

Hosting Your Own Pharmacy Practice Model Initiative (PPMI) Summit

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I have no actual or potential conflicts of interest to disclose.

Learning Objectives

- Explain the methodology used for developing the guiding principles of pharmacy practice and further refinement through an institution specific Pharmacy Practice Model Initiative (PPMI) Summit.
- Discuss strategies taken to enlist the support of pharmacy, medical, nursing, and hospital leadership during the proposal of a pharmacy practice model transformation.
- List specific steps that can be taken to ensure appropriate skills and competencies are met by the department for implementation of a patient-centered integrated practice model.

Which of the following statements best describes your level of familiarity with ASHP's hosted PPMI Summit?

1. Not at all familiar
2. I am only a little familiar
3. I am moderately familiar
4. I am very familiar
5. I was invited and attended

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Countdown

PPMI Background

- Development of a future practice model to significantly advance the health of patients
- Objectives:
 - Create a framework
 - Determine services
 - Identify emerging technologies
 - Develop a template
 - Implement change
- Three major components
 1. Hospital and Health-System PPMI Summit
 2. Social Marketing Campaign
 3. Demonstration Projects

Hospital and Health-System PPMI Summit

- November 7-9, 2010 | Dallas, Texas
- 109 invitees participated
- 174-item questionnaire
- 147 points of consensus reached
 - Guidance for further development of the PPMI
 - Assist with practice model change initiatives

Institution Specific PPMI Summit



- Rush University Medical Center (RUMC)
- Chicago, IL
- 676-bed tertiary care academic medical center
- Clinical-specialist-centered model

Institution-specific guiding principles of pharmacy practice:

1. should be created by the hospital's Director of Pharmacy.
2. are outlined by the ASHP sponsored PPMI Summit consensus statements.
3. should be developed as a collaborative effort by pharmacists and pharmacy technicians.
4. do not pertain to healthcare disciplines outside of pharmacy in the hospital.

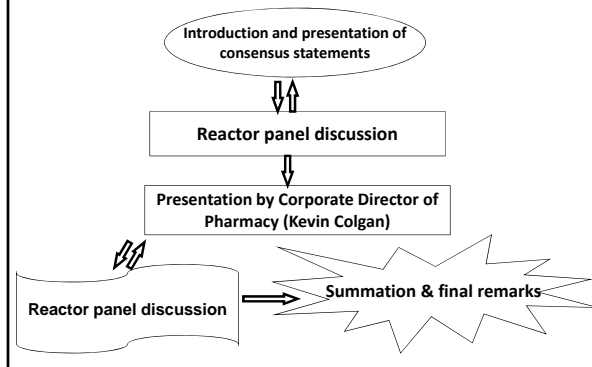
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Countdown

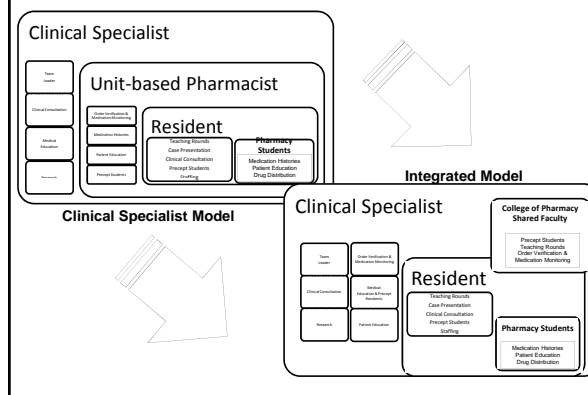
RUMC Capstone Conference

- Evening of March 10, 2011 at RUMC
- Purpose: **to discuss future change in the pharmacy practice model and how it will impact the health-system**
- Invitation extended to:
 - Pharmacy department
 - Medical and nursing leadership
 - Upper management
- Reactor panel to discuss pre-selected guiding principles

RUMC Capstone Conference



Pharmacy Practice Model Transformation



Timeline of Events

- January 1st – Guiding principles in development.
- January 17th – Survey Monkey distributed to the department.
- January 25th – PPMI Summit.
- March 25th – Capstone Conference.
- June – Guiding principles hung around the department.
- **Implementation of a new pharmacy practice model at RUMC is presently ongoing.**

Ensuring Competency

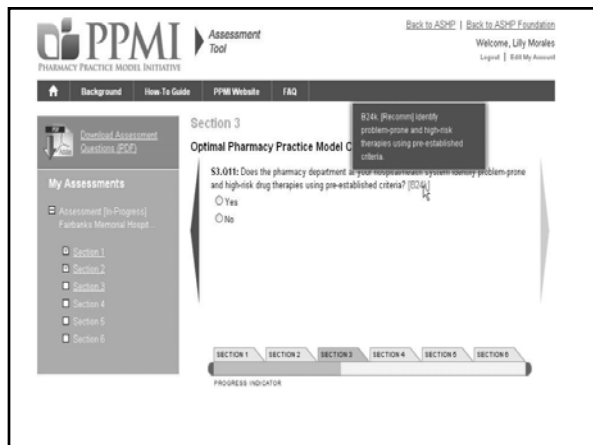
- Residency training versus no residency
 - Peer review
- Clinical experience
- Board certification
- Pharmacy technician certification
- Case-based examination
 - PharmPrep
 - Internally developed cases

Implementation & Competency



ASHP PPMI Hospital Self-Assessment

- 106 questions assessing adoption of PPMI recommendations
- Collaborative responses encouraged
- Creates an action plan for your hospital
- Prioritizes your action plan based on feasibility and impact of implementation
- Creates a national dashboard
- Goes live in late September 2011



Hosting Your Own PPMI Recommendations

- Have a sound operational strategy
- Engage the staff early to enlist support
- Communicate with *all* members of the institution
- **“The benefits of a successful model far outweigh the risks of inaction.”**
– Scott Knoer, Pharm.D.

Acknowledgements



Kirk Dennis, PharmD
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Karyn Zyvan, PharmD

References

1. American Society of Health-System Pharmacists. Executive summary. *Am J Health-Syst Pharm.* 2011;68:1079-85.
2. American Society of Health-System Pharmacists. Pharmacy Practice Model Initiative (PPMI). Available at: <http://www.ashp.org/PPMI>. Accessed August 1, 2011.
3. Woods TM, Lucas AJ, Robke JT. Making a case for a patient-centered integrated pharmacy practice model. *Am J Health-Syst Pharm.* 2011;68:259-63.
4. American Society of Health-System Pharmacists. The consensus of the Pharmacy Practice Model Summit. *Am J Health-Syst Pharm.* 2011;68:1148-52.
5. American Society of Health-System Pharmacists. PPMI Hospital Self-Assessment Tool. Available at: <http://www.ppmiassessment.org>. Accessed August 18, 2011.
6. Knoer S. Strategies for success in implementing practice model change. *Am J Health-Syst Pharm.* 2011;68:1146.

Which of the following is an optimal way to enlist the support of medical, nursing, and hospital leadership during the proposal of a pharmacy practice model transformation?

1. Extend invitations to leadership in each discipline to attend and provide feedback at a joint conference.
2. Host a private PPMI Summit for each discipline that displays interest in the transformation of the pharmacy practice model.
3. Send an email out to the entire institution outlining the planned changes by the pharmacy department and the date when transformation will occur.
4. Provide a list of *cons* associated with the proposed transformation and request they fix the negative attributes.

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Countdown

Which of the following statements is accurate when ensuring appropriate skills and competencies are met by the department for implementation of a patient-centered integrated practice model?

1. Pharmacists without residency training should remain in distributive roles because their clinical competency is difficult to validate.
2. Pharmacy technicians are exempt from evaluation of appropriate skills because their roles remain the same in most pharmacy practice models.
3. No confirmation of skills is needed as long as the pharmacist is licensed within the respective state to practice pharmacy as a clinical specialist.
4. Residency training, board certification, and clinical experience warrant consideration when ensuring one's skills and competencies.

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Countdown

Contact Information

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Students Ex.T.En.D. !

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Disclosure

- *I have no relationships, financial or otherwise, or any other form of conflicting interest to disclose relating to the content of this presentation.*

Learning Objectives

1. Recognize how pharmacy students can be optimally engaged and integrated into practice.
2. Identify challenges and benefits associated with this education/practice goal.

Who Are We?



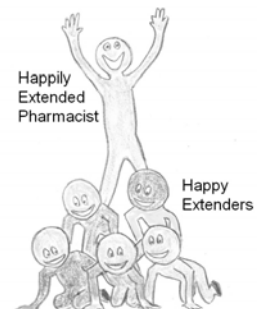
1. Pharmacist
2. Pharmacy Student
3. Pharmacy Technician

Preceptors Needed Now!

- Rising demand for qualified pharmacist preceptors
 - increasing number of pharmacy schools and enrollment
 - increased experiential load in pharmacy school curricula
- Meanwhile rising workload demands compete with precepting...



Rescued by Pharmacist Extenders?

- Pharmacy Practice Model Initiative
 - Themes relevant to the design of practice models:
 - “Use of **residents and students as pharmacist extenders**”



ASHP Proceedings of the Pharmacy Practice Model Summit. Accessed online at: <http://www.ashp.org/DocLibrary/PPMI/PPMI-Summit-Proceedings.aspx>

Your Take on Pharmacist Extenders?

1. I can't wait to be a pharmacist extender! 
2. I can't wait to be an extended pharmacist! 
3. None of the above

Students Ex.T.En.D. !

*Students
Experiencing
Total Engagement
Develop !*

Totally Engaging Students

- Total immersion
 - Total integration
 - Total experience

Today's Program

- NMH Drug Information student rotation
- ICHP Student Preceptor Survey
- Improving your rotation
 - Confronting the challenges
 - Reaping the benefits
- Feedback and what's in it for you

NMH Department of Pharmacy

- Northwestern Memorial Hospital
 - 870 bed teaching hospital
 - 159 Pharmacy FTEs: 75 pharmacists, 84 techs
- Education
 - 6 PGY1 residents, 3 PGY2 residents
 - 120 APPE student rotations/year:
 - Administration, Critical Care, Drug Information, HIV, Infectious Diseases, Medicine

Department Education Support

- Students and structured daily noon sessions
 - Journal article presentations
 - Case presentations
 - Topic presentations
 - PGY1 and PGY2 presentations

NMH Drug Information Center

- DI manager and staff:
 - 1 FTE pharmacist (Drug Information)
 - 1 FTE pharmacist (Investigational Drugs)
- Operation: Weekdays
- Primary mission: serve needs of NMH care providers and patients
- Key Drug Information Functions
 - Support P&T Committee activities
 - Respond to questions from NMH staff, patients
 - Provide education to residents and students

DI Education

- Rotation for PGY1 (required) and PGY2 residents (optional)
- Experiential rotation for students from colleges of pharmacy
 - Relationship with 5 COPs (Butler, Creighton, Purdue, SIUE, UIC)
 - Past 36 months: 64 students

DI Center Student Roles

- Responding to inquiries
- Support Pharmacy and Therapeutics Committee
 - drug / drug class reviews
 - off-label use reviews
 - DUEs
 - drug shortages monitoring
 - drug policy, guideline, protocol, CPOE order set development

DI Center Student Involvement

- Students' contributions (recent 12 months)
 - 332 documented information responses
 - 19 specific P&T works (DUEs, drug monographs or evidence reviews)
 - 23 P&T update handouts
- Important that students see their contribution is meaningful

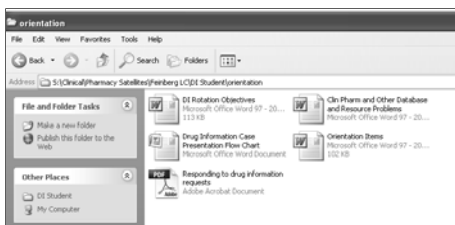
Site Orientation

- Site assets:
 - Co-preceptors
 - Sufficient computer resources
 - Information resources – access to databases, full text books and journals subscriptions
- Quick, systematic, standardized, structured orientation

Goals/Objectives

- Offer a simple goal statement that best condenses rotation's value to the student:
 - *At the end of this rotation, students should have improved confidence in using drug and medical information resources, and improved ability to critically evaluate and communicate findings.*
- Provide set of rotation objectives

Structured Orientation



Orientation Checklist

Resource	URL / Comments
NHJH internet shortcuts	DI Activities (to see what's coming up and tracking of our activities) http://nhjhnet.com/ug/ug/academic/STUDENTS/PHARMACY/STUDENT_RESOURCES/STUDENT_RESOURCES_TRACKING.HTM
Drug info links	http://nhjhnet.com/ug/ug/academic/STUDENTS/PHARMACY/STUDENT_RESOURCES/STUDENT_RESOURCES_TRACKING.HTM Pharmacy Home page http://nhjhnet.com/ug/ug/academic/STUDENT_RESOURCES/STUDENT_RESOURCES_TRACKING.HTM
FDA's CDER Mailing Lists * Can't open	Go to https://services.fda.gov/fda/submit/subscribe.htm and enter your email address and you can pick options like the following below: • CDER/ENVI • Drug Shortages • MedWatch
National Guideline Clearinghouse?	To subscribe to NCG's weekly online newsletter, follow the directions in the How to Subscribe section at http://www.guideline.gov/subscribe/subscribe.aspx
MedlinePlus E-mail Lists *	Go to http://www.nlm.nih.gov/go/medlineplusletters/clinical.html
MD Consult *	http://www.mdconsult.com/enterprise.asp?Shopt=1
UpToDate Online	Confirm you have online access to the resources of your college at its library http://www.uptodateonline.com/enterprise.asp?Shopt=1
GaHer Health Sciences Library	http://www.gaher.northwestern.edu/guides/3drug/index.cfm
Pubmed	http://www.ncbi.nlm.nih.gov/pubmed/
Clinical Pharmacology	http://nhjhnet.com/ug/ug/academic/STUDENT_RESOURCES/STUDENT_RESOURCES_TRACKING.HTM IMPORTANT FEATURE: Look up several of these examples. In the section Form Checker you will find a statement about NMEI Formulary status. In addition, some drugs will have special restrictions notes for examples of drugs with special restrictions notes look at amphetamine, ceftriaxone, ceftriaxone, promethazine, Amoxicillin, Amoxicillin, Cymbalta, Valproic, Traxolol, Exuber, Xigol, Cubicin, NovolSeven, Anisita, Vitodan, Talsyn, or Percocet. To see examples of notes providing special information, look at intralipid 20%, Leosyn 20%, Zeftron, V20, benzocaine or Cetacaine.

Precepting Approach

- Set work pace and interaction dynamic
- Model behaviors for desired performance
- Give sufficient one-on-one contact time
- Work alongside periodically (be there)
 - Teachable moments abound
- Group discussions/techniques
- Provide examples – make the abstract real
 - handouts, comparison templates, searching tools

Template Examples

- Checklist for Systematic Retrieval of Information for P&T Reviews
- Drug monographs
- Drug class, side-by-side comparison reviews
- Off-label use evidence reviews
- DUE summaries
- P&T updates

Checklist for P&T Reviews

TEMPLATE VERSION 8-2-2011 INFORMATION RETRIEVAL CHECKLIST FOR: (Brand name) / (Generic name) Manufactured by:		
<p>Review requested by: (physician name and specialty)</p> <p>Date requested:</p> <p>For this or these FDA-approved uses: And/or for this or these off-label uses:</p> <p>Check off: Date: Time:</p>	<p>Action item, background and search tips</p> <p>Reasoning for seeking this information is in search:</p>	<p>Possible location/source (past examples) and additional search tips</p> <p>Enter actual internet link to reach target into a any computerized excerpt - when appropriate - if excerpt is too large for cell, insert complete direct link copy/paste immediately into the space provided after the new. If you have also downloaded a full text version, insert a link to that file.</p> <p>ALSO INDICATE DATE ACCESSED AND IN ADDITION TO DIRECT LINK INCLUDE COMPLETE CITATION OF THE SOURCE DOCUMENT</p> <p>Print findings, including search strategy into space at this link: XXXXXXXXXX</p>
<p>Conduct PubMed literature search with a priority on double blinded randomized controlled trials with double or active drug comparison groups.</p> <p>Published</p> <p>Case reports, letters open-label clinical trials, review articles may also be collected, but should be kept separate from the RCTs - use tabs and files properly to maintain control of search findings and separate them.</p> <p>For major RCT findings that do not include this information: to calculate the number needed to treat (NNT) and number needed to harm (NNH).</p> <p>For more on NNT, see the following resources: http://www.medicines.usda.gov/medwatch/2007/02/07/070202a.html</p>		

Excerpt

Drug Monographs

Pharmacy & Therapeutics Committee New Drug Review Dabigatran etexilate mesylate (Pradaxa®)	
<p>Questions for Committee Consideration</p> <ol style="list-style-type: none"> 1. What is the projected annual volume of patients to be treated? 2. Is there evidence to support any off-label use? Restrictions to prescribers? <ul style="list-style-type: none"> • What process will be used to assess off-label use? 3. Boehringer Ingelheim has implemented a REMS to inform patients of risk of harm. How will prescribers meet the requirements of this REMS? <ul style="list-style-type: none"> • Do various insurance plans such as Medicare and Medicaid cover dabigatran? Will they cover dabigatran for off-label uses? Should NHJH initiate dabigatran in patients who cannot afford to continue outpatient treatment? 4. Is additional Committee review necessary? <ul style="list-style-type: none"> • If Formulary implementation occurs before PowerChart order sentences are created how will prescribers ensure safe use before automated systems supports are in place? • Are there other systems issues to be addressed? 	
<p>Generic Name / Trade Name</p> <p>Manufacturer</p> <p>FDA Approval Date</p> <p>Approved Labeling</p> <p>Contraindications</p>	<p>dabigatran etexilate (Pradaxa®) capsules Boehringer Ingelheim Pharmaceuticals, Inc. October 2009, 2010</p> <p>http://www.accessdata.fda.gov/drugsatfda_docs/label/2010/022512s/000a1.pdf</p> <p>Indicated to reduce the risk of stroke and systemic embolism in patients with non-valvular atrial fibrillation.</p> <ul style="list-style-type: none"> • Active pathological bleeding • History of serious hypersensitivity reaction to dabigatran
<p>Background</p>	<p>For years, warfarin has been the only effective oral anticoagulant to prevent and treat thromboembolism. Its clinical use is limited by a narrow therapeutic window, extensive drug interactions, need of strict dietary control and frequent monitoring. The pharmacological response can be unpredictable and highly variable among patients and suboptimal anticoagulation can lead to detrimental thromboembolic events or life-threatening bleeding. The approval of dabigatran etexilate represents a new class of anticoagulants, the direct thrombin inhibitors, which may offer some advantages over warfarin. Dabigatran has been approved for thromboprophylaxis following hip or knee replacement surgery in Europe, Canada and the United Kingdom. Recently it was approved in the United States to reduce risk of stroke and systemic embolism in patients with non-valvular atrial fibrillation. (adapted from Terry K. O. Pharmacology & Therapeutics 2010)</p>

Excerpt

Side-by-Side Comparisons

Excerpt

Eliquis™	Pravastatin
Generic Name apixiban hydrochloride Manufacturer Eli Lilly and Co. Approved Labeling http://www.fda.gov/oc/ohrt/efile.pdf FDA Approved Indications <ul style="list-style-type: none"> indicated to reduce the rate of thrombotic cardiovascular events (including stroke/thromboembolism) in patients ACO who are to be managed with percutaneous coronary intervention (PCI) as follows: <ul style="list-style-type: none"> Patients with unstable angina (UA) or non-ST elevation myocardial infarction (NSTEMI) Patients with ST elevation myocardial infarction (STEMI) when managed with primary or delayed PCI Approved by FDA: 2009	Generic Name rosuvastatin calcium Manufacturer Novartis Pharmaceuticals Corporation Approved Labeling http://www.accessdata.fda.gov/drugsatfda_docs/label/2008/020822Orig1s01.pdf FDA Approved Indications <ul style="list-style-type: none"> indicated for the reduction of atherosclerotic events as follows: <ul style="list-style-type: none"> Recent MI, Recent Stroke or Established Peripheral Arterial Disease <ul style="list-style-type: none"> For patients with a history of recent myocardial infarction (MI), recent stroke, or established peripheral arterial disease, PLAVIX has been shown to reduce the rate of a combined endpoint of new ischemic stroke (fatal or non-fatal), non-fatal MI (fatal or non-fatal), and other vascular death. Acute Coronary Syndrome <ul style="list-style-type: none"> For patients with non-ST segment elevation acute coronary syndrome (unstable angina pectoris or non-ST segment elevation myocardial infarction) who are to be managed with percutaneous coronary intervention (with or without stent) or CABG, PLAVIX has been shown to decrease the rate of a combined endpoint of cardiovascular death, MI, stroke, or revascularization. For patients with ST segment elevation acute myocardial infarction, PLAVIX has been shown to reduce the rate of death from any cause and the rate of a combined endpoint of death, reinfarction or stroke. This benefit is not known to pertain to patients who receive primary angioplasty. Approved by FDA: 1997
Therapeutic Class and MOA Therapeutic Class: Thrombolytic MOA: The active ingredient inhibits the binding of adenosine diphosphate (ADP) to its platelet P2Y ₁₂ receptor and the subsequent ADP-mediated activation of the glycoprotein GPIIb/IIIa complex, thereby inhibiting platelet aggregation.	Therapeutic Class and MOA Therapeutic Class: HMG-CoA reductase inhibitor MOA: The active ingredient inhibits the binding of adenosine diphosphate (ADP) to its platelet P2Y ₁₂ receptor and the subsequent ADP-mediated activation of the glycoprotein GPIIb/IIIa complex, thereby inhibiting platelet aggregation.

DUE

Excerpt

Pharmacy and Therapeutics Subcommittee
Drug Utilization Evaluation: Intravenous N-acetylcysteine

Background: Acetylcysteine is the N-acetyl derivative of L-cysteine available in inhalational and parenteral dosage forms.

FDA approval/indication (parenteral):

- Prevention or lessening of hepatic injury after acetaminophen overdose

Off-label uses (as requested in "orders," "add'l orders," "refills," "orders to be stopped")

- hepatotoxicity prophylaxis against radiographic contrast-induced nephrotoxicity in renal function (CrCl) < 30
- Acute Liver Failure (ALF) (non-acetaminophen overdose)**
- Septic occlusive disease (SOD)
- Death versus non-death (SOD)

Current Formulary Status: **Anti-toxicity by indication for acetaminophen overdose.** Intravenous N-acetylcysteine (IV NAC) is the first choice and the evaluation preparation should be used only when the IV NAC is not available. Capsules should NOT be used for acetaminophen overdose.

DUE Methods: A retrospective chart review was conducted to determine the FDA approved and off-label indications of IV NAC. The NWH pharmacy database was searched for IV NAC orders from the 12-month period of September 2010-April 2011. A total of 61 patients were identified with 128 individual orders for the report. Review chart notes were reviewed to determine indications for use as well as evidence of hepatotoxicity reactions and other regimen activity. IV NAC orders for indications "other" than those initially identified for potential off-label uses, were noted for review.

Results:

Indications (n=128): IV NAC use was as follows in descending order: acetaminophen overdose (26) 20%, non-acetaminophen acute liver failure (23) 22%, "other" indications (33) 26%, CrCl (7) 5%, GVHD (6) 5%, liver transplant (6) 5%, occlusive disease (6) 5%.

Fig. 1. Indication Frequency for IV NAC listed in descending order

P&T Update

Excerpt

Northwestern Memorial Hospital Pharmacy & Therapeutics Committee July-August, 2011

Note: This information update has been compiled for review by the Northwestern Memorial Hospital Pharmacy & Therapeutics Committee to help support decision making about drug use. This is not a summary of Committee actions or approvals.

July - August, 2011

	<p>SAFETY WARNINGS, ADVERSE EFFECTS & LABELING CHANGES/SAFETY WARNINGS, ADVERSE EFFECTS & LABELING CHANGES/PRODUCT COMPANY</p> <p>Below as of 8-02-2011. Also see: http://www.fda.gov/oc/ohrt/efile.pdf for the most current safety information. Safety Alerts/Adverse Effects/Products of Interest, Drug Safety Alerts, Drug, Biologics, Medical Devices, and Dietary Supplements and http://www.fda.gov/oc/ohrt/efile.pdf for more safety labeling changes approved by FDA's Center for Drug Evaluation and Research (CDER).</p> <p>In addition, http://www.fda.gov/oc/ohrt/efile.pdf has quarterly reports listing potential signals of serious risks to safety information that were identified in the Adverse Event Reporting System database during the indicated quarter.</p> <p>July 26, 2011: FDA has received reports of serious central nervous system reactions when this anticholinergic drug is given to patients taking serotonergic psychiatric medications. A list of the serotonergic psychiatric medications that can interact can be found in the Drug Safety Communication. Safety information about this potential drug interaction and important drug usage recommendations for emergency and non-emergency situations are being added to the drug labels for serotonergic psychiatric medications and lorazepam.</p> <p>July 26, 2011: FDA has received reports of serious CNS reactions when the drug is given to patients taking serotonergic psychiatric medications. A list of the serotonergic psychiatric medications that can interact can be found in the Drug Safety Communication. Safety information about this potential drug interaction, important drug usage recommendations for emergency and non-emergency situations are being added to the drug labels for serotonergic psychiatric medications.</p> <p>Details are at: http://www.fda.gov/oc/ohrt/efile.pdf</p> <p>July 21, 2011: FDA notified health care professionals that it is reviewing data from a clinical trial that evaluated the effects of the drug in patients with persistent atrial fibrillation. The study was stopped early after the data monitoring committee found a two-fold increase in death, as well as two-fold increases in stroke and hospitalization for heart failure in patients receiving Miltig compared to patients taking placebo.</p> <p>Details are at: http://www.fda.gov/oc/ohrt/efile.pdf</p>
Zynexia (clonidine) tablets, oral solution, injection	
Pfizer US Pharmaceuticals	
earlytime blue injection	
Lupin Pharmaceuticals	
Miltig® (donepezil) tablets	
Novartis	

DI Query Tool

Excerpt

General	AD/Drug Interactions	Pregnancy & drug use	Allergy	New Drug approvals
<ul style="list-style-type: none"> In patient or out-patient? In patient in office with you now? Expected duration of treatment Establish timeline of events as necessary Get office number too, if only give fax number Pt age, weight sex, allergies Diagnoses and medical problems Lab tests? Renal/Hepatic function Dietary Factors Do I know enough about the underlying condition? & usual management? Anticipate reasonable spin-off questions 	<ul style="list-style-type: none"> Screening or Occurrence? All needs to complete dose regimen? All OTC's & supplements Chronology of drug use or event occurrence dose change All disease states and implications Ask them to state their preferred alternate drug DI + PPK & PD AD/Consider need to report to MEDWATCH 	<ul style="list-style-type: none"> What trimester of pregnancy? Is medication necessary for treatment of condition? Expected duration of therapy? Other conditions or pregnancy-induced questions 	<ul style="list-style-type: none"> What type of "reaction"? How long ago was reaction noted? What other allergies? (food, drug, etc.) What needs have been given without problem in related category? If DOC is what is required, is there a declassification method? 	<ul style="list-style-type: none"> Where did you hear or see this? What is the drug claimed to be used for?
<ul style="list-style-type: none"> Where is the patient? Is this an outpatient? - If so, refer them to the Illinois Poison Control @ 1-800-771-7111 	<ul style="list-style-type: none"> How old is the patient? Weight, height, BSA? Renal function? Liver function? 	<ul style="list-style-type: none"> What is the level of the drug? When was the last dose? When did the patient take the last dose? When was the last dose? 	<ul style="list-style-type: none"> History on previous or C/N? Daily frequency and duration 	<ul style="list-style-type: none"> Foreign Drug Identification In name spelling taken from package or Rx vial or is it based on patient recall? Obtained in what country? Did they get it Rx or OTC? If foreign packaging - who is the manufacturer? What is the drug claimed to be used for? (Was the patient told to take it for?)
<ul style="list-style-type: none"> Drug or Substance Overdose 	<ul style="list-style-type: none"> Dosing 	<ul style="list-style-type: none"> Drug Levels - Kinetics 	<ul style="list-style-type: none"> Dish-in 	<ul style="list-style-type: none"> Dose Form Changes

DRUG INFORMATION CASE PRESENTATION PROCESS:

Excerpt

1. Present the question as first stated by the caller.
2. Mention the clarifications you requested and additional information that you asked for. Re-state the question after it was further clarified.
3. Discuss the search plan you intended to follow before you started your search.
4. Talk through the actual steps of your search.
 - Discuss the search terms used and why (for PubMed and when using a web browser like Google)
 - Include findings you stumbled upon and others you intentionally sought.

Note: How you found things and the steps and stumbles into them are as important in the case as what you found. These are often the most important take away points so they should be covered.
5. Cover the relevant findings of your search that pertain to the question. List both the pertinent negative as well as pertinent positive findings.

VERY Briefly describe the utility/purpose of the resources you used (ex: Scirus, PubMed, LexiComp) along with the findings.

Oversight and QA

- Students have active, guided role in solving drug-related problems
- Direct observation of students
 - Witnessed interactions
 - Speaker phone settings for some calls
- Review of student work
 - E-mail communication previews
 - Drug information activity documentation

DATE	INQUIRER	SPECIALTY	INQUIRER STATUS	NSM AFFILIATED?
INQUIRER'S PHONE #	PAGE #	FAX #	MAIL OR CAMPUS ADDRESS	
QUESTION OR ACTIVITY				
<p>Put the question or best stated by the inquirer. Then, list the question as it is more clearly understood after you have taken classification steps (like the DI query tool approach).</p> <p>Also list in this section all the primary additional info you get while talking to the inquirer, such as PIHR problems, other needs, requirements, roles and skills and other details that you made notes on the DI ask sheet.</p>				
<p>FINDINGS</p> <p>Basic search process tips: Always start an investigation with one or more tertiary information resources If appropriate use a specialty tertiary resource or database feature (like interaction checking) to refine the search focus Finally as needed, use a secondary resource to help locate published literature – primary sources</p> <p>Use of guidelines, systematic reviews, disease state resources, others – like manufacturers, experts on staff – are all determined by the type and complexity of the question.</p> <p>As needed, consider:</p> <ul style="list-style-type: none"> • Clinical Pharmacology: Monographs of Facts, Law Comp, AMP'S DI TERTIARY RESOURCES • Database, Index Etc. (in Area of Knowledge) SECONDARY RESOURCES • IFA (International Pharmaceutical Abstracts) SECONDARY RESOURCES • National Guidelines Clearinghouse SECONDARY RESOURCES • Medical Letter and Treatment Guidelines • Systematic Evidence Reviews (Guidelines) • FDA and Foreign regulators (FDA, etc.) • Group or Social networking SECONDARY RESOURCES • Specialty resource (Drugs, Journals, etc) SPECIALTY TERTIARY RESOURCES • Disease and condition resources (epidemiology and biostat) as needed to understand the context of the question, (e.g. Data, Messages, situations, specialty books etc.) SPECIALTY TERTIARY RESOURCES <p>Links to the above are at:</p> <p>http://northwest.mph.washstate.edu/PAGE.PY?PHARMACY/SP_DIAG_INFORMATION/FAVORITES_BOOKMARKS/HTM</p> <ul style="list-style-type: none"> • Consulting drug specialists • Pointing to Literature • Consulting purchasing group • Contacting outside DI Center • Contact NSM expert resources (Pharmacy and/or other practitioners available in NSM, MEDICAL, NMT, VETERINARY, etc.) 				

DI Activity Log

Excerpt

Work Examples

- Prepare general guidance for managing patients on dabigatran who are bleeding
- Dronedarone DUE
- Prepare Protect From Light list for IV infusions
- Compile evidence for review of tPA use during cardiac arrest for suspected PE
- Develop Do Not Tube list for medications
- Review evidence on generic mycophenolate

Research Involvement

- Opportunities to advance student potential through research and poster presentations
 - DUEs: nesiritide, rVIIa, rituximab
 - DI Resources comparisons
 - Differences in time until addition of new information to resources
 - Differences in interaction evidence and rating in resources
 - Differences in content and evidence for off-label uses in resources

Student Posters at ASHP Midyear

Recombinant Factor VIIa is a Useful Tracer to Identify Serious Adverse Drug Reactions to Anticoagulants

Michael A. Fotis¹ B.S. Pharm., Maya Campara² Pharm.D., William Budris³ B.S. Pharm.

Internet Drug References: Online and on-time?

Andrew J. Fine¹ Pharm.D. Candidate, Sterling Elliott² Pharm.D., Courtney J. Jahnke³ Pharm.D. Candidate, Stephanie S. Belbis¹ Pharm.D. Candidate, Jeremy J. Aguilera¹ Pharm.D. Candidate, William A. Budris², R.Ph., Michael A. Fotis², R.Ph.

Rise of Rituximab: Off-label But On the Mark?

John S. Esterly¹, Pharm.D. Candidate, Megan F. Payne², Pharm.D. Candidate, Jeremy M. Thieman², Pharm.D. Candidate, William A. Budris², R.Ph., Michael A. Fotis², R.Ph.

Drug Interaction Evidence: A Passing Grade?

Sarah M. Hanger¹ Pharm.D. Candidate, Genevieve ditos Santos² Pharm.D. Candidate, Eberik Hanz² Pharm.D. Candidate, William A. Budris², R.Ph.

Off-Label Indications in Commonly Used Drug Information Databases

Melissa J. Hancock¹ Pharm.D. Candidate, Elizabeth Short² Pharm.D. Candidate, William A. Budris², R.Ph.

¹Northwestern University College of Pharmacy, ²Oregon Health Sciences University School of Pharmacy and Health Professions, ³Department of Pharmacy, Northwestern Memorial Hospital

Anecdotal Tips

- Enthusiasm/passion for your work is evident (on the flip side - so is malaise)
- Assign reasonable portions of complex projects – with gradual push to more gains
- Small bits of continuous feedback is more natural, less awkward than large chunks
 - Do it immediately (after presentations, completion of projects, etc.)

ICHP Member Survey

Target: Student Preceptors

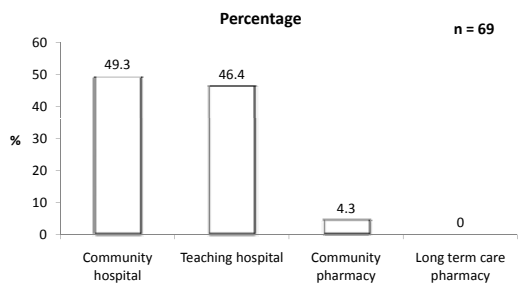
ICHP Survey

- Conducted online August 3rd – August 12th
- Members invited to complete 8 check-off questions for:
 - Views on challenges to / benefits from integrating pharmacy students into practice
 - Survey questions devised based on items identified in literature review [2-5]
 - Tips to optimally integrate students/gain success
 - Examples of students in roles supporting practice
- 96 responded

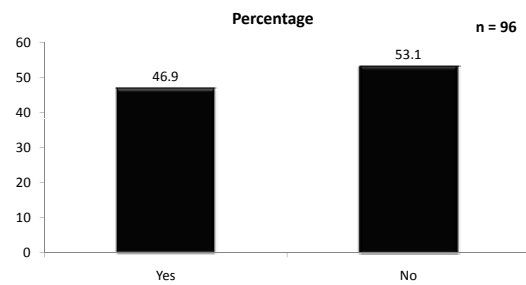
Did you respond to this survey? ?

1. Yes
2. No
3. I don't recall

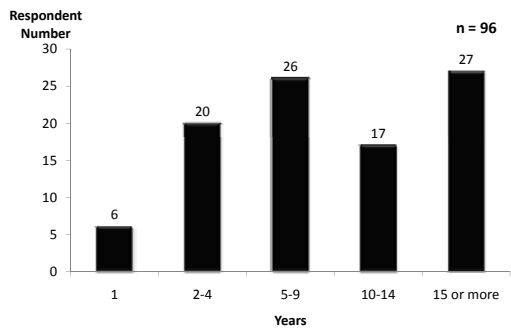
Practice Setting



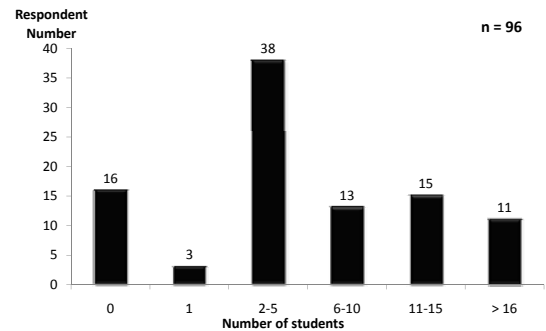
Precept Residents Plus Students ?



Years Precepting Students



Number of Precepted Students Past 12 months



Challenges – Student Issues

n = 96

Potential Challenge	Major Significance	Moderate Significance	Minor Significance	N/A
Lack adequate knowledge base to perform practice roles at a desired level of competence	18.8%	35.4%	42.7%	3.1%
Overwhelmed by rotation demands	5.2%	29.2%	62.5%	3.1%
Inconsistent availability of students throughout the year	4.2%	22.9%	51%	21.9%

Challenges – Preceptor Issues

n = 96

Potential Challenge	Major Significance	Moderate Significance	Minor Significance	N/A
Discomfort with providing feedback to students	2.1%	15.8%	61.1%	21.1%
Lacking confidence with own knowledge base	3.1%	13.5%	56.3%	27.1%
Dealing with unengaged, unmotivated students	24%	34.4%	33.3%	8.3%
Feel underprepared for preceptor role	4.2%	11.5%	55.2%	29.2%

Challenges – Site Issues

n = 96

Potential Challenge	Major Significance	Moderate Significance	Minor Significance	N/A
Limited time to precept – due to competing work responsibilities	45.3%	31.6%	22.1%	1.1%
Inadequate work space, computers, etc. for student use	36.5%	28.1%	29.2%	6.3%
Inadequate co-preceptor support	11.5%	22.9%	51%	14.6%
Insufficient direct patient care opportunities	7.4%	15.8%	51.6%	25.3%
Negative attitudes of pharmacy coworkers toward students	5.2%	11.5%	52.1%	31.3%
Negative attitudes of other members of health care team toward students	1%	12.5%	59.4%	27.1%
Confusion on part of other pharmacy staff about student roles	4.2%	15.6%	54.2%	26%

Write-ins: Other Challenges

- “Would love to have students with me in medical role, but can’t do it without others co-precepting or shorter module rotations.”
- “Preceptors take students b/c we want to support the profession. There are only so many hours/day and spots on rounding team-15 people on rounds - not productive.”
- “Too many new pharmacy schools in Illinois and they are increasing requests to take students. It takes a lot of time to provide a quality rotation from a pharmacist stretched thin with daily responsibilities.”

Benefits

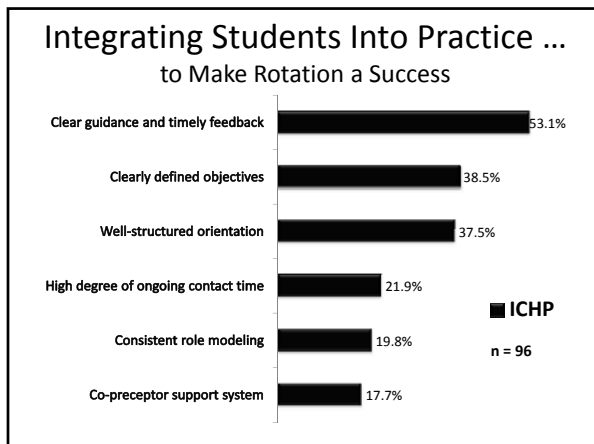
n = 96

Potential Benefit	Major Significance	Moderate Significance	Minor Significance	N/A
Professional satisfaction from developing future practitioners	62.5%	33.3%	4.2%	0%
Students with high motivation level help reinvigorate your own enthusiasm	60.4%	32.3%	6.3%	1%
Students have a more complete experience	53.7%	38.9%	6.3%	1%
Students are more motivated and productive once fully integrated into practice	42.1%	48.4%	8.4%	1%
Makes preceptors stay up to date in their specialty	34.7%	42.1%	20%	3.2%
Students help meet practice site patient care goals	15.8%	43.2%	28.4%	12.6%

Which Seems Most Important...?

to successfully integrate students into your practice?

- Clearly defined objectives
- Well-structured orientation
- Co-preceptor support
- Ongoing contact time
- Clear guidance and timely feedback
- Consistent role modeling



- ### ICHP Write-ins: Other Tips
- *“Schools need to send clear objectives and the manager needs to read them before the student gets there.”*
 - *“Keep the rotation well-organized by providing a calendar.”*
 - *“Make sure they have a role in your daily workload.”*

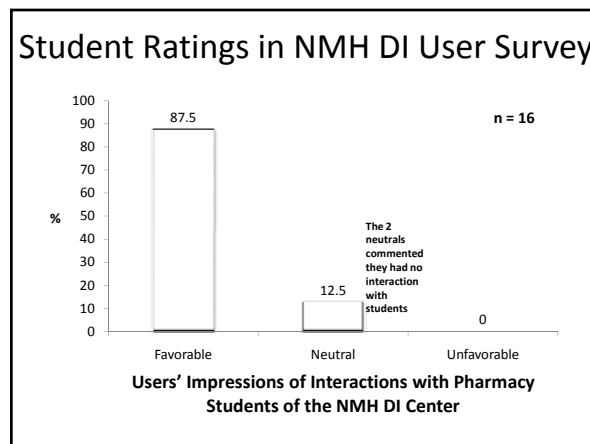
How Students Support Practice Objectives

- 44 respondents gave 55 total examples

Role	#	Role	#
Discharge counseling	7	Drug monographs for P&T	2
DUE/MUE	6	Newsletter articles	2
DI responses	4	P ^r kinetic monitoring/consultation	2
Staff inservices	4	Each cited once:	11
Medication reconciliation	4	ADR review	
Medication histories/ interviews	4	Anticoagulation monitoring	
Monitoring drug therapy	3	Case presentations	
Anticoagulation service support	2	Create/update treatment guidelines	
Data collection	2	Gathering core measures data	
DI reviews/updates	2	ID Service support	
		Journal article reviews	
		Patient care rounds	
		Pharmacy practice projects	
		Policy and protocol development	
		Therapeutic interchange	

Feedback & Evaluations

- ### User E-mails Comments on Students
- *“This is extremely helpful. Thanks much for your efforts here.”*
 - *“Thank you, great service, as always.”*
 - *“I received an excellent review of the safety of Gleevec for treating nephrogenic systemic fibrosis since I was concerned about its cardiotoxicity and reports of CHF. The student who reviewed this topic for me did an outstanding job!”*



Student Evaluations and Reflections on Experience

Evaluations

- Midpoint: solicit input
 - Are you learning what you expected?
 - What do you think you need to see more of?
- Final: solicit input
 - Did the rotation fulfill your expectations?
 - Are you more confident in using resources?
 - What can we do to improve the experience for future students?

Students' Rotation Evaluations

THE SITE:	4	3	2	1	NA
Provided access to reference materials, either hard copy or via electronic means.	5	0	0	0	0
Provided opportunities for interaction with other health care professionals.	4	1	0	0	0
Allowed for a variety of learning experiences.	4	1	0	0	0
Had staff who were receptive and willing to interact with students.	4	1	0	0	0
Provided a setting to use and expand knowledge gained during didactic studies.	4	1	0	0	0
Provided adequate contact opportunities with patients and/or caregivers.	2	0	3	0	0

Students' Rotation Evaluations

- Improvement suggestions
 - *“More opportunities to interact with areas that provide services since we are in the basement.”*
 - *“Better communication on some goals for P&T projects.”*
 - *“I would have liked to do a practice question before a real one - maybe include one during orientation.”*

Students' Rotation Evaluations


- Positive aspects of learning experience
 - *“This rotation is well structured, guided, and the usefulness to future practice cannot be overstated.”*
 - *“Excellent work environment and rotation to improve on drug information skills.”*
 - *“Fantastic opportunities to be involved in P&T.”*
 - *“I learned a lot about resources I had never used and more about those I had already been using.”*

Students' Rotation Evaluations


- Comments on site accommodations for students
 - *“I always had my own workstation and network access for saving and sharing documents was exceptional. The cafeteria is also great - **they have sushi!**”*

Take-away Points

- Find ways to make student roles support patient care goals
- Provide frequent guidance and feedback
- Orient with defined objectives
- Be that role model
- Optimize site assets
- Review feedback for opportunities

1. What is least regarded for helping integrate students into a practice site? 

- A. Having organized orientation and clear objectives
- B. Providing timely feedback to students
- C. Offering standard templates and documents
- D. Modeling of desired performance in key functions

2. Which challenge or benefit is considered to have major significance? 

- A. (Challenge) Students overwhelmed by rotation
- B. (Benefit) Preceptors get professional satisfaction
- C. (Challenge) Insufficient patient care opportunities
- D. (Benefit) Students help meet patient care goals
- E. (Challenge) Preceptors struggle giving feedback

References

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Questions



2011 ICHP ANNUAL MEETING

PPMI Pearls

Bill Budris, RPh

Post-test Questions

The learning objectives for the presentation, Students ExTEnD ! are:

1. Recognize how pharmacy students can be optimally engaged and integrated into practice.
2. Identify challenges and benefits associated with this education/practice goal.

Corresponding assessment questions with correct answers below:

1. What is least regarded for helping integrate students into a practice site?
 - A. Having organized orientation and clear objectives
 - B. Providing timely feedback to students
 - C. Offering standard templates and documents
 - D. Modeling of desired performance in key functions
2. Which challenge or benefit is considered to have major significance?
 - A. (Challenge) Students are overwhelmed by rotation
 - B. (Benefit) Preceptors get professional satisfaction
 - C. (Challenge) Insufficient patient care opportunities
 - D. (Benefit) Students help meet patient care goals
 - E. (Challenge) Preceptors struggle giving feedback

PPMI & Use of an Electronic Clinical Surveillance System

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** I have no disclosures. **

Overview

- Definitions
- PPMI Technology Initiatives
- Prioritization
- Implementation
- Lessons Learned
- Q & A

Definitions

- Clinical Decision Support¹
 - Enhancing health-related decisions & actions with organized clinical knowledge & patient info to improve healthcare delivery
- Surveillance²
 - Close watch kept over someone or something
- Clinical Surveillance System

Improving outcomes with clinical decision support: an implementer's guide.
Second Edition. HIMSS, 2011 (in press).
<http://www.merriam-webster.com/dictionary/surveillance> (Accessed 7/19/11)

Audience Response

- Do you have an electronic clinical surveillance system in place for your pharmacists to use at your institution?
 - Yes
 - No

Learning Objective

- An electronic clinical surveillance system incorporates which of the following:
 - a. continuous monitoring of patient information
 - b. continuous evaluation of patient information
 - c. ability to alert care givers of change in patient status
 - d. all of the above

PPMI³

- Proceeding C – Advancing the application of information technology in the medication-use process.

AJHP, 2011;68:1148-52.

PPMI³

- Beliefs & Assumptions
 - C2f: Real-time monitoring that provides a queue of patients needing review & possible intervention
 - C2i: Automated systems to notify pharmacists about serum drug concentrations or other important lab values that fall outside normal range

AJHP. 2011;68:1148-52.

PPMI³

- Recommendations
 - C4: Resources to develop, implement & maintain
 - C10: Support processes to improve outcomes

AJHP. 2011;68:1148-52.

Technology & PPMI⁴

- Pharmacists as clinical medication managers
- Behavior driven around clinical care, not products
- Real-time monitoring
- Ideal work queue

Siska MH , Tribble DA. AJHP. 2011; 68:1116-1126.

NorthShore

- Four hospitals
- Integrated pharmacy practice model
- Approximately 60 pharmacist FTEs
- Fully integrated EHR since 2003
- Electronic clinical surveillance system implemented in 2008

NorthShore's System

- Clinical surveillance system internal to EHR
- Developed & maintained by pharmacy informatics personnel
- Ability to filter for specific patients
- Points assigned to patients

NorthShore's System

- Notification if patient has never been reviewed
- Pharmacist-to-pharmacist documentation system integrated into surveillance system

Development Prioritization

- Pharmacy Clinical Services Committee
 - Diverse representation
- Customer Survey
- Historical pharmacist documentation
- Historical pharmacist interventions
 - Antimicrobials
 - Anticoagulation

Development

- Improve efficiencies
 - Push change in patient status to pharmacists
- Started small – 6 'rules'
 1. Renal function changing – antimicrobials
 2. Antimicrobial levels
 3. Antimicrobial assessment missing
 4. Hepatic function changing - antimicrobials
 5. INR result
 6. Platelets changing for heparin/LMWH

Development

- Pharmacist buy in
- Additional surveillance built
 - Hyperglycemia
 - Include more drugs in renal function changing
 - TPN

Learning Objective

- When launching an electronic clinical surveillance system for pharmacists, who's opinion matters most:
 - a. Yours
 - b. Physicians
 - c. Front-line pharmacists
 - d. All of the above

Maintenance

- Determining further surveillance areas
 - Align with corporate initiatives
 - Meaningful Use
 - CMS - Core Measures
 - Antimicrobial stewardship
 - Missing warfarin order
 - PTT result
 - Any drug level result

Maintenance

- What happens when things don't work as expected?
 - Challenges in determining what is broken
 - Competing resources

Lessons Learned

- Efficiencies gained ?
- Change management
- Writing 'smart' surveillance tools
- Breaking habits

Key Points

- Technology plays an important role in the PPMI
- Electronic clinical surveillance systems help to push clinical information to pharmacists
- Engage many pharmacists for development

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PPMI & Use of an Electronic Clinical Surveillance System

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Clinical Pharmacy in the
Emergency Department:
Patient Care Gone Wild

Wendy Slipke, Pharm.D.

No conflict of interest to declare

Learning Objectives

- Describe the pharmacist's role in improving pharmaceutical care to Emergency Department patients
- Explain how to justify an emergency department pharmacist position by illustrating potential cost savings to the health care system

Swedish American Hospital

- Serves Northern Central Illinois
- Located in Rockford
 - 9th most dangerous city in US¹
- One of the busiest ED, outside of Chicago
 - 2005 ~ 58,000 visits annually
 - 2010 ~ 62,000 visits annually
- Level 2 Trauma Center

Emergency Department Pharmacists

- 2006
 - One pharmacist, 4 days/week coverage
- 2007
 - Two pharmacists, 7 days/week coverage
- Peak volume 12 – 10 pm
- Cost savings goal
 - Prevention of medication errors

Daily Clinical Activities²

- Review and monitor care of Emergency Department patients
- Bedside management of critical patients
- Provide curbside consults
- Provide patient counseling
- Manage the culture report

Academic Interventions

- Educate the nursing and pharmacy staff
- Proved presentations at ED staff meetings
 - No drug reps
- Precept pharmacy students

Administrative Interventions

- Update policies and procedures
- Update order sets
- Improve compliance with core measures

Improve Medication Safety

- Standardize RSI kits
- Standardize Pediatric Crash Carts
- Review Automated Dispensing Cabinet
 - Remove High Risk medications
- Update outpatient prescriptions
- Psychiatric monitoring protocol

Improve Productivity

- Participate in ED Case Management
- Manage the culture report^{3,4}
- Participate in the ED thru-put
- Evaluate outpatient medication process

Moving Forward ...

- Develop an antimicrobial stewardship program
- Define pharmacist participation in trauma
- Improve vaccination rates
- Improve continuity of care for toxicology patients
- Perform data collection for cost savings

Justification of position

- Prevention of medication errors^{2,5-9}
- Adherence to Joint Commission Core measures¹⁰
- Avoidance of unnecessary re-admission
- Evaluate emergency department length of stay
- Evaluate medication use and cost per patient

Challenges

- “We don’t need a pharmacist”
- Difficult to demonstrate exact cost savings
- Limited space in the Emergency Department
- Choosing the right pharmacist^{8,9}
- Role clarification
 - Clinical Activities
 - Medication Reconciliation
 - Order Verification

Pharmacy Practice Model Initiative (PPMI) Pearls
Clinical Pharmacy in the Emergency Department
Wendy Slipke, PharmD

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ICHP 2011 Annual Meeting
Pharmacy Practice Model Initiative (PPMI) Pearls
Clinical Pharmacy in the Emergency Department
Wendy Slipke, PharmD
121-000-11-035-L04-P

Post Test Questions:

1. Which of the following activities can be performed by an emergency department pharmacist?
 - a. Research
 - b. Medication Dosing
 - c. Patient Counseling
 - d. Medication Reconciliation
 - e. All of the above

2. Prevention of medication errors is the only documented way to prove cost savings to the health system with emergency department pharmacists.
True/False