Memorial Sloan Kettering Cancer Center

A Cancer Center's Experience in Improving Medication Safety

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New York, NY
April 21, 2024

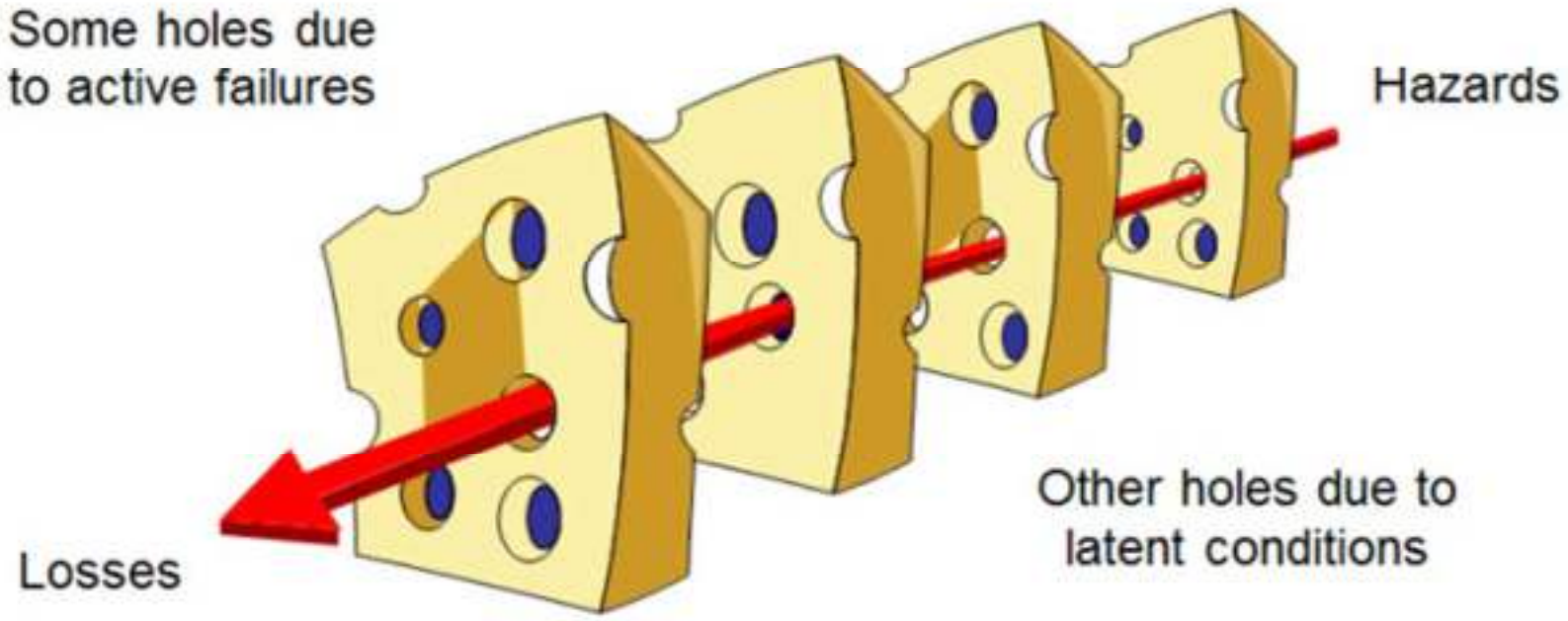
Disclosures

- I declare no personal, financial, or ethical conflicts of interest regarding the contents of this presentation.

Objectives

- Describe medication event reporting
- Evaluate, analyze and trend medication events
- Formulate strategies to reduce medication errors

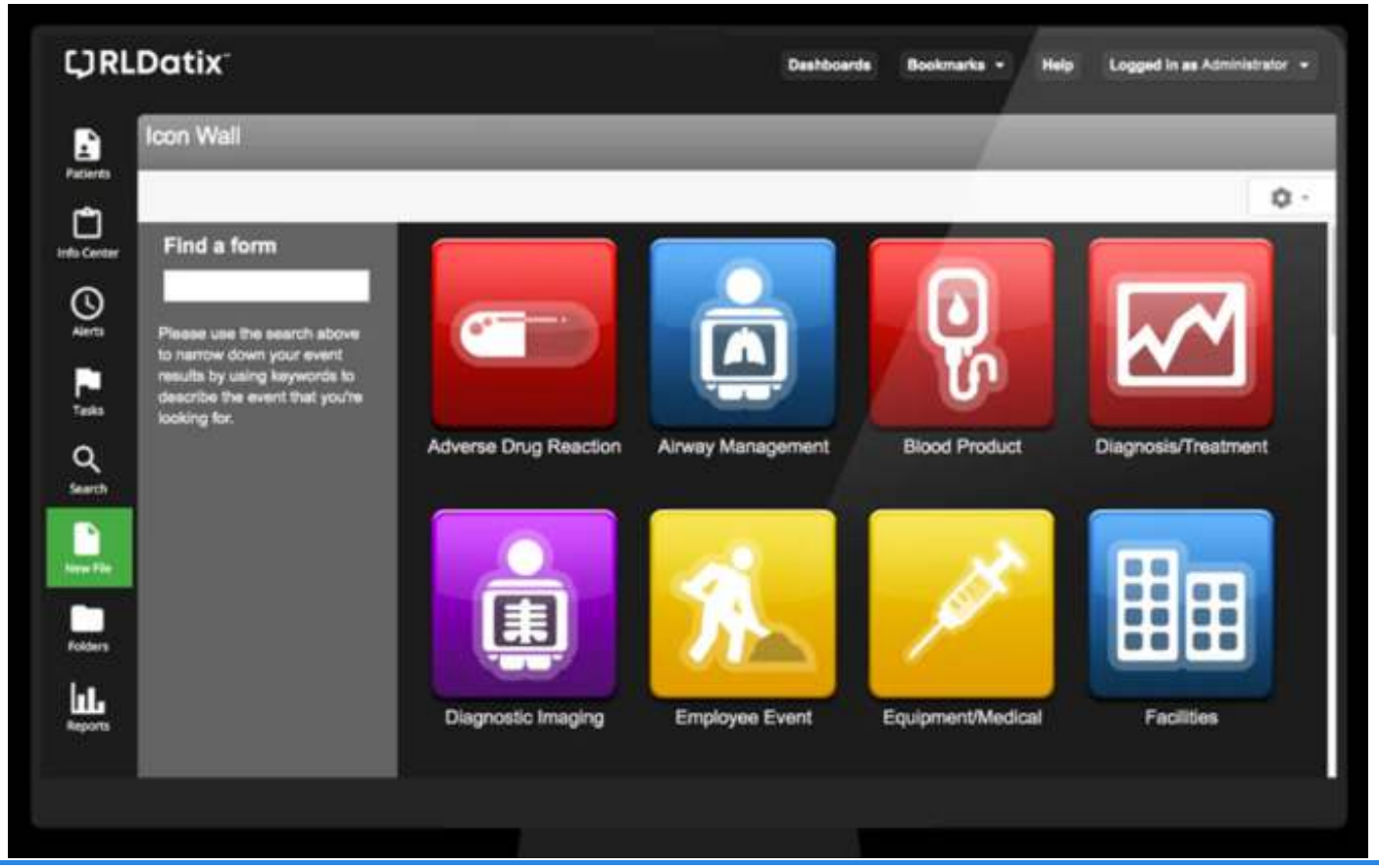
What do we know about the holes?



Adapted from: "Swiss Cheese" Model. Reason, J. (1990) Human Error. Cambridge: University Press, Cambridge.

Medication Event Reporting

Medication Event Reporting



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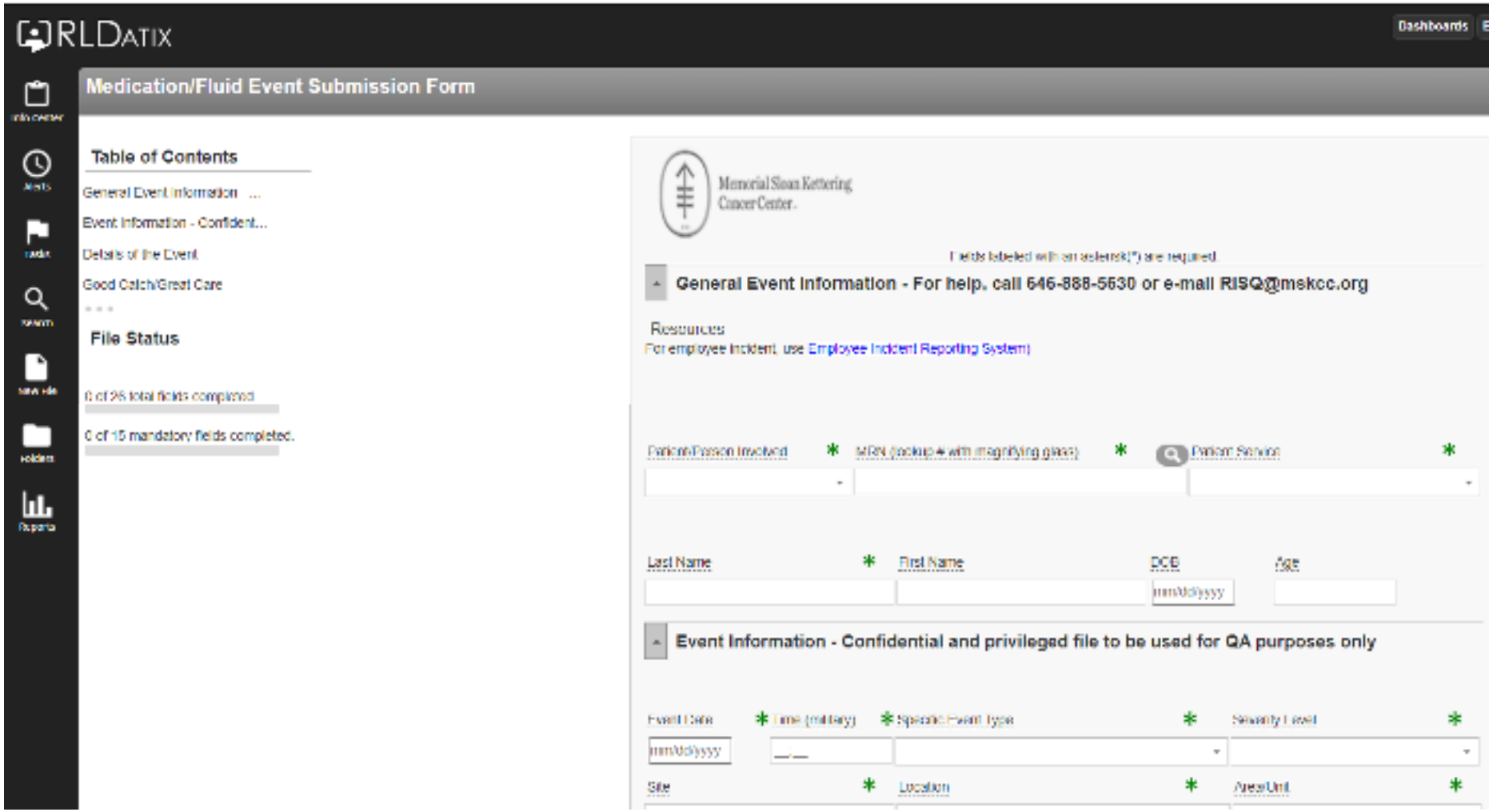
Screen capture from "RLDatix website." Accessed 3/16/24. https://sourceforge.net/software/product/RLDatix/



Screen capture from MSK Medication Event Reporting website. Accessed 3/16/24.

Standardization

Specific Event Type

- Unknown/Other (please specify)
- Unordered medication
- Wrong dose/strength
- Wrong frequency/date/time
- Wrong medication/fluid
- Wrong patient
- Wrong preparation
- Wrong rate
- Wrong route
- Wrong side/site/body part
- wrong volume

Severity Level

0	Near Miss	An unplanned event that did not reach the patient but may have resulted in injury or illness if it had.
1	No Harm	An event that reached the patient but resulted in no harm to the patient.
2	Temporary/Minor Harm	An event that results in any observable bruise, contusion, abrasion, etc.; an event that requires treatment as a result, such as a dressing, ice, suturing, administration of platelets or blood; an event that requires return to the hospital for procedures such as additional radiation oncology treatments, repeat scans, endoscopy procedures.
3	Permanent/Significant Harm	An event that results in an injury that requires a higher level of care, hospital admission, and/or surgery; injury that requires insertion of a device such as an endotracheal tube or chest tube; severe injury expected to impact activities of daily living such as fracture or intracranial bleed.
		result of injuries related to the

Key Terms

Air in Line | Alert Fatigue | Biosimilar | Night (7pm-7AM) | Guidelines/Policy

Delay | RPh Verification | Medication preparation | Therapeutic duplication

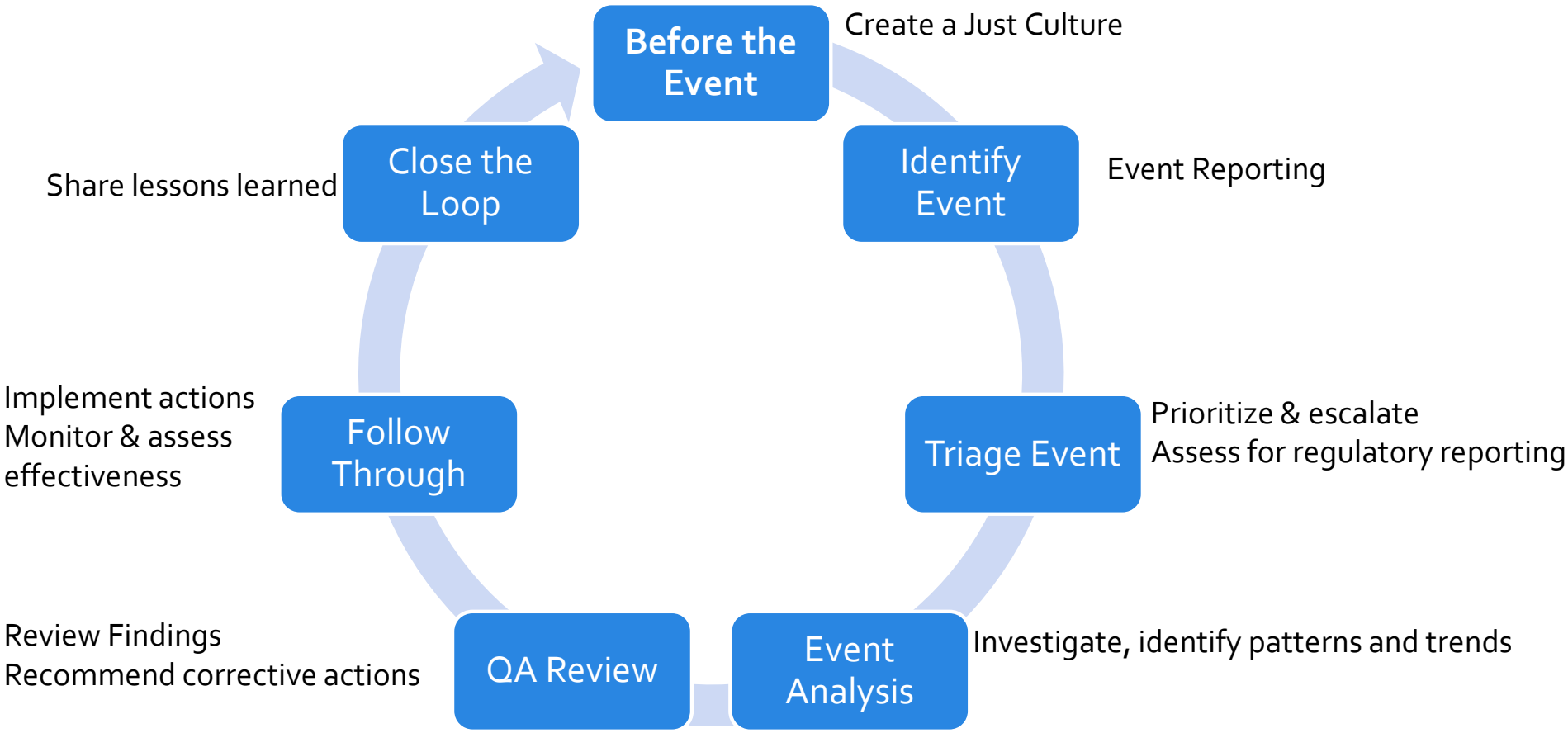
Coordination of Care | Patients own medication | PCA | Medication Reconciliation

RPh Verification | Mislabeling | Practice | COVID-19 | Systems and Technology

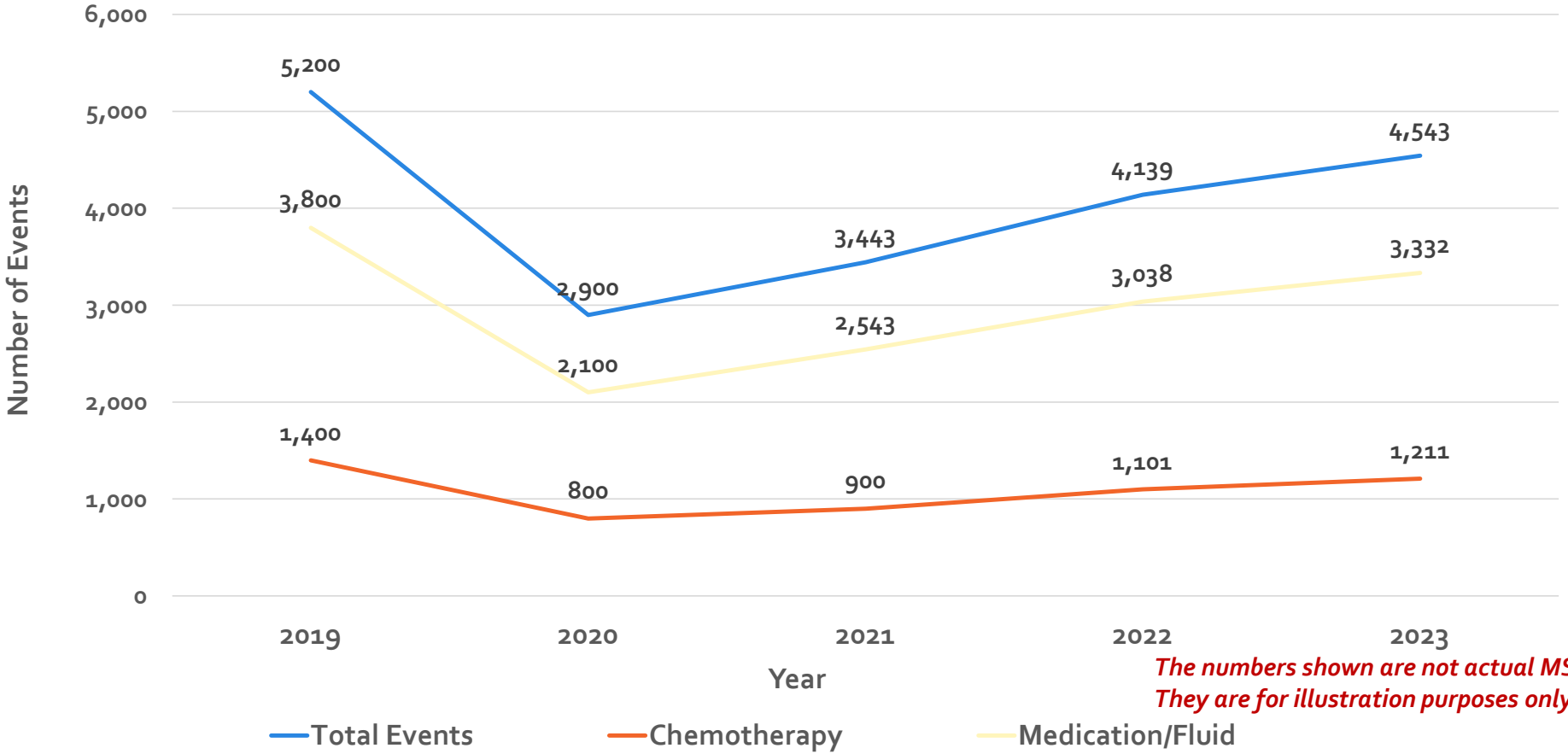
Home Medication List | Admin Instructions | Allergies | Medical administration

Evaluate, Analyze, and Trend Medication Events

Medication Event Review

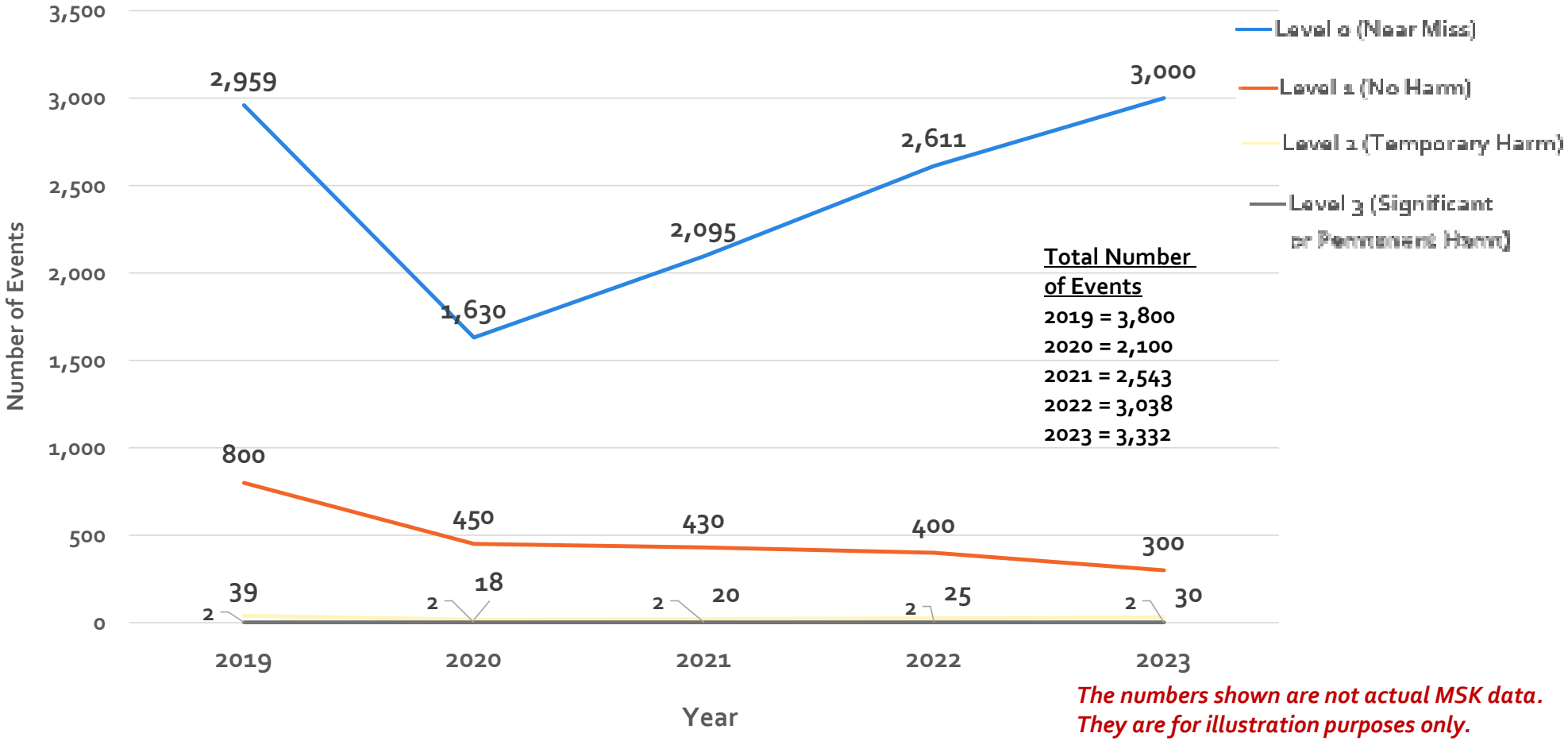


Trend of Total Events



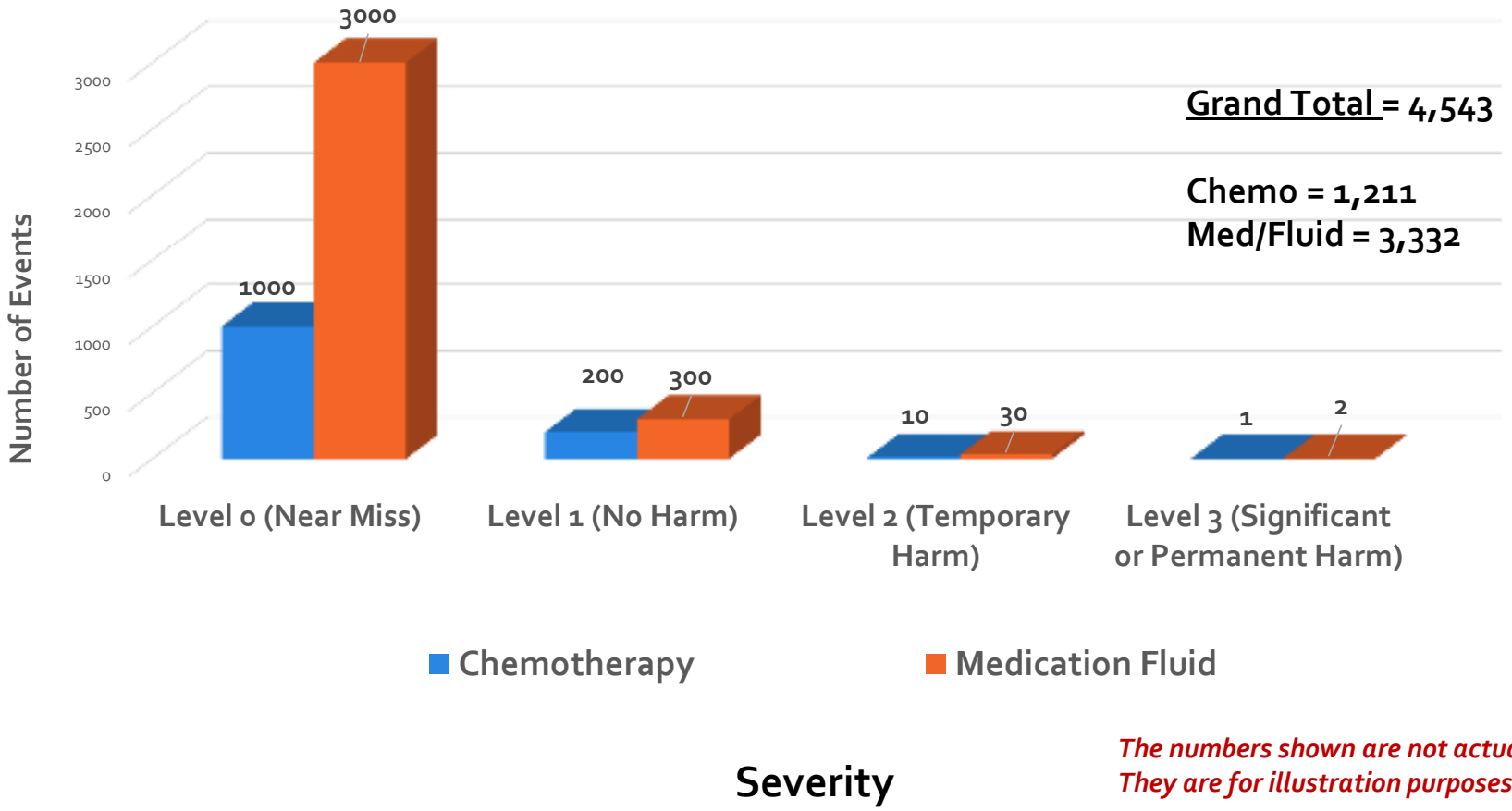
The numbers shown are not actual MSK data. They are for illustration purposes only.

Trend of Medication/Fluid Events by Severity



The numbers shown are not actual MSK data. They are for illustration purposes only.

Events by Severity

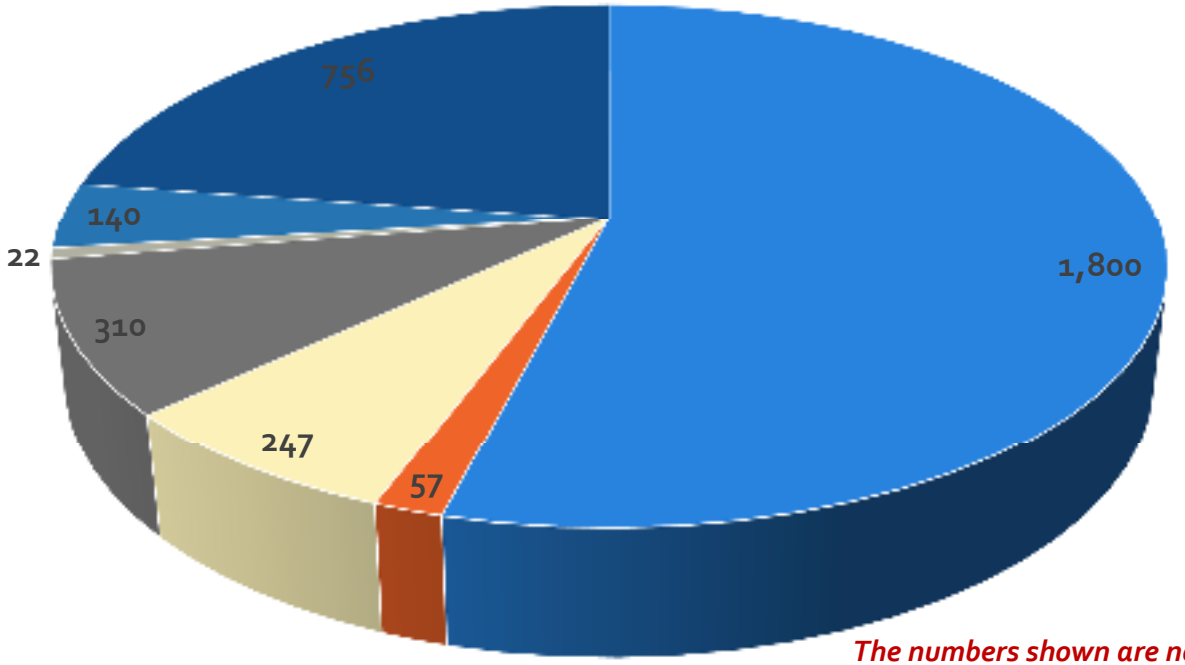


Grand Total = 4,543

Chemo = 1,211
Med/Fluid = 3,332

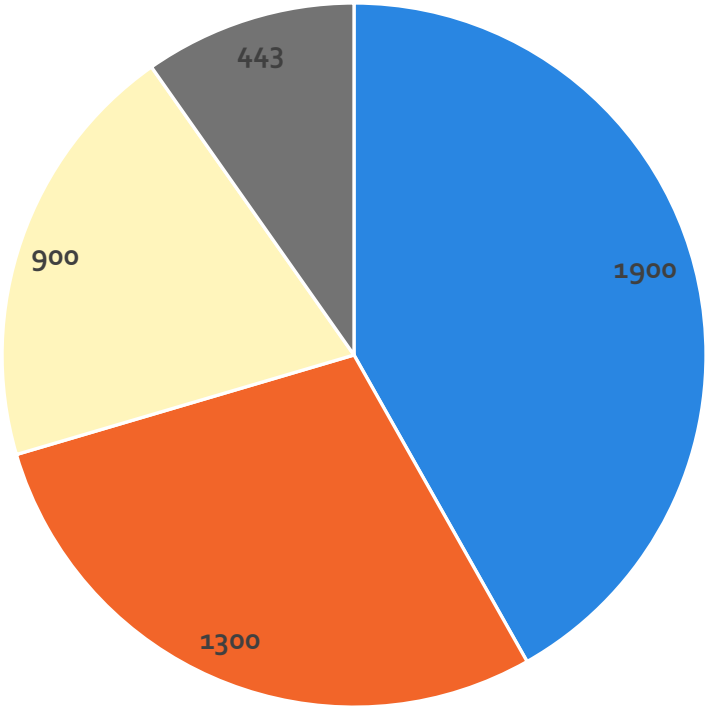
The numbers shown are not actual MSK data. They are for illustration purposes only.

Number of Med/Fluid Events Reported by Location



The numbers shown are not actual MSK data. They are for illustration purposes only.

Medication/Fluid Events by Phase



Total # of events = 4,543

Ordering/Prescribing = 1900 (41.8%)

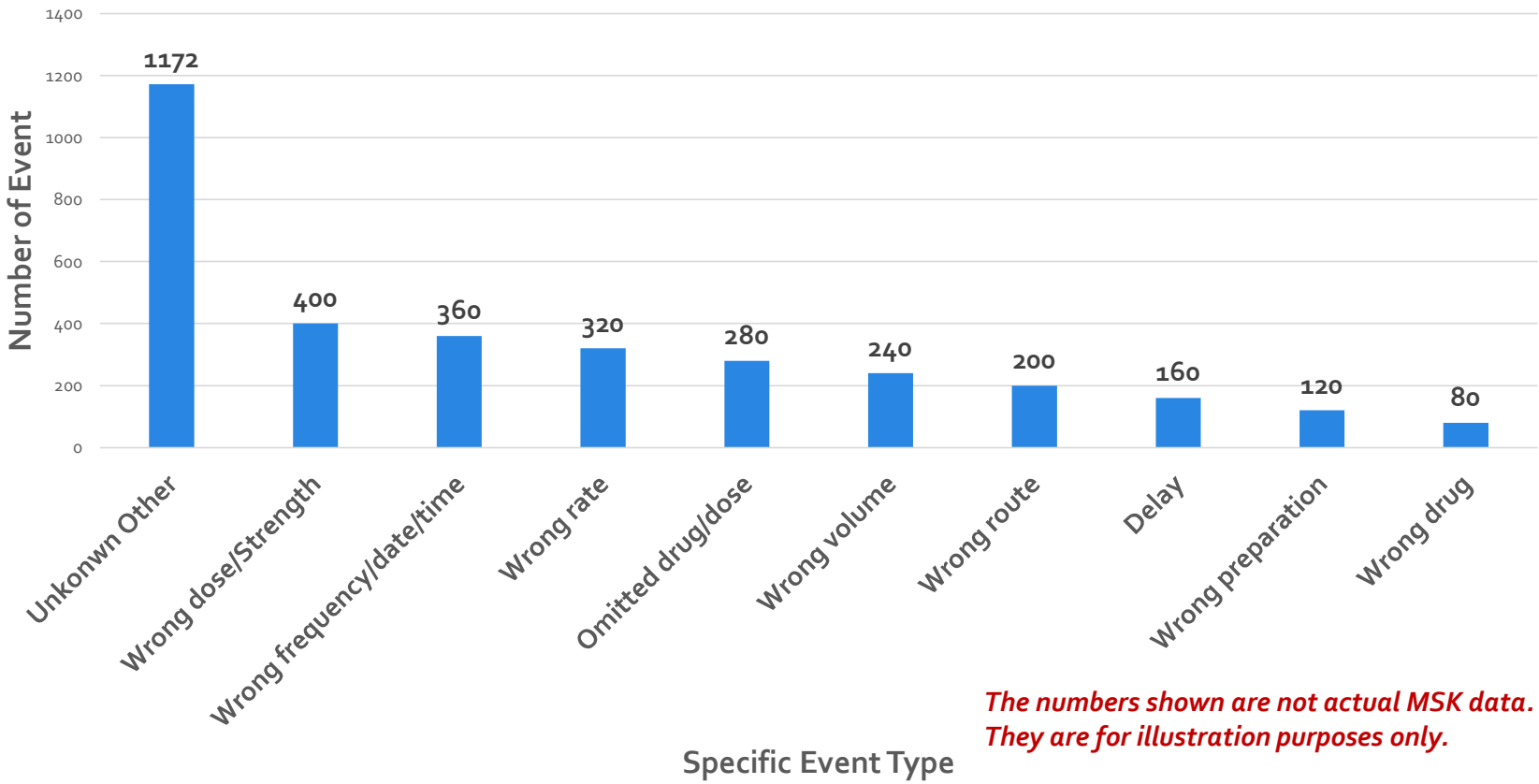
Administration = 1,300 (28.6%)

Dispensing = 900 (19.8%)

Other = 443 (9.8%)

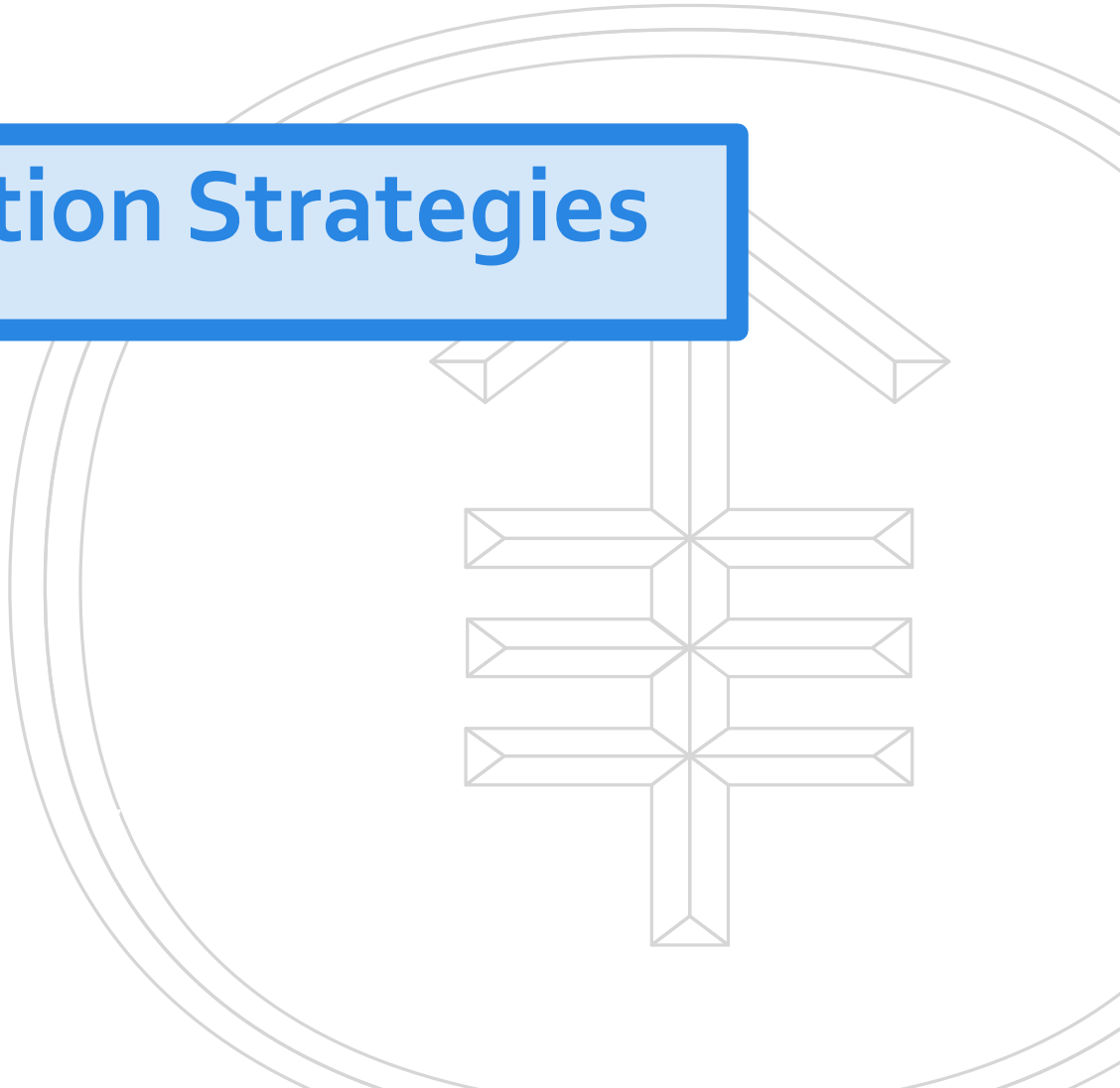
The numbers shown are not actual MSK data. They are for illustration purposes only.

Top 10 Med/Fluid Specific Event Types



The numbers shown are not actual MSK data. They are for illustration purposes only.

Risk Reduction Strategies



Reactive Risk Management Strategies

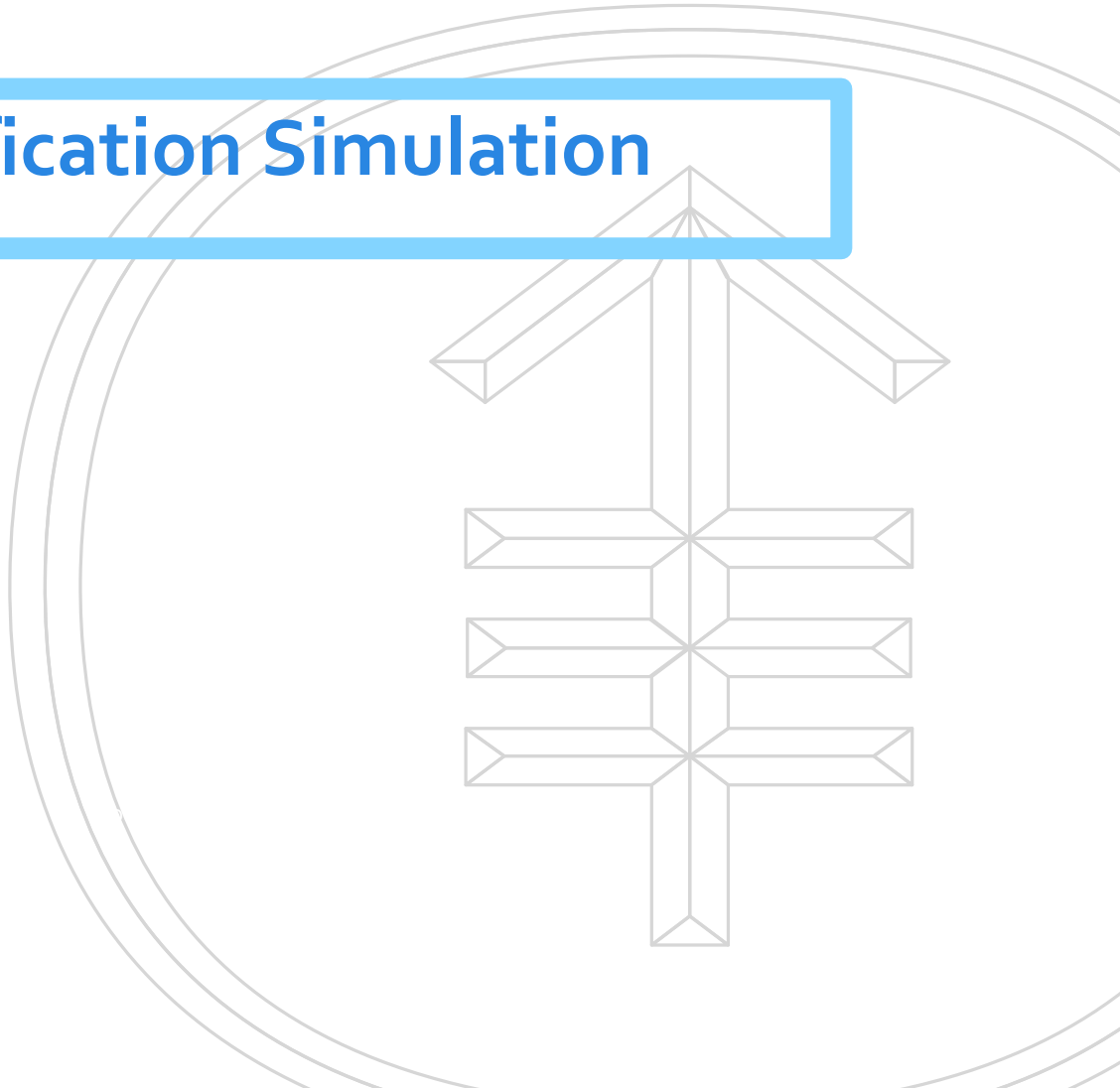
- Use **medication event review** to identify and assess risk points
  - Involve employees in developing and implementing a continuous monitoring system to evaluate patient care, treatment, and safety

- **Performance Improvement Projects**
  - Use aggregate data and data analysis to trend and identify at-risk activities and processes
  - Collaborate with frontline staff and MSK experts in improving at-risk processes before patient harm occurs

Performance Improvement Project Examples

1. Chemotherapy Verification Simulation Test
2. Look-alike, Sound-like Drug List Update
3. Managing Medications in Patients with Alpha-Gal Syndrome

Chemotherapy Verification Simulation Test



Chemotherapy Order Simulation Test

Goals:

- Evaluate training and education of chemo RPH
- Discover potential workflow issue/guideline update
- NOT used for staff performance appraisal

How was the test created?

1. Reviewed chemo med events reported

2. Selected cases to be used for simulation

- Test questions validated by managers

3. Test distributed to all chemo pharmacists

- Via survey monkey: 10 chemo eATO for evaluation
- Evaluate based on provided information and check off sources used during order review
- Provide explanation for rejected orders

Chemotherapy Verification Simulation Test

- **Ten chemo orders for evaluation**
  - Staff submitted answers via SurveyMonkey
  - Provided staff with sufficient information in the test to evaluate the chemo order
  - Staff may use any resources but must complete the test independently
  - Staff was asked to determine whether the chemo order is acceptable for verification

- **Must provide explanations for rejected orders**

- **Must point out all errors to receive credit**

Chemo Verification: What to Check?

- Chemo RPhs were asked to check off all sources that may apply during chemo order review. The following are expected to be checked off:

	Checked Off by	%
chemotherapy drug guidelines (parenteral & oral)	120/121	
chemotherapy regimen guidelines	121/121	
IRB protocols	116/121	
height & weight in CIS	119/121	
medication profile	120/121	
lab value/treatment parameters	119/121	
cumulative anthracycline dose	108/121	
previous cycle (dosage, administration date, etc)	118/121	
allergies	118/121	
NCCN Guideline	83/121	
global rx note	118/121	

Look-alike, sound-like Drug List Update

Look-alike, Sound-alike Medications

"Look-Alike/Sound-Alike" Medication Names at High-Risk for Confusion

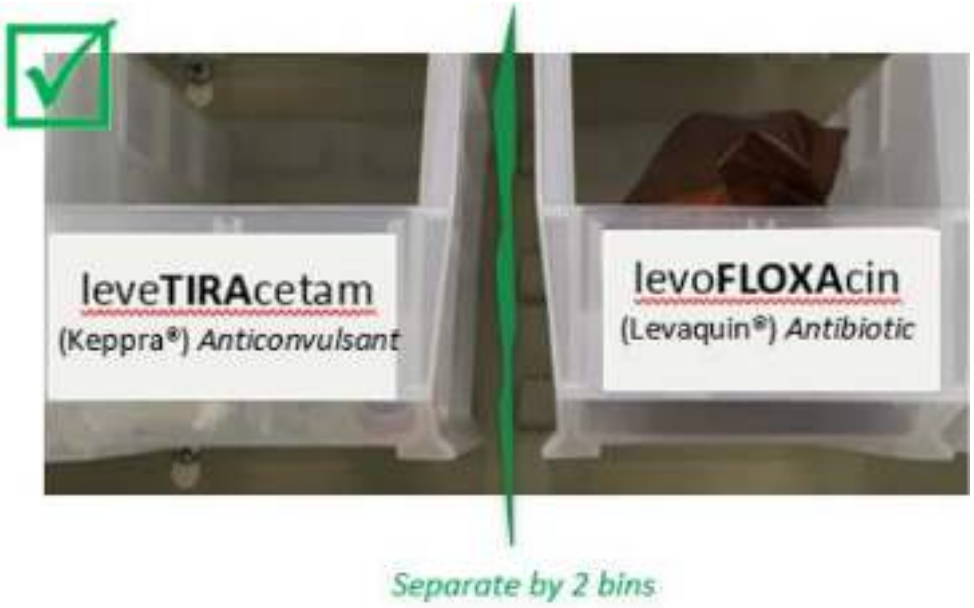
PARENTERAL *Chemotherapy/Biologic*

- This list of medications is available on the MSK Formulary and is identified as HIGH RISK for confusion due to similarities in spelling and pronunciation.
- Strategies are employed in efforts to prevent/minimize the risk of occurrence
  1) Use of Tall man lettering in all electronic systems and Smart pump drug libraries
  2) Use of Tall man lettering for patients' medication labeling
  3) Use of Tall man lettering and segregation in medication storage areas such as shelf/bin, Omnicell, medication servers, refrigerators. Click HERE for separation strategies.

asparaginase Erwinia (**RECOMBINANT**)-rywn	**PEG**aspargase	**CAL**aspargase pegol-mknl	
ADAlimumab	**AVE**lumab	**ATEZO**lizumab	**ALEM**tuzumab
b**EVA**cizumab	**BLINA**tumomab	b**REN**tuximab vedotin	
bendamustine	**CAR**mustine		
ce**MIPL**imab-rwlc	do**STAR**limab-gxly		
CEtuximab	**MIR**vetuximab soravtansine-gynx	**SIL**tuximab	
co**PAN**lisib	**CARBO**platin	**CIS**platin	**OXALI**platin
DARatumumab	d**INU**tuximab	dur**VA**lumab	du**PIL**umab
DAUNOrubicin	**LIPOSOMAL DAUNO**rubicin-cytarabine	**DOXO**rubicin	**LIPOSOMAL DOXO**rubicin
denosumab 120 mg **(XGEVA)**	denosumab 60 mg **(PROLIA)**		
e**CU**lizumab	en**FOR**tumab vedotin-ejfv	e**LO**tuzumab	**GEM**tuzumab ozogamicin
eri**BULIN**	**EPIRUB**icin	**IDA**rubicin	
i**PIL**imumab	i**NF**liximab	**INO**tuzumab ozogamicin	

Recommendations

- Ensure all look-alike, sound-alike (LASA) bins are labelled with Tall Man Lettering
- Separate LASA drug pair by at least 2 bins (horizontally)
- Select LASA bin labels to include both brand and non-proprietary name – levoFLOXAcin (Levaquin); leveTIRAcetam (Keppra) – buPROPion (Wellbutrin; Zyban); busPIRone (Buspar)
- Select LASA bin labels to include indications/therapeutic category



Managing Medications in Patients with Alpha-Gal Syndrome

P

Pharmacy

Home P&P Drug Policy Material Mgmt Training & Education Quality & Safety ··· Edit

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- Alpha-gal syndrome (AGS) is also called alpha-gal allergy, red meat allergy, or tick-bite meat allergy. It is an allergic condition in which people react to alpha-gal, a sugar molecule found in most mammals (pork, beef, rabbit, lamb, venison, etc.)
- In addition to foods, inactive ingredients in medications may trigger reactions in these patients. Below are resources to assist in the management of patients with alpha-gal syndrome.

Medications with AGS Information

Resources for Pharmacists

Resources for Prescribers

FAQ about Alpha-Gal Syndrome

DailyMed - Package Inserts

Contact Information

Thank you

Pharmacy Quality & Safety

- Katherine Vicinanza-Rickard
- Fuwang Xu
- Raymond Muller
- Rebecca Razel
- Brian Kam

Pharmacy Leadership

- Mark Cimring
- Scott Freeswick
- Melissa Lee-Teh
- Joe Lim
- Priti Patel
- Richard Tizon

ASHP PGY2 Medication-Use Safety & Policy Residency Program Preceptors

- Manpreet Boparai
- Kristin Carson
- Matthew Grissinger
- Omair Jamil
- Leonid Khodorovskiy
- Lauren Koranteng
- Bernadette Loughlin
- Amy Ok
- Priti Patel
- Jared Snavely
- Kelvin Tsang
- Anita Wang
- Stacy Wong
- Qiong Yan
- Jennifer Yang

References

1. “Swiss Cheese” Model. Reason, J. (1990) Human Error. Cambridge: University. Press, Cambridge.
2. Institute for Safe Medication Practices (ISMP). Pump up the volume: how to prioritize events and analyze error data. *ISMP Medication Safety Alert! Acute Care.* 2023;28(3):1-4
3. Institute for Safe Medication Practices (ISMP). Pump up the volume: Tips for increasing error reporting and decreasing patient harm. *ISMP Medication Safety Alert! Acute Care.* 2021;26(17):1-5