the organization
  - WPM assessment tool

http://www.aha.org/content/13/13wpmwhitepaperfinal.pdf

Retooling for an Aging America: Building the Health Care Workforce

- Key Point
  - In general, the health care workforce receives very little geriatric training and is not prepared to deliver the best possible care to older patients. Since virtually all health professionals care for older adults to some degree, geriatric competence needs to be improved through significant enhancements in education

http://www.iom.edu/~/media/Files/Report%20Files/2008/Retooling-for-an-Aging-America-Building-the-Health-Care-Workforce/ReportBriefRetoolingforanAgingAmericaBuildingtheHealthCareWorkforce.pdf

Leadership for the Future of Health Care: Acumen and Skills to Optimize Effectiveness

- Key Points
  - Leadership in health care is quickly changing.
  - Continued pressure to improve outcomes, contain costs, and meet societal health care needs demand new leadership skills to ensure success.
  - Need to develop skills for identifying and integrating signals from the health care environment, a changing work force and patient populations.

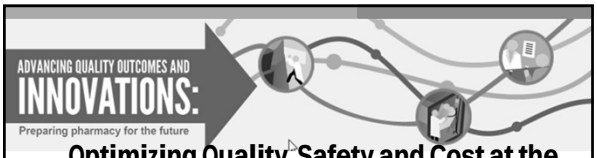
http://ashpadvantage.com/leaders2013/docs/LC13%20Handout%20-%20Leadership%20-%20Patton.pdf

Objectives

- Develop strategies and action plans for workforce competency and skills to optimize the medication management process and patient care outcomes
- Apply different methods to foster the implementation of the strategies and action plans

Today's Break Out Session

- Health-system therapeutic standardization, clinical practice guidelines for patient safety, decision support algorithms, monitoring through metrics- Didactic and Activity
- Break
- Strategic plan, determination of the competency and skills required, development of competency program using different teaching and assessment methods, and monitoring the effectiveness of the plan- Didactic and Activity
- Summary/conclusion- group participation



Optimizing Quality, Safety and Cost at the Largest Not-For-Profit Healthcare System in the United States

Roy Guharoy, Pharm.D.,MBA, FCCP, FASHP
Vice President, Chief Pharmacy Officer, Ascension Health
Clinical Professor of Medicine, University of Massachusetts Medical School

Objectives

- Describe medication use value equation and challenges in a large diverse healthcare system
- Describe strategies to implement evidence based medication use, prospective clinical monitoring and standardized safety processes across the system
- Describe role of team work to achieve accountability and associated outcomes
- Explain role of technology optimization to improve work flow process enabling the pharmacists to close medication management gaps in the continuum of care

Our Vision Calls Us to Strengthen the Catholic Health Ministry

OUR MISSION

Rooted in the loving ministry of Jesus as healer, we commit ourselves to serving all persons with special attention to those who are poor and vulnerable. Our Catholic health ministry is dedicated to spiritually centered, holistic care which sustains and improves the health of individuals and communities. We are advocates for a compassionate and just society through our actions and our words.

OUR VISION

We envision a strong, vibrant Catholic health ministry in the United States which will lead to the transformation of healthcare. We will ensure service that is committed to health and well-being for our communities and that responds to the needs of individuals throughout the life cycle. We will expand the role of the laity, in both leadership and sponsorship, to ensure a Catholic health ministry of the future.

OUR VALUES

Service of the Poor
Generosity of spirit, especially for persons most in need

Reverence
Respect and compassion for the dignity of diversity of life

Integrity
Inspiring trust through personal leadership

Wisdom
Integrating excellence and stewardship

Creativity
Courageous innovation

Dedication
Affirming the hope and joy of our ministry

131 HOSPITALS, 1,900 SITES OF CARE

HOSPITALS BY TYPE		BEDS
General Acute Care	101	18,072
Rehabilitation Hospitals	4	240
Psychiatric Hospitals	6	400
Long Term Acute Care Hospitals	3	144
Joint Venture Hospitals *(<50% ownership)*	17	1,463

SENIOR CARE AND LIVING FACILITIES		BEDS
Long Term Care/Skilled Nursing*	34	3,745
Independent and Assisted Living (not part of CCRC)	9	1,823
Other Living (HUD, other)	4	377
PACE Program Enrollees	3	726
Mobile Clinical Services		*39*
Wellness Centers		*20*
Community and Social Programs		*162*
Dispensary of Hope Sites		*82*
Other Miscellaneous Services		*123*

AMBULATORY CARE AND DIAGNOSTICS	
Ambulatory Surgery Centers	69
Occupational Health Programs	49
On-Site Employer Clinics	16
Free-standing Imaging Sites	140
Retail Lab Collection Sites	265
Primary Care Clinics	372
Retail Pharmacy Sites	42
Sleep Centers	19

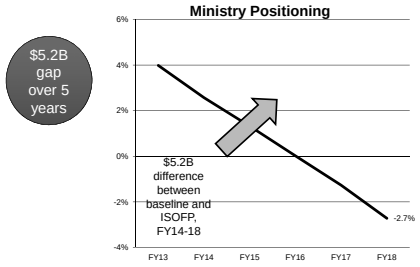
EMERGENCY SERVICES	
Urgent Care Sites	45
Emergency Medical Services (EMS)	28

POST ACUTE SERVICE	
Durable Medical Equipment	16
Home Health Services	25
Hospice Services	27
Outpatient Rehabilitation Centers	188

Perfect Storm Brewing: Our Challenge

Health Care Delivery Change Impact: Ascension Health Integrated Strategic and Operating Financial Forecast

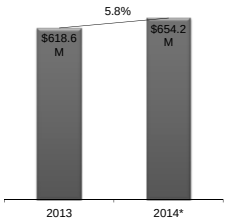
Projections of decreased utilization and rates factored into Ministry Positioning work concluded without significant cost (and revenue) transformation, 5 year period would be $5.2 billion short of goal.



Overall Drug Expenditure Status

Trend from FY2013 to FY2014

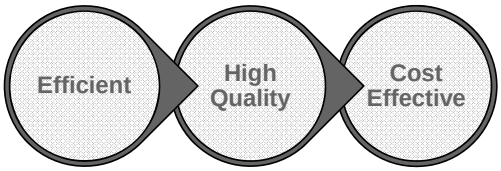
From FY '12-'13 to FY '13-'14 spend increased by $35.6M



Key Drivers		
Class	Year to Year Change	% Change
Antineoplastic Agents	$9.2M	11%
Disease-Modifying Antirheumatic Agents	$4.5M	12%
Hemostatics	$2.5M	16%
Vaccines	$2.4M	14%
Enzymes	$2.1M	118%
Thrombolytic Agents	$2.0M	20%
Antipsychotic Agents	$1.8M	16%
Dihydropyridines	$1.8M	159%
Anticoagulants	$1.8M	7%
Opiate Agonists	$1.8M	11%

* Annualized based on data through May 2014*Excludes 60 hospitals

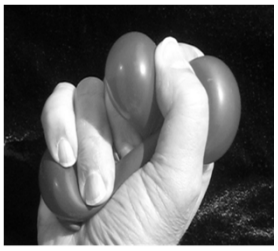
Health care Delivery Conundrum



October 14, 2014

Weak Operating Margins and Lower Patient Volumes

Squeeze the Balloon??



Comment from S&P Managing Director

"Hospitals have done a good job cutting costs to deal with declining revenues. But in the last year with the additional pressure of volume declines, it's been the straw that is breaking the camel's back.

The healthcare sector is at a tipping point where negative forces are outweighing many provider's ability to implement sufficient countermeasures."

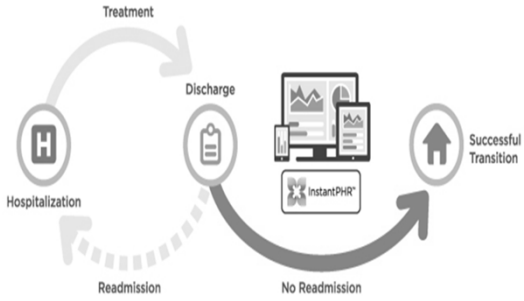
- Martin Arrick
Standard and Poor Rating Services
August 14, 2014

Strategies to Win the Conundrum

Ascension Challenges:

- Beds Ranging from 20 – 900
- Resource Challenges
- Variation in evidence based practice, safety and clinical monitoring practices

Close Loop Patient Care



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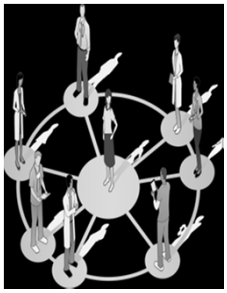
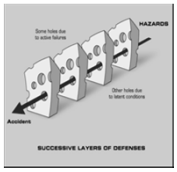
Medicine is a Team Sport: All Disciplines Impact Quality and Safety in the Medication Use Process



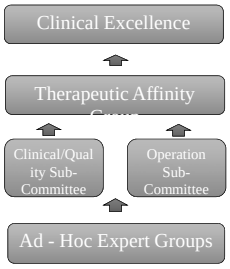
Prescribing
Transcribing
Dispensing
Administering
Monitoring



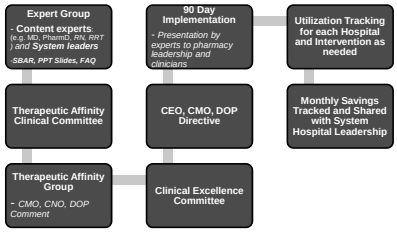
Strategy I: Therapeutic Affinity Group

Strategy I: Therapeutic Affinity Group

Charter
- **Integrated medication management process**
  - **Evidence based medicine use**
  - **Improve medication related care outcome**
  - **Reduce process related safety variance**

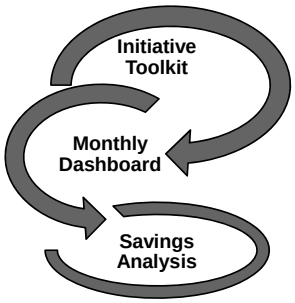


Our Evolution: Decision and Implementation Process Today



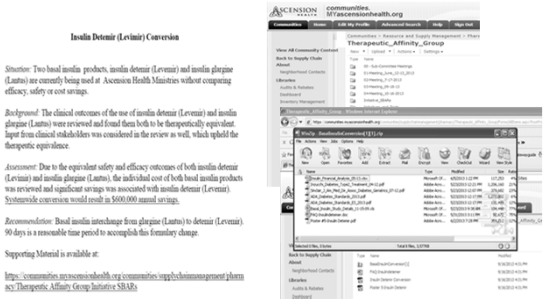
**SBAR-Situation, Background, Assessment, Recommendation; FAQ-Frequently Asked Questions CEO-Chief Executive Officer; CMO-Chief Medical Officer; DOP-Director of Pharmacy*

Evidence Based Medicine Practice



Initiative Tool Kits

Available on SharePoint



Insulin Detemir (Levimir) Conversion

Situation: Two basal insulin products, insulin detemir (Levemir) and insulin glargine (Lantus) are currently being used at Ascension Health Ministries without comparing efficacy, safety or cost savings.

Background: The clinical outcomes of the use of insulin detemir (Levemir) and insulin glargine (Lantus) were reviewed and found them both to be therapeutically equivalent. Input from clinical stakeholders was considered in the review as well, which upheld the therapeutic equivalence.

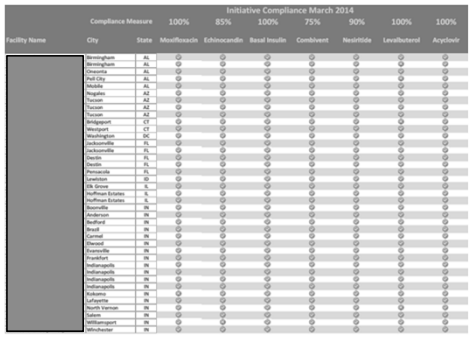
Assessment: Due to the equivalent safety and efficacy outcomes of both insulin detemir (Levimir) and insulin glargine (Lantus), the individual cost of both basal insulin products was reviewed and significant savings was associated with insulin detemir (Levemir). Systemwide conversion would result in $600,000 annual savings.

Recommendation: Basal insulin interchange from glargine (Lantus) to detemir (Levemir). 90 days is a reasonable time period to accomplish this formulary change.

Supporting Material is available at:

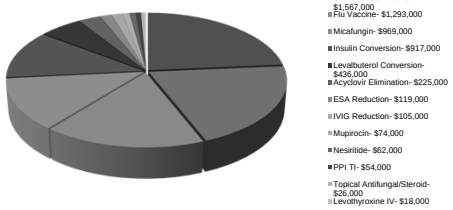
https://communities.mysscension.org/communities/supplychainmanagement/pharmacy/Therapeutic Affinity Group/Initiative SBARs

Monthly Green Red Dashboard



Savings Initiative Breakouts FY '14

- FY'13-FY '14 - $7,689,000



Therapeutic Affinity Group

Initiatives in Process

- Expected Savings: $20 million

Initiative	Initiative
Chlorothiazide intravenous	Albumin Criteria for Use
Daptomycin, Linezolid, Tigecycline Use Criteria	Hetastarch Criteria for Use
Darbepoetin inpatient use criteria	Stress Ulcer Prophylaxis Protocol
IV Immune Globulin Criteria for Use	Insulin Therapeutic Conversion
Therapeutic Approach Standardization for Emergent Anticoagulant Reversal	Darbepoetin alfa shift to outpatient setting
Bevacizumab shift to outpatient setting	Pegfilgrastim shift to outpatient setting
Rituximab shift to outpatient setting	Trastuzumab shift to outpatient setting

Initiatives Not Enough to Control Cost: Recent Trend Pharmaceutical Price Increases – Old Brand Name and Generic Drugs

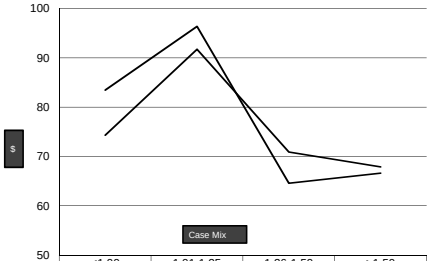
- 12 month price changes
- Annualized budget impact = $36,600,000

	WAC % Change
Branded	5.1%
Generic	8.1%

Conundrum: Balancing Cost, Quality and Safety

We Have Work To Do: Cost per Patient Day

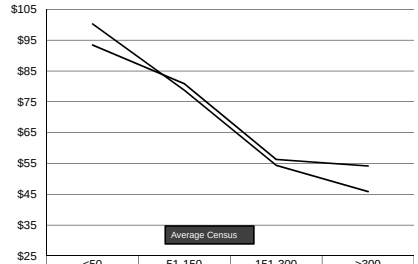
Case Mix Index Analysis



	<1.00	1.01-1.25	1.26-1.50	>1.50
2013	74	92	71	68
2014	83	96	65	67

Cost per Patient Day

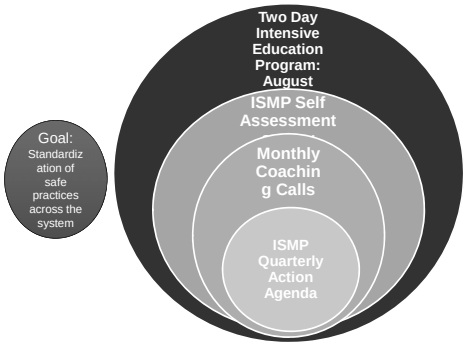
Average Census



	<50	51-150	151-300	>300
2013	$93	$81	$56	$54
2014	$100	$79	$54	$46

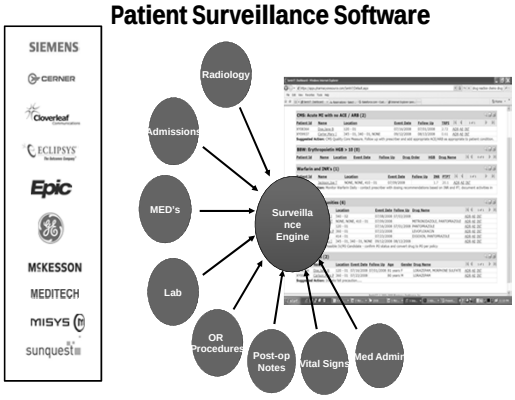
Strategy II: Partnership with ISMP

Strategy II: Partnership with ISMP

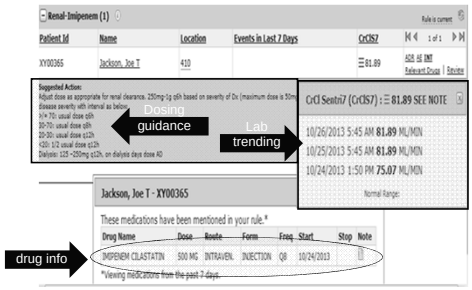


Strategy III. Clinical Decision Support System to Optimize Medication Management Outcome

Patient Surveillance Software



Clinician Decision Support:



Facilitates departure from manual, cumbersome paper-based workflow model
Easy prioritization of key clinical indicators
Enables seamless workup process where indicated

Miscellaneous Renal Monitoring: Possible Nephrotoxicity

Alert Categories

- Antimicrobial Stewardship
- Pharmacokinetic Monitoring
- IV to PO Sequential Conversion
- Medication Quality and Safety
- Clinical Initiatives
- Renal Monitoring
- Anticoagulation Management
- Core Measures

Alert Categories

Antimicrobial Stewardship

- **Bug/Drug Mismatch**
  - Rule surveys microbiology culture results in real time and detects situations in which the organism shows a resistance to the specific antimicrobial being administered to the patient
- **De-escalation/Streamlining of Therapy**
  - Rule identifies patients with a positive *Enterococcus faecalis* culture that are being treated with vancomyin or linezolid but may be candidates for a different antimicrobial agent

Pharmacokinetic Monitoring

- **Dose Optimization**
  - Rule identifies patients with elevated serum aminoglycoside trough concentrations, targeting the patient for dose adjustment to prevent nephrotoxicity

IV to PO Sequential Conversion

- **Fluconazole**
  - Rule identifies patients eligible for conversion from IV to PO therapy

Alert Categories

Medication Quality and Safety

- **Monitoring for Nephrotoxicity**
  - Rule identifies all patients on nephrotoxic medications (e.g. CISplatin, cylcloSPORINE, methotrexate, ketorolac) with an increase in serum creatinine of 25% or decrease in calculated creatinine clearance of 25%
- **Severe Sepsis - SIRS**
  - Rule identifies all patients meeting 2 or more SIRS criteria and have a lactate level of >2
- **Oral Methotrexate Dosing Verification (ISMP Best Practice)**
  - Rule identifies patients with active orders for daily oral methotrexate, prompting the clinician to verify for appropriate frequency based on indication

Renal Monitoring

- **Meperidine (Demerol)- Renal Dosing**
  - Rule identifies adult patients with an active medication order for meperidine requiring dose adjustment or discontinuation based on renal function parameter

Alert Categories

Anticoagulation Management

- **Renal Dosing Dabigatran**
  - Rule identifies all patients with reduced renal function also receiving dabigatran, prompting clinician to monitor and/or adjust the dose
- **HIT Identification**
  - Rule identifies patients with potential heparin induced thrombocytopenia (HIT) (i.e., patient with active orders for heparin or enoxaparin with platelets less than 100K or a decrease of 50%
- **Anticoagulant and Epidural - Preventing Neuraxial Bleeding**
  - Rule identifies all patients with concomitant active orders for epidural and anticoagulants medication, including oral agents (excluding heparin flush)

Alert Categories

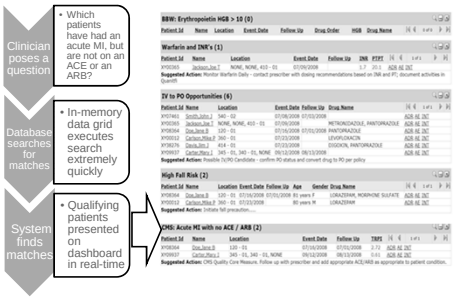
Core Measures

- **AMI no ACE/ARB**
  - Rule identifies AMI patients with no active order for an angiotensin receptor blocker or angiotensin converting enzyme inhibitors
- **AMI no Beta Blocker**
  - Rule identifies AMI patients with no active order for a beta blocker

Therapeutic Initiatives

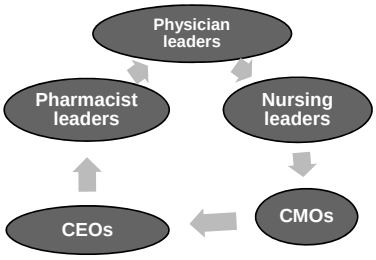
- **Moxifloxacin Therapeutic Interchange**
  - Rule identifies patients with active orders for moxifloxacin and prompts clinician to facilitate review and change in therapy to levofloxacin
- **Therapeutic Initiatives: Levothyroxine IV Dosing**
  - Rule identifies patients with active orders for Levothyroxine IV that prescribed daily for assessment to be administered every 3 days

Surveillance Aims at the Point of Care



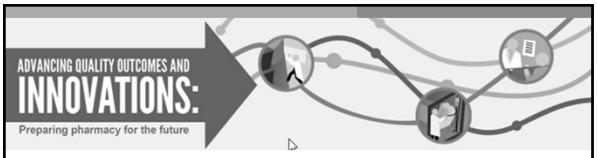
Questions or 'rules' run continuously, allowing for 24/7 viewing without extra effort by user. New rules can be created and implemented in real time.

Partnership with Stakeholders



Journey to Excellence: Lesson Learned

- Develop clear evidence based medication utilization
- Decisions based on engagement and collaboration with hospital physician, pharmacist and nursing leaders
- Support implementation locally
- Provide feedback on performance
- Partnership with national organizations to optimize adoption of best practices (e.g., ISMP, ASHP)
- Utilize technology to improve workflow efficiency enabling the pharmacists to close medication management gaps in the continuum of care
- Address the skill and resource gaps in smaller size hospitals



Leading the Pharmacy Workforce for the Future- Developing and Implementing a Plan

Lynn Eschenbacher PharmD, MBA, FASHP
Assistant Director, Clinical Services
WakeMed Health & Hospitals

Polling Question: What is the level of your competency program?

a. Extensive. Annually updated with detailed education, active learning and hands on competency assessments.
b. Moderate. Lesser variation of extensive.
c. Basic. We sign a form that we are competent.
d. None

Objectives

- Understand and apply the different teaching methods to develop competency and skills
- Understand and apply the different assessment methods to develop competency and skills
- Develop a 2-3 year process for development of staff and competency assessment to raise and change the level of competency for staff

Background

- Are there any pharmacy services you want to expand?
- Is your staff ready?
- What do you need to do to get them ready?
- How do you get them ready?
- How do you keep them competent?

WakeMed Health & Hospitals

- 870-bed, not-for-profit health care system
- The Raleigh (North Carolina) Campus is the only certified primary stroke center and Level I Trauma Center in Wake County
  - It has 575 acute beds and 84 rehab beds
- Pharmacy Services are an integrated, decentralized model with pharmacists located on the patient care areas throughout the hospital
- In addition to order entry, the pharmacists also perform anticoagulation dosing/monitoring, pharmacokinetics dosing/monitoring, patient profile reviews, rounding, antimicrobial stewardship, code response, discharge counseling and transitions of care.

Strategic Plan

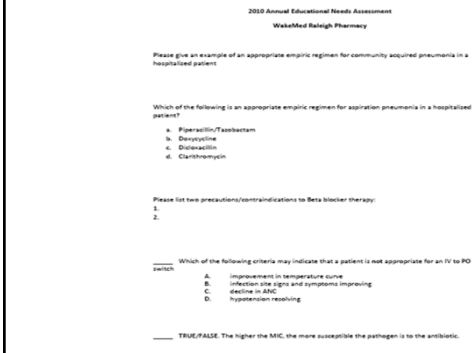
- BSC/Goals for the organization?
- Sensing sessions with Pharmacists
- Off site session
  - Clinical coordinators, specialists, residents
  - Where are you going?
  - What is important?
  - What value do you bring to the organization?
  - Set clear expectations
- Decide focus as a team = buy in
  - Vancomycin, anticoagulation, code response, TDM, ASP, TOC

Analysis of the current needs

- Need to determine which competencies and skills need development
- Baseline assessment to help determine extent of knowledge development and focus areas

Educational Needs Assessment

- Initiated in 2010
- 100% completed by all pharmacists (full time, part time, supplemental)
- 4 hour assessment completed at work
  - Cases, short answer, multiple choice, true/false
- Focus areas
  - Antimicrobials
  - Cardiology
  - IV to PO
  - Identification of drug therapy interventions
  - Hypertension
  - Stroke
  - Anticonvulsants
  - Diabetes
  - Pain Management
  - Drug information
  - Heart Failure
  - Anticoagulation
  - Pediatrics



2010 Annual Educational Needs Assessment

WakeMed Raleigh Pharmacy

Please give an example of an appropriate empiric regimen for community acquired pneumonia in a hospitalized patient

Which of the following is an appropriate empiric regimen for aspiration pneumonia in a hospitalized patient?

a. Piperacillin/Tazobactam
b. Doxycycline
c. Dicloxacillin
d. Clarithromycin

Please list two precautions/contraindications to Beta blocker therapy:
1.
2.

____ Which of the following criteria may indicate that a patient is not appropriate for an IV to PO switch

A. improvement in temperature curve
B. infection site signs and symptoms improving
C. decline in ANC
D. hypotension resolving

____ TRUE/FALSE. The higher the MIC, the more susceptible the pathogen is to the antibiotic.

Outcomes

S.H.A.P.E

- July 2011- December 2012 (dates extended for annual evaluation)
  - Stroke, Hypertension, Anticoagulation and Pain- Education
    - Stroke
      - Code Stroke and pharmacists role in responding
      - Resident led stroke topic discussion
      - One-on-one training
    - Hypertension
      - Waiting on JNC 8
    - Anticoagulation
      - Chest Guidelines update
      - Dabigatran (Pradaxa®) inservices
      - ACPE CE on-line
    - Pain Management
      - Assessment in pairs, primary literature discussion, cases and test

Educational Teaching Methods

- Didactic
- Audience Response
- Patient Cases
- One on Ones
- Peer Teaching
- Small Groups
- Flipped Classroom

Didactic

- Lecture
  - Might contain questions or a case
- Examples
  - Orientation
  - Pharmacokinetics
    - Vancomycin, Aminoglycosides
    - Phenytoin
  - Antimicrobial Stewardship
- Pro
  - Good for larger groups
  - No advanced preparation
- Con
  - Passive
  - No advanced preparation
  - Not well retained
  - No application of knowledge
  - Doesn't develop critical thinking

Audience Response

- Base of didactic
- Cases with Audience Response using mobile devices
- Feedback throughout the presentation and modify based on responses
- Example: Antimicrobial Stewardship
  - GPC in Clusters, GPC in Pairs and Chains, GNR- ESBL/Pseudomonas
- Pro
  - Good for larger groups
  - Some application of knowledge
  - Can modify based on how the group answers
  - General trends based on answers for future education
- Con
  - May not completely retain
  - Participation in answering with ARS not required
  - Not individualized or customized to each employee

Patient Cases

- Canned cases from real patient scenarios
  - Packet containing 26 different pharmacokinetic cases
  - Packet containing 20 different anticoagulation cases
- Pro
  - Real patient scenarios
  - Application of the concept
  - Development of critical thinking
- Con
  - Time to work with each employee
  - Need to save cases
  - Not in real time, more controlled environment

One on One

- Modeling, shadowing and coaching individually with each employee
- Example of focus areas
  - Pharmacokinetics, therapeutic drug monitoring, anticoagulation
- Pro
  - Dedicated individual time
  - Customized to each employee
  - Application of the concept in real world environment with support
  - Whole patient approach
  - Develops critical thinking
- Con
  - Variability between preceptors
  - Time for preceptors along with students/residents/clinical responsibilities
  - Difficulty in scheduling part time and supplemental staff
    - Consistency of staffing
  - Perception by the staff

	Training Topics	Training Objectives	Date Reviewed/ Initials	Competency Assessed Date/Initials	Comments
I.	**Antibiotics-Job Standard 3**	Verify appropriateness of dose for each antibiotic order			
		Verify appropriateness of indication for each antibiotic order			
		Verify appropriateness of duration for each antibiotic order			
		Review available culture and sensitivity information and make appropriate changes to therapy based on these results			
		Recognize appropriate circumstances to recommend an IV to po conversion			
		Identify appropriate alternatives when the drug of choice cannot be administered (i.e. allergy)			
		List appropriate monitoring parameters for antibiotic therapy			

	Training Topics	Training Objectives	Date Reviewed/ Initials	Competency Assessed Date/Initials	Comments
II.	**Anticoagulation-Job Standard 4**	Verify appropriateness of dose for each anticoagulant (i.e. warfarin, lovenox, heparin, fondaparinux) order			
		Verify appropriateness of indication for each anticoagulant (i.e. warfarin, lovenox, heparin, fondaparinux) order			
		Verify appropriateness of duration for each anticoagulant (i.e. warfarin, lovenox, heparin, fondaparinux) order			
		Indentify the appropriate therapy goal for each patient with an anticoagulant order			
		Identify and manage major drug-drug interactions involving anticoagulants			
		Appropriately manage supratherapeutic levels of anticoagulants			

	Training Topics	Training Objectives	Date Reviewed/ Initials	Competency Assessed Date/Initials	Comments
III.	**Therapeutic Drug Monitoring- Job Standard 4**	Identify the appropriate reference range for all drugs with levels to be monitored			
		Verify appropriateness of indication for drugs with levels to be monitored			
		Identify the potential consequences of sub/supratherapeutic levels			
		Appropriately manage sub/supratherapeutic levels			

	Training Topics	Training Objectives	Date Reviewed/ Initials	Competency Assessed Date/Initials	Comments
IV.	**Renal Dosing-Job Standard 3**	List 10 commonly used drugs that require renal dosage adjustment			
		Accurately assess each patient's renal function			
		Identify correct dose for each drug ordered for patients with renal impairment			

Peer Teaching

- Staff developed and presented topics
  - Pediatric staff- not originally pediatrics trained
- Recorded using powerpoint and posted on intranet
- Assessment
  - Pre and post test
  - End of year competency assessment
- Topics
  - Anticoagulation in pregnancy, appendicitis, asthma, DKA, kawaskai, neonatal sepsis, osteomyelitis, bacterial meningitis, hypertension, pneumonia, sickle cell, skin and soft tissue infections
- Pro
  - Staff involvement
  - Saved for future use and references
- Con
  - May not be the experts (reviewed by coordinator and specialist)
  - Still passive for those not teaching the module

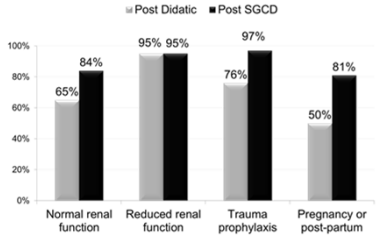
Small Groups

- Cases sent out ahead for preparation to be worked up and discussed in small groups
  - Cases were real patient cases that were identified by our ID specialist
- Small group 4-5 employees with subject matter expert
  - Aminoglycoside- pregnancy/post partum, high dose, normal and impaired renal function, and trauma
- Need to retest in 6 months and 1 year to assess retained knowledge
- 1st step to Peer Review
- Pro
  - Advanced preparation, work with the material several times
  - Active learning
  - Application of knowledge
  - Small numbers so can individualize learning
  - Development of critical thinking
  - Required participation since round robin answering
- Con
  - Time to prepare
  - Time to conduct groups
  - Employee feedback about having to prepare
  - Scheduling difficult and hard for those who missed their session

Purpose and Methods

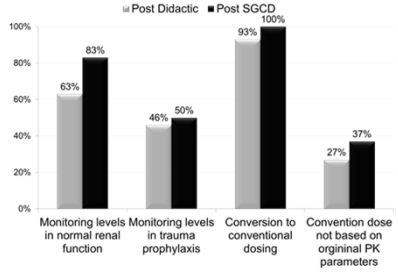
- **Purpose:** This study was completed to determine if small group case discussions increase the consistency of applying institution specific aminoglycoside dosing standards (ISADS) in different clinical situations and maintain core competencies.
- **Methods:** A single-center observational study was completed with community hospital decentralized clinical pharmacists (DCPs) employed from August 2013 to June 2014.
- In August 2013, aminoglycoside didactic educational presentations with audience response (ARS) were conducted for development of baseline knowledge
- Spring/Summer of 2014 there were 2 rounds of small group discussions to assess if DCPs retained and applied ISADS consistently across different clinical scenarios.
- Responses from the small group session 1 reflected the effectiveness of original didactic presentations with ARS, and was compared to the 2nd small group session which reflected the effectiveness of 1st small group session.
- A survey was completed to determine DCPs preferred method of continuing education.

Dosing Responses consistent with *institutional*



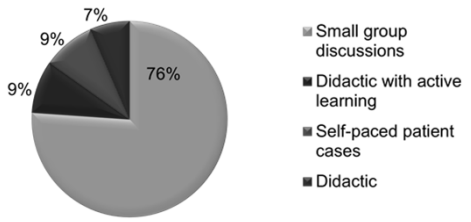
Overall responses consistent for dosing with institution specific aminoglycoside dosing standards (ISADS) increase from 71% to 89% after small group case discussion (SGCD) (p=0.0005)

Monitoring responses consistent with institutional



Overall responses for monitoring and management consistent with ISADS increased from 61% to 65% (p=0.412)

Preferred Education Method



85% pharmacists were comfortable discussing answers

Flipped Classroom

- Recent shift in curricula of professional programs in the direction of active learning
  - Active learning involves activities such as case studies, teamwork, and debates that will engage the learner at a higher level
- This method involved the students learning content on their own prior to class (recorded lecture and completed activities), and then applying that information during student-centered learning activities during class time

Flipped Classroom

- On-line lecture module prior to discussion and case application during the discussion
- Need to retest in 6 months to 1 year to determine retention of knowledge
- Pro
  - Application based, robust discussion
  - Hear and apply the material twice
  - Active Learning
  - Development of critical thinking
  - Learning from each other
- Con
  - Time to prepare by staff
  - Difficulty in scheduling staff

Study Design

- Group One received a didactic lecture on factor products (i.e., NovoSeven®, Profilnine SD®, etc) with case based discussion at the end
- Group Two received the lecture in advance and completed cases in preparation for the educational session
- Each group took the same assessment at the completion of the session and scores were compared between the two groups

Results

Result	Didactic with Cases	Flipped Classroom
Average years of practice	12 years	16 years
PGY1, PGY2, BCPS	7	8
Average comfort level with material pre	3.7	4.2
Average comfort level with material post	7.3	7.9
Preparation time 0-15 minutes	14	2
Preparation time 15-30 minutes	0	4
Preparation time 30-60 minutes	2	10
Preferred method of teaching of flipped	7	14

Results

- Similar results between groups
  - New material for everyone
  - Same cases in both groups
  - Active learning in both groups and teach to the test
  - Pretest might have showed differences
  - Dosing aid
  - Multiple choice test
- Need to retest in 6 months to 1 year to assess retained knowledge

How to demonstrate competency

- Test/assessment
- Patient cases
- Simulation
- Direct observation
- Pharmacy skills day
- Peer review

Competency Assessment Tools for Health-System Pharamcies- Lee Murdaugh 4th Edition

Adequate assessment method must:

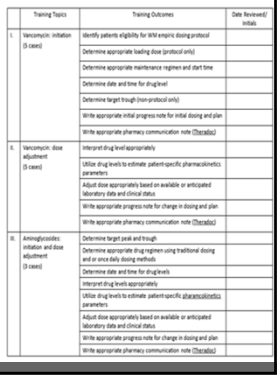
- Accurately measure the quality of the performance
- Indicate how well the person will perform similar tasks
- Reflect what the person will do in general practice
- Need to be both valid and reliable

Cognitive Test

- Written or verbal assessment of knowledge
- Need to write or use other competency assessments
- Need to decide if completed during work or take home
- Pro
  - Assessment of general knowledge
  - Relatively easy to do
  - Accuracy of measurement
  - Generalization of similar tasks
- Con
  - Some are great test takers, may not be able to apply knowledge on real patients
  - Does not indicate how well will perform in general practice
  - If take home, answers can be shared

Patient Cases

- Packet of Cases to complete
- Real time review of active patients
- Pro
  - Better application of knowledge
  - If real time, more realistic
  - How perform on similar cases
- Con
  - Time to complete
  - Canned cases- not all scenarios
  - Accuracy of measurement is variable
  - Difficult for the application to what will do in real practice if just a packet of cases



	Training Topics	Training Outcomes	Date Reviewed/ Initials
I.	Vancomycin: initiation (5 cases)	Identify patients eligibility for IRM empiric dosing protocol	
		Determine appropriate loading dose (protocol only)	
		Determine appropriate maintenance regimen and start time	
		Determine date and time for drug level	
		Determine target trough (non-protocol only)	
		Write appropriate initial progress note for initial dosing and plan	
		Write appropriate pharmacy communication note (Theradoc)	
II.	Vancomycin: dose adjustment (5 cases)	Interpret drug level appropriately	
		Utilize drug levels to estimate patient-specific pharmacokinetics parameters	
		Adjust dose appropriately based on available or anticipated laboratory data and clinical status	
		Write appropriate progress note for change in dosing and plan	
		Write appropriate pharmacy communication note (Theradoc)	
III.	Aminoglycosides: initiation and dose adjustment (3 cases)	Determine target peak and trough	
		Determine appropriate drug regimen using traditional dosing and or once daily dosing methods	
		Determine date and time for drug levels	
		Interpret drug levels appropriately	
		Utilize drug levels to estimate patient-specific pharamcokinetics parameters	
		Adjust dose appropriately based on available or anticipated laboratory data and clinical status	
		Write appropriate progress note for change in dosing and plan	
		Write appropriate pharmacy communication note (Theradoc)	

Simulation

- Examples: *Code Blue*
  Code Stroke, Code Trauma
- Pro
  - Can alter scenarios as performing
  - Not harm to real patients
- Con
  - Time
  - Resources

Direct Observation

- Face to face meeting and review with pharmacist
  - Examples: Cardiology patient compare between specialist and clinical staff pharmacist, patient counseling, review of note
- Shadowing
- Pro
  - Real time application- on the job
- Con
  - Time to complete
  - Variability if several complete as proctor
  - Hawthorne effect if shadowing

Pharmacy Skills Day

- Stations, sign off check list, remediation process
- Examples: TPN set up, vancomycin dosing, code cart checking, code stroke- TPA preparation, home medication/controlled substance storage, medication dispensing checking
- Pro
  - Short amount of time for several skills
  - Direct observation
- Con
  - Could be superficial if not well proctored
  - Limited number of scenarios

WAKEMED
ANNUAI SKILLS DAY COMPETENCY CHECKLIST
Jan-14

Department Name: Pharmacy
Job Title:
Evaluator's Name:
Evaluator's Title:
Employee Name:
Employee #:
Staff Classification (mark one): Employee: _X_ Volunteer: ____ Contract Wkr: ____

Employee Signature:
Date:

CODE KEYS:
Assessment Method: O = Observation; V = Written Test; S = Self-reported; V = Verbal Test; D = Documentation
Assessment Outcome: S = Satisfactory; U = Unsatisfactory; N = No opportunity to demonstrate; Blank = not applicable

Required Competencies	Location	Assessmt Method	Date Assessed for Assessmt Period	Evaluator Initials	If Unsatisfactory: Action to be Taken	If Unsatisfactory: Date of Next Assessmt
A. Job Specific Competencies - Not Population-specific						
All Staff						
Crash Cart Checking	Crash Cart Room	O				
Expiration Date Tracking	Packaging Room	O				
Home Med Process	PCR	O				
Baxa Compounder Set Up (IV Room Staff Only)	PCR	O				
Medication Checking	Packaging Room	O				
Technicians Only						
Math Test	Central Pharmacy	V				
Pharmacists Only						
Code Stroke	PCR	O, V				
Vancomycin Case	Central Pharmacy	V				

Peer Review

- Review of cases by peers
  - Anonymous or known
- Need selection process
  - Select own or leadership select
- Pro
  - Similar to medical profession
  - Review of actual cases
- Con
  - Uncomfortable
  - Hindsight is 20/20

Ongoing assessment and monitor effectiveness of the plan

- Determine frequency of assessment of individual skills and competency
- Determine frequency and overall monitoring of effectiveness of the entire program or service that is being provided
- Maintain documentation
- Transparency
  - Clear expectations with the staff
  - Update them on the progress and status

Activity

- Strategic planning and the assessment of needs
  - What areas are value added for pharmacist involvement and/or pharmacy to lead?
  - What competency and/or skills are needed?
- Brainstorm 3 minutes
  - List the top 3
    - Areas of focus
    - Competencies and Skills

Activity

- For each competency and/or skill which method for the education will you use from those described (didactic, audience response, patient cases, one on ones, peer teaching, small groups, flipped classroom)
  - Brainstorm 3 minutes

Activity

- What assessment method will you use for each competency and/or skill (test, patient cases, simulations, direct observation, pharmacy skills day, peer review)
- Brainstorm 3 minutes

Activity

- Develop the logistics on how you will roll this out
  - Who will teach it?
  - Who will assess it?
  - How will you document this?
  - How often conduct and assess?
- Brainstorm 3 minutes

Activity- Sharing

- Strategic plan/area of focus/area of growth
- What competencies and/or skills need to be developed?
- What education method will you use for each competency and/or skill?
- What assessment method will you use for each competency and/or skill?
- Logistics- who will teach?, who will assess?, how will you document? How often conduct and assess?