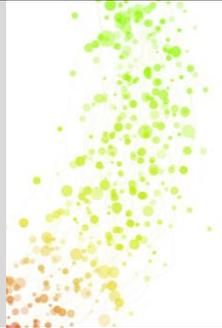


Error Prevention and Pharmacist Interventions: A Retrospective Analysis in a Long-term Care Setting.

Turning Errors Into Opportunities

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Presented By:
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Allen de Somer PharmD Candidate 2021



1

Pharmacist Learning Objectives:

1. Outline the process of preventing medication errors with medication reconciliation.
2. Describe common techniques to prevent medication errors in a pharmacy.
3. Describe the most common prescribing errors in a long-term care setting.
4. Identify the most common clinician interventions made in a long-term care setting.
5. Identify process improvement techniques for detecting and managing medication errors.
6. Discuss how essential pharmacists and pharmacy technicians are in preventing errors, correcting prescriptions, and making appropriate life-saving interventions.

2

Pharmacy Technician Learning Objectives:

1. Outline the process of preventing medication errors with medication reconciliation.
2. Describe common techniques to prevent medication errors in a pharmacy.
3. Describe the most common prescribing errors in a long-term care setting.
4. Discuss how essential pharmacists and pharmacy technicians are in preventing errors, correcting prescriptions, and making appropriate life-saving interventions.

3

PILOT PROJECT

ERROR PREVENTION AND PHARMACIST INTERVENTIONS, A RETROSPECTIVE ANALYSIS IN A LONG-TERM CARE SETTING.



4

Background

- Preventable medication errors are a considerable financial burden on the healthcare system, affect patient quality of life, and ultimately may increase both morbidity and mortality.
- A systematic search was conducted of the relevant peer-reviewed research published between January 1, 2000, and October 1, 2015, in English, French, German, or Spanish examining serious outcomes of medication errors (MEs) in NHs residents.
 - MEs were common, involving 16-27% of residents in studies examining all types of MEs
 - 13-31% of residents in studies examining transfer-related MEs
 - 75% of residents were prescribed at least one potentially inappropriate medications.
 - Serious effects of MEs 0-1% of MEs, with death being rare.
- Many of these residents have multiple comorbidities and polypharmacy, leading to a need for dose adjustments and extensive review for drug-drug interactions.

Hart L, Shurek B, Han D, et al. Worsening medication errors in the United States: Results of the 2016 National Survey of Medication Errors. The American Journal of Geriatric Pharmacotherapy. Volume 8, Issue 1, 2016. doi:10.1016/j.ajgp.2016.01.001

Frank, M, et al. A Systematic Review of the Prevalence of Medication Errors Resulting in Hospitalization and Death of Nursing Home Residents. JAMA. October 10, 2012; 308(15):1611-1619.

5

Methods

- A retrospective cohort design over a one-year period
- Medication orders for patients at multiple long-term care facilities in New Mexico were reviewed and evaluated by pharmacists at a central dispensing pharmacy.
- All prescriptions that were processed through the point-of-sale system were considered eligible for review. These prescriptions were canceled by a pharmacy team member due to the error caught and were never dispensed.
- Medication errors and subsequent pharmacist interventions were identified by reviewing the point-of-sale system for cancelled prescriptions and grouped into categories.
- The groups were based on the clinical impact and were divided into various subcategories for further analysis.
- Once the medication errors were categorized, the results were then described and grouped into categories of various types of pharmacist interventions.
- If a prescription contained multiple errors and subsequent interventions these were categorized in their own grouping.

6

Results

- 22,514 patients with an average of 6-9 prescriptions per patient
- Total of 215,914 prescriptions being processed by the central dispensing pharmacy.
- A total of 205 medication errors were identified through the point-of-sale system.

7

Results continued

Categories	Interventions
IR vs. ER	39
Missing info/Clarification	25
Unavailability	22
Dosing/Frequency	21
Cost	16
End of Therapy	14
Wrong formulation	13
Ease of administration	12
Miss-dosing	8
Therapeutic Indication	7
Duplicate Therapy	6
Allergy	6
Law	5
Wrong drug/Indication	5
Drug-drug interaction	4
Substitution	2
Total	205

- 16 categories of medication errors identifies
- The most common individual medication error was an incorrect immediate-release or extended-release formulation chosen.
- The second most common medication error was missing information or the need to clarify an item on the prescription.
- 12 order sets were identified that included multiple interventions (duplicate or triplicate errors)

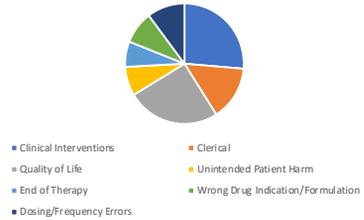
8

Results continued

Categories	Interventions
Clinical Interventions	54
Quality of Life	52
Clerical	30
Dosing/Frequency Errors	21
Wrong Drug Indication/Formulation	18
Unintended Patient Harm	16
End of Therapy	14
Total	205

- The types of medication errors were then reclassified and organized by intervention type.
- The analysis concluded with seven identified types of interventions.
- Clinical interventions made up most of the errors in table two accounting for 26% of the overall data.

Categorized Types of Interventions



9

10

Limitations

- The utilization of the point-of-sale service and triaging for cancelled prescriptions
 - Numerous pharmacist interventions can occur before the prescription is processed.
- If the medication error was identified before the prescription was processed, the medication error and subsequent intervention would not be captured and included in our study.

11

Discussion

- Interventions can often lead to a point of confrontation among healthcare professionals. This is where an area of confrontation can turn into a moment of education and opportunity.
- The findings from this study suggest that pharmacists play a key role and are a vital and necessary addition to any healthcare team

12

**TURNING
ERRORS INTO
OPPORTUNITIES**



13

Poll Question

Have you made a medical or dispensing error?

a. Yes
b. No

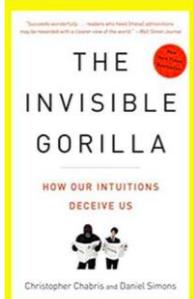
14

Statistics of Medication Errors

- Estimated dispensing accuracy in community pharmacy is 98.35%
- 77 errors per 4,481 prescriptions
- OR 4 errors/250 prescriptions DAILY
- Annually ~ 3 billion prescriptions are filled in America - this translates to 51.5 million errors every YEAR
- OR it is estimated a pharmacist will fill 1.5 million prescriptions in their career- 25,500 errors during the CAREER
- 440,000 deaths in America occur each year due to PREVENTABLE medical errors
- 1,000 people every day-capacity of 2 JUMBO JETS!!

1. Root Cause Analysis: Workbook for Community Ambulatory Pharmacy [brochure]. (n.d.) Hershey, PA: Institution for Safe Medication Practices
2. Jones, John T. "The Frequency of Patient Adverse Events." 2013, JGIM, vol. 28, no. 12, pp. 122-128.

15



Detecting Errors

- "How could you have missed that?" OR "Who caused this error?"
- Movie depicted basketball game, and the researchers asked the participants to count how many passes occurred between the two groups of players.
- During the experiment a gorilla is seen in the video
- 40% of people failed to see the gorilla
- **HOW** we focus our attention is key, and it determines if we can "see" something that is unexpected

16

Selective Attentive Test

- <https://www.youtube.com/watch?v=IsumWY10IM>
- OR
- https://www.youtube.com/watch?v=EsC_sHTW43c
- OR
- TEDTalk; Apollo Robbins-The art of misdirection
- <https://www.youtube.com/watch?v=GZCY0wP8Aus>

When we are focused on ONE thing, we FAIL to see more



17

Our minds are against us!

- Proofreading-our minds fill in the blanks or what we EXPECT to be there

"I cduoalt blveiece that I cluod aulacty uesdnatnrd what I was rdanieg. The phaonmneal pweor of the hmuan mnid, aoccdnrig to a rscheearch at Cmabrigde Uinervstiy, it desno't mtaetr in what oerdr the ltreres in a word are, the onluy iproamtnt thing is that the frsit and last ltrteeer be in the rghit pclae. The rset can be a taotl mses and you can still raed it whotuit a pboerlm. This is bcuseae the huamn mnid deos not raed ervey ltrteeer by istllef, but the word as a wlohe. Azanmmig huh? Yaeh and I awlyas tghuhot spleling was ipmorantnt!"

18

How to identify medication errors?

- Step wise prescription verification process
- 5 (or 8) Rights of Medication Administration
- Always utilizing drug references (Lexicomp, Micromedex, GlobalRph, etc)
- Dual pharmacist/technician check
- Patient counseling
 - 3 prime questions
- Continuous quality improving (CQI) and Root Cause Analysis
- Failure mode and effects analysis (FEMA)
- Subscribing/Alerts from companies that report the most common errors can contributing factors (ISMP, ECRI)
- Phone/Text a friend
- Others?

<https://www.pharmacist.com/article/prevent-medication-errors-fmea>

19

Stepwise Verification Process

Step 1

- ❖ Take a breath

Step 2

- ❖ Think BIG picture -WHO is getting WHAT
- ❖ Does it make sense?

J. Paquette. Prescription Verification Tips for the NEW Pharmacist or Student. <http://www.thehomeopropharmacy.com/2015/01/22/prescription-verification-tips-for-the-new-pharmacist/>. Accessed December 16, 2020.

20

Stepwise Verification Process

Step 3

- ❖ Check the DETAILS
- ❖ Check hard copy prescription against what is on the bottle/what is typed
- ❖ BIG 3
 - Patient name and date of birth
 - Drug name, strength and quantity
 - Directions* (NOT merely that they MATCH, but do the make SENSE and are REASONABLE)
- ❖ More important items
 - Prescriber
 - Number of refills
 - Prescription date/legal concerns
 - Patient allergies
 - Day's supply
 - Billing & copay, insurance and reimbursement

J. Paquette. Prescription Verification Tips for the NEW Pharmacist or Student. <http://www.thehomeopropharmacy.com/2015/01/22/prescription-verification-tips-for-the-new-pharmacist/>. Accessed December 16, 2020.

21

Stepwise Verification Process

Step 4

❖ Check the PROFILE

- Potential drug-drug interactions
 - Potential drug-disease interactions
 - Patient history (example: history of ER, and new prescriptions for IR)
- ❖ Utilizing Prescription Drug Monitoring Program (PDMP)

J. Paquette. Prescription Verification Tips for the NEW Pharmacist or Student. <http://www.thehomeopropharmacy.com/2015/01/22/prescription-verification-tips-for-the-new-pharmacist/>. Accessed December 16, 2020.

22

5 (or 8) Rights of Medication Administration

1. Right Patient
2. Right Drug
3. Right Dose
4. Right Route
5. Right Time
6. Right Reason
7. Right Drug Formulation
8. Right Line

Institute for Healthcare Improvement. Improvement Stories. <http://www.ihim.org/resources/Topics/ImprovementStories/Tools/RightsofMedicationAdministration.aspx>. Accessed December 16, 2020.

23

Patient Counseling

- 3 Prime questions
 1. What did the prescriber tell you this medication is for
 2. How did the prescriber tell you to take the medication
 3. What did the prescriber tell you to expect from taking this medication?
- Teach back method
- Active listening
- Empathetic approach

Haah did Nguyen. The prime questions in authentic patient's consultations: A call for additional research on current and new paradigms. *Sapharm*. 2012;04:07.

24



25

Common Errors in LTC

Categories	Interventions
IR vs ER	30
Missing Info/Clarification	25
Unavailability	22
Dosing/Frequency	21
Cost	16
End of Therapy	14
Wrong formulation	13
Low of administration	12
Max dosing	8
Therapeutic Indication	7
Duplicate Therapy	6
Allergy	6
Law	5
Wrong drug/indication	5
Droptailing intervention	4
Grade clarification	2
Total	205

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26

Chen, JH
Signed and Held
Phenytoin (DILANTIN) 125 mg/5 mL Suspension 800 mg AT BEDTIME
Ordered Dose 300 mg qd Volume 12 mL Admin Instructions: See PPE requirement link
Signed and Held

IR vs ER

Previous order was:
+ Phenytoin ER Capsules
3 capsules at bedtime

What should be clarified on this order?

27

Phenytoin (Dilantin™)

Immediate Release	Extended Release
Tablets (Dilantin Infatabs) → 50mg (Chewable)	Capsules → 100mg, 200mg, 300mg
Suspension → 125mg/5ml	Dilantin → 30mg, 100mg
Injection → 50mg/ml (2ml/5ml)	Phenytek → 200mg, 300mg
Divided in 2 to 3 doses per day	Divided in 1 to 2 doses
Time to peak → 1.5-3 hours	Time to peak → 4 to 12 hours

28

Key Points from Error Phenytoin (Dilantin™)

1. Converting from ER capsules to oral solution needs to be converted to multiple administrations instead of daily.

29

Chen, JH
Signed and Held
Phenytoin (DILANTIN) 125 mg/5 mL Suspension 800 mg AT BEDTIME
Ordered Dose 300 mg qd Volume 12 mL Admin Instructions: See PPE requirement link
Signed and Held

IR vs ER

What should be clarified on this order?

30

Key Points from Error

1. Both formulations of bimatoprost are dosed daily, any different dosing strategies is not recommended.

49

	1 mg oral tablet	2 Puffs Inhaler (bimatoprost)	Every 6 hours
	2 Puffs Inhaler (bimatoprost)	2 Puffs Inhaler (bimatoprost)	3 times a day as needed for wheezing
	2 Puffs Inhaler (bimatoprost)	2 Puffs Inhaler (bimatoprost)	Every Day
	1 tablet	2 Puffs Inhaler (bimatoprost)	2 times a day as needed for constipation

Max Dosing

What should be clarified on this order?

50

Ipratropium and Albuterol (Combivent Respimat™)

Combivent	Combivent Respimat
CFC-propelled Inhaler- Discontinued in 2013	Non-CFC propelled Inhaler
2 puffs by mouth 4 times daily	1 puff 4 to 6 times daily
Maximum 12 puffs daily	Maximum of 6 puffs daily

51

Key Points from Error

1. Combivent is still a choice in many OE systems, we all need to know the change in dosing and max dosing recommendations

52

This is a list of your medications and how to take them.
 Este es una lista de instrucciones de como tomar sus medicamentos.

Do not take any medicine other than the ones listed without talking with your doctor, nurse or pharmacist. Follow the label instructions on the medicine bottles. If the label instructions are different from the above please talk to your pharmacist before you take the medicine.

No tome otros medicamentos que no sean los enumerados anteriormente sin consultar con su doctor, enfermero o farmacéutico. Siempre siga las instrucciones en la botella de la medicina dado por la farmacia. Si las instrucciones son diferentes a las que aparecen arriba, hable con el farmacéutico antes de tomar la medicina.

New medications (Medicamentos nuevos)

UH Pharm - Outpatient / Discharge, 2211 Lomas Blvd NE Albuquerque, NM 87102716, (505) 272-3434

apixaban (apixaban 6 mg oral tablet) 2 Tabe By Mouth 2 times a day, Refill: 0 ✓

Other medications (Otras medicaciones)

Max Dosing

What should be clarified on this order?

53

Apixaban (Eliquis™)

Factor Xa Inhibitor	Treatment dosing always has loading dose followed by prophylaxis dosing
DVT/PE treatment:	10mg twice daily for 7 days → 5mg twice daily
Heparin Induced Thrombocytopenia (HIT)	10mg twice daily for 7 days → 5mg twice daily

54

Key Points from Error

1. Key differences between treatment dosing and prophylactic dosing
2. Need to identify if patient needs the treatment/loading dose or is on the maintenance/prophylactic dosing
3. Understanding ALL treatment/loading dose is for 7 days only, extending the time frame could lead to unintended patient harm.

55

Order Date	Order Category	Custom Method	Ordered By	Order Type
06/22/2020 21:44	Pharmacy	Prescriber Written	Garlick, Linda	Standard Medication - PHAR
Order Summary: hydrALAZINE HCl Tablet 25 MG Give 25 mg by mouth every 8 hours for 7 days.				
Created By	Created Date	Confirmed By	Confirmed Date	Last Revision By
Ajdney Lavelle (Licensed Practical Nurse)	06/22/2020 21:48			Ajdney Lavelle (Licensed Practical Nurse)

Wrong Drug/Indication

What should be clarified on this order?

56

HydrALAZINE FDA indication for hypertension Tablets → 10mg, 25mg, 50mg, 100mg Injection → 20mg/ml	HydrOXYZINE HCL Tablet HydrOXYZINE Pamoate Capsule FDA indication for anxiety Tablets → 10mg, 25mg, 50mg Capsules → 25mg, 50mg, 100mg Solution → 10mg/5ml
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<https://pubmed.ncbi.nlm.nih.gov/20140441/>
<https://pubmed.ncbi.nlm.nih.gov/20140441/>

57

Most Confused Drug Names (Sound Alike)

<https://www.ismp.org/recommendations/confused-drug-names-list>
<https://www.ismp.org/recommendations/tall-man-letters-list>

Some Examples:

Akderall/Isderal	Lodine/ codeine
Allergira/ Viagra	Metolazone/ Methadone
Benadaryl/ benazepril	Mirapex/ Miralax
Bupropion/ bupirone	Naloxone / Lanoxin
Clonidine/ Klonopin	Prilosec/ Prozac

58

Key Points from Error

1. Identifying diagnosis will aid in dispensing correct medication for disease state
2. Always repeat order or use teach back method to ensure correct medication was transcribed

59

Poll Question

Do you feel comfortable make clinical recommendations?

- a. Yes
- b. No

60

How to Effectively Make Clinical Interventions?

1. Build a rapport
2. Approach conversation with mutual respect for fundamental knowledge and time
3. Clarify order from their perspective BEFORE providing your point of view
4. Be prepared with references to build your case
 - a) Gather useful information
 - Medical references
 - Family members
 - Nursing staff
5. Keep the focus of the conversation on the patient
6. If error could cause patient harm
 - a) Use *Conscientious Objection law*
 - b) **If used be prepared to transfer prescription to a different pharmacy AFTER adequate counseling to patient and next pharmacy if possible.**

61

7 Ways to Build a Rapport

1. **Maintain Eye Contact**
2. **Show Empathy**
3. **Open Communication**
4. **Make it Personal**
 - a) Practice small talk
5. **Active Listening**
 - a) Repeat to identify mutual understanding
6. **Practice Mirroring**
 - a) Matching the patient's demeanor or disposition
7. **Keep Your Word**

<https://www.nursechoice.com/traveler-resources/how-to-build-rapport-with-patients-7-effective-tips-for-em/>

62

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63

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64