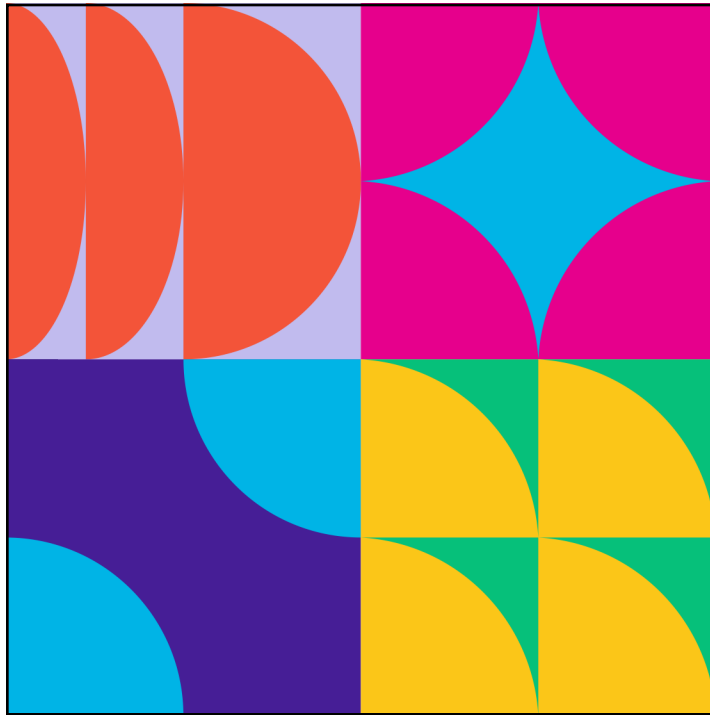




Where Medication Errors Start - and How to Stop Them

Michael J. Gaunt, PharmD

ThoughtSpot | CEimpact 1

Description

Would you catch the error before it reaches the patient? Take part in rapid-fire safety cases to identify where breakdowns occur across workflow, communication, and task design. Evaluate opportunities to implement a safety improvement that protects patients while strengthening pharmacy resilience and trust.

ThoughtSpot | CEimpact 2

Meet the Faculty



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Michael Gaunt is Senior Manager, Error Reporting Programs at the Institute for Safe Medication Practices (ISMP), which he joined in 2004. Michael oversees the operation of ISMP's three reporting programs. He participates in on-site risk assessments in community and specialty pharmacies to assess risks and identify opportunities to improve safety and reliability. Michael also serves as the editor of the monthly ISMP Medication Safety Alert! Community/Ambulatory Care newsletter. Michael received a Bachelor of Arts in History from the University of Notre Dame and a Doctor of Pharmacy with a Certificate in Drug Safety from Temple University School of Pharmacy.

Disclosures

- Michael Gaunt has no relevant financial relationships with ineligible companies to disclose.
- Michael Gaunt discloses that AI tools were not utilized for this presentation.

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Learning Objectives

Upon completion of this activity, learners should be able to:

- Recognize system-level factors contributing to medication safety vulnerabilities.
- Assess workflow and team-based strategies to improve reliability and reduce errors.
- Differentiate system failures from individual errors in medication safety events.
- Apply workflow safeguards to reduce preventable medication errors.
- Develop a safety-focused process improvement plan to enhance patient protection and operational resilience.

Assume That Errors Will Occur

- Healthcare is complex
- To err is human
- Assume that errors are inevitable
- Many factors, latent (blunt end) and active (sharp end), must be present and in proper alignment for an error to occur
- Medication errors are the property of a system rather than results of the acts or omissions of the people in the system
- Emphasis on redesign of the system to make it impossible or more difficult to err

Performance improvement requires changing the system, not the people

Active Failures (sharp end errors)

- Active errors occur at the point of contact between a human and some aspect of a larger system (e.g., a human-machine interface)
- Human errors
 - Inadvertent action
 - Slip, lapse, mistake
 - Misreading a label
 - Calculation error
 - Grabbing the wrong drug
- *Easier to recognize*

Latent Failures (blunt end errors)

- Less apparent failures of organization, design, or management that contributed to the occurrence of errors or cause harm to patients
- Adverse consequences which lie dormant in a system and only become evident when combined with other factors to breach the system's defenses
- Often originate where organizational policies, procedures, and resource allocation decisions are made
- Examples
 - Incomplete information about a patient
 - Unclear communication of a drug order
 - Lack of or too many decision support warnings
 - Unsafe drug storage
 - Unclear policies/procedures
- *Often harder to identify*

Medication Use System



Risk Control

How do we become more reliable?

Primary principles of risk control in medication safety

- Prevent (eliminate) errors
- Make errors visible
- Mitigate harm

Consider ALL THREE goals when choosing effective strategies!

Key Safety Principles of Risk Control

Use a variety of these principles when designing effective risk control

Forcing functions

Barriers & fail-safes

- Limit access or create constraint
- Centralize or externalize an error-prone process

Automation and computerization

Standardization and protocols

Redundancies

Warnings, alerts, reminders, and checklists

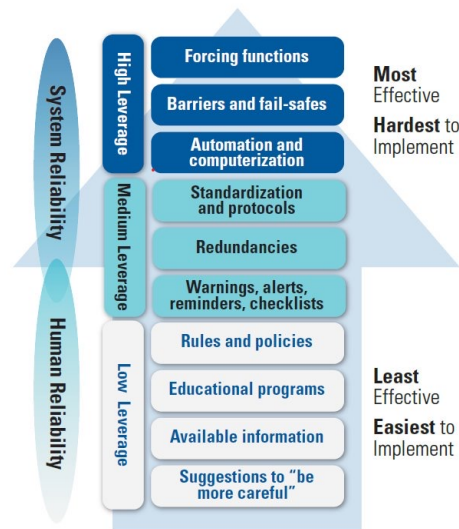
Improve access to information

Employ patient monitoring

Recovery

- Identification
- Repair
- Protection from future events

ISMP's Hierarchy of Effectiveness of Risk-Reduction Strategies



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Case Study

Patient Case – Mrs. W

- Prescribed methotrexate 2.5 mg, take 4 tablets by mouth *weekly* for progressing rheumatoid arthritis (RA)
- Prescriber did not provide in-office counseling
- Community pharmacy received e-prescription but was extremely busy
 - A neighboring pharmacy had recently closed
- Prescription entered as *daily* vs. *weekly*
- Barcode verification bypassed by pharmacist
- Counseling not provided at point-of-sale (POS)
- Mrs. W took methotrexate 10 mg daily
 - Within a week, she developed painful mouth ulcers and decreased appetite
 - Developed liver and kidney failure and passed away

Case: Would You Catch the Error Before It Reaches the Patient?

- Where could the error have been caught?
- What breakdowns occurred across workflow, communication, or task design?
- Which issues were active failures vs. latent/system failures?
- What safeguard could prevent the error, make it visible, or reduce harm?

What Went Wrong?

Failure	Active/Latent
Culture of the office practice does not support medication education for patients	Latent
No formal process in the office for providing and reviewing printed medication materials	Latent
Pharmacy two blocks away closed, customers transferred to this pharmacy	Latent
Staff short one pharmacist due to maternity leave	Latent
Pharmacy system did not auto-populate prescription information	Latent
Technician #1 interrupted by phone call	Latent
Technician #1 entered the frequency as 'daily'	Active
Order entry system in the community pharmacy did not default to 'weekly' methotrexate	Latent

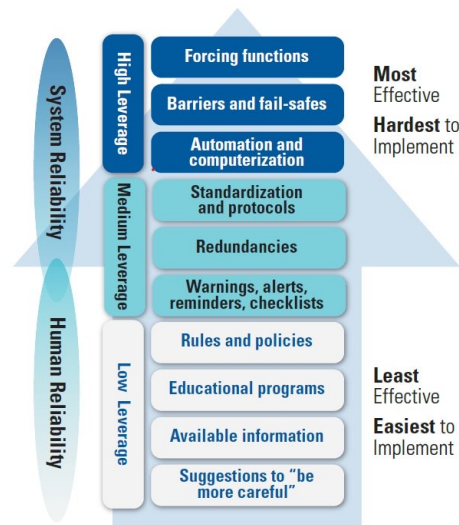
What Went Wrong?

Failure	Active/Latent
Order verification process does not require a diagnosis for processing methotrexate orders	Latent
Process allows for filling from the label without checking the original prescription first	Latent
Barcode scanning system intermittently not working	Latent
The pharmacist did not check the original order and indication prior to approving	Active
The pharmacist decided to manually enter the National Drug Code (NDC) from the prescription screen and override the system to complete the product verification check	Active
Marking prescriptions for counseling is a manual process, not electronic/automated	Latent
Auxiliary counseling notification labels not always available, supply chain issues, not immediately available for use	Latent

What Went Wrong?

Failure	Active/Latent
The pharmacist did not add an auxiliary label on the new medication to indicate counseling was needed	Active
The cashier made a mental note but forgot to tell the pharmacist that the patient had arrived	Active
Technician #2 wrote "NC" on the prescription receipt to indicate the need for counseling	Active
New pharmacy technician, pharmacist orientation is limited, not standardized or competency based	Latent
The managers did not make the time to discuss orientation plans/progress with pharmacy staff before the technician's orientation was complete	Active
The pharmacy manager did not complete the orientation checklist or share it with those participating in the orientation process	Active
Environment of distractions is the new "norm"	Latent

ISMP's Hierarchy of Effectiveness of Risk-Reduction Strategies



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Risk-Reduction Strategies

Failure	Strategy
Culture of the office practice does not support medication education for patients	Create safety committee to address intimidation Conduct physician practice culture survey
No formal process in the office for providing and reviewing printed medication materials	Move the printer to the patient room or share the information via portal Consider an automatic send of after-visit summary (AVS) when provider signs out
Pharmacy two blocks away closed, customers transferred to this pharmacy	Try to reduce workload - Take workload off front-facing pharmacy staff, such as centralization (e.g., data entry, verification) - Possibly centralized filling
Technician #1 interrupted by phone call	Reduce distractions: call center, redesign pharmacy space

Risk-Reduction Strategies

Failure	Strategy
Order verification process does not require a diagnosis for processing methotrexate orders	Create forcing function that diagnosis must be added to prescription in order to move forward Considerations: Can you group by certain drugs (specialty, high-alert)? Or is it all/none?
Process allows for filling from the label without checking the original prescription first	Create a pharmacist verification 1 step to review order entry
Barcode scanning system intermittently not working	Backup equipment or system available to create redundancy Training to install new equipment (standard operating procedure or hotline)
Marking prescriptions for counseling is a manual process, not electronic/automated	Forcing function at POS for new medications, consults, high-alerts Automate for certain drugs

Risk-Reduction Strategies

Failure	Strategy
New pharmacy technician, pharmacist orientation is limited, not standardized or competency based	Orientation training checklist Standardized training policies and procedures Measuring/observations to ensure new employee understands and can demonstrate the skills

Rapid-Fire Safety Cases

Scenario

A technician receives a verbal prescription for hydralazine, but enters hydroxyzine. The pharmacist verifies the prescription in between giving vaccines, and the medication is dispensed before the error is discovered.

Where did the breakdown occur?

- Order communication
- Data entry
- Verification workflow
- Staffing/workload
- Multiple system factors

Key Takeaway:

This is not one person's error. The risk increased because of several contributing factors: verbal communication, look-alike/sound-alike medication names, workload, interruptions, and verification conditions.

Possible Safeguards

- Read back verbal orders
- Reduce interruptions during verification
- Use alerts or visual cues for look-alike/sound-alike medications
- Prescribers include purpose on the prescription

Scenario

Two patients with the same last name are waiting at pickup. A prescription is sold to the wrong patient after the staff member confirms only the patient's name and does not use a second identifier.

Where did the breakdown occur?

- Patient identification process
- Pickup workflow
- Team training
- Task design
- Multiple system factors

Key Takeaway:

Wrong-patient errors often reflect process design, not just individual attention. A reliable workflow should make the safer action the default action.

Possible Safeguards

- Require at least two patient identifiers at pickup
- Add point-of-sale prompts
- Standardize pickup scripting
- Reinforce escalation steps when information does not match
- Open the bag with the patient

Scenario

The pharmacy dispensed amoxicillin and clavulanate potassium for oral suspension as a powder. The child's parents mixed a dose of the medication but did not do it correctly. The child vomited after the first dose.

Key Takeaway:

Technology and standardized counseling triggers can help ensure high-risk situations are addressed consistently, even during busy periods.

Which safeguard would best reduce risk?

- Standard counseling trigger for reconstituted medications
- Reminder to staff to be more careful
- Incorporate technology at the point-of-sale to alert staff that the prescription needs mixing
- Open the bottle with the parent to check that the contents have been reconstituted

Additional Safeguards

- Flag medications needing reconstitution at pickup
- Clarify when technicians should escalate patient comments
- Use consistent pharmacist handoff language

Next Steps

Next Steps: Review the System, Not Just the Error

When a medication safety event or near miss occurs, ask:

- **What happened?** Describe the event objectively.
- **Where did the process break down?** Identify the workflow step involved.
- **What factors contributed?** Consider workload, interruptions, communication, technology, staffing, environment, handoffs, or unclear roles.
- **What safeguards were missing or did not work as intended?** Look for process gaps rather than individual blame.

Next Steps: Good System Design



Seek to address all goals of risk control

Prevent (eliminate) errors
Make errors visible
Mitigate harm



Use a structured methodology involving key safety principles

Failure Mode and Effects Analysis (FMEA)
Root Cause Analysis/Apparent Cause Analysis (RCA/ACA)



Layer strategies to build a strong safety net

Next Steps: Good System Design



Seek to impact various phases in the medication use process given the underlying causes (e.g., procuring, storing, prescribing, transcribing, preparing, dispensing)



Review if changes impact other areas or location within your organization



Balance impact with resources



Use evidence to drive changes as much as possible



Use rapid-cycle improvement strategies

Plan-Do-Study-Act (PDSA)

Usability studies

Reflection Questions

Self-Assessment Questions

When a physician misspeaks while calling in a prescription and orders a ten-fold overdose of a drug, this is considered an active failure.

- a) True
- b) False

Self-Assessment Questions

When a physician misspeaks while calling in a prescription and orders a ten-fold overdose of a drug, this is considered an active failure.

- a) True
- b) False

Self-Assessment Questions

When chronic technician staffing shortages in the pharmacy make it difficult to have a second check of a product and contribute to an error during prescription filling, this is considered an active failure.

- a) True
- b) False

Self-Assessment Questions

When chronic technician staffing shortages in the pharmacy make it difficult to have a second check of a product and contribute to an error during prescription filling, this is considered an active failure.

- a) True
- b) False

Self-Assessment Questions

Which of the following are key safety principles to use in medication error prevention?

- a) Forcing functions
- b) Warnings, alerts, reminders, checklists
- c) Confirmation bias and normalization of deviance
- d) Barriers and fail-safes
- e) All but C

Self-Assessment Questions

Which of the following are key safety principles to use in medication error prevention?

- a) Forcing functions
- b) Warnings, alerts, reminders, checklists
- c) Confirmation bias and normalization of deviance
- d) Barriers and fail-safes
- e) All but C

Self-Assessment Questions

What is an example of a high-leverage risk-reduction strategy?

- a) Standardization and protocols
- b) Automation and computerization
- c) Redundancy
- d) Suggestions to “be more careful”

Self-Assessment Questions

What is an example of a high-leverage risk-reduction strategy?

- a) Standardization and protocols – Medium Leverage
- b) Automation and computerization – High Leverage
- c) Redundancy – Medium Leverage
- d) Suggestions to “be more careful” – Low Leverage



Questions?