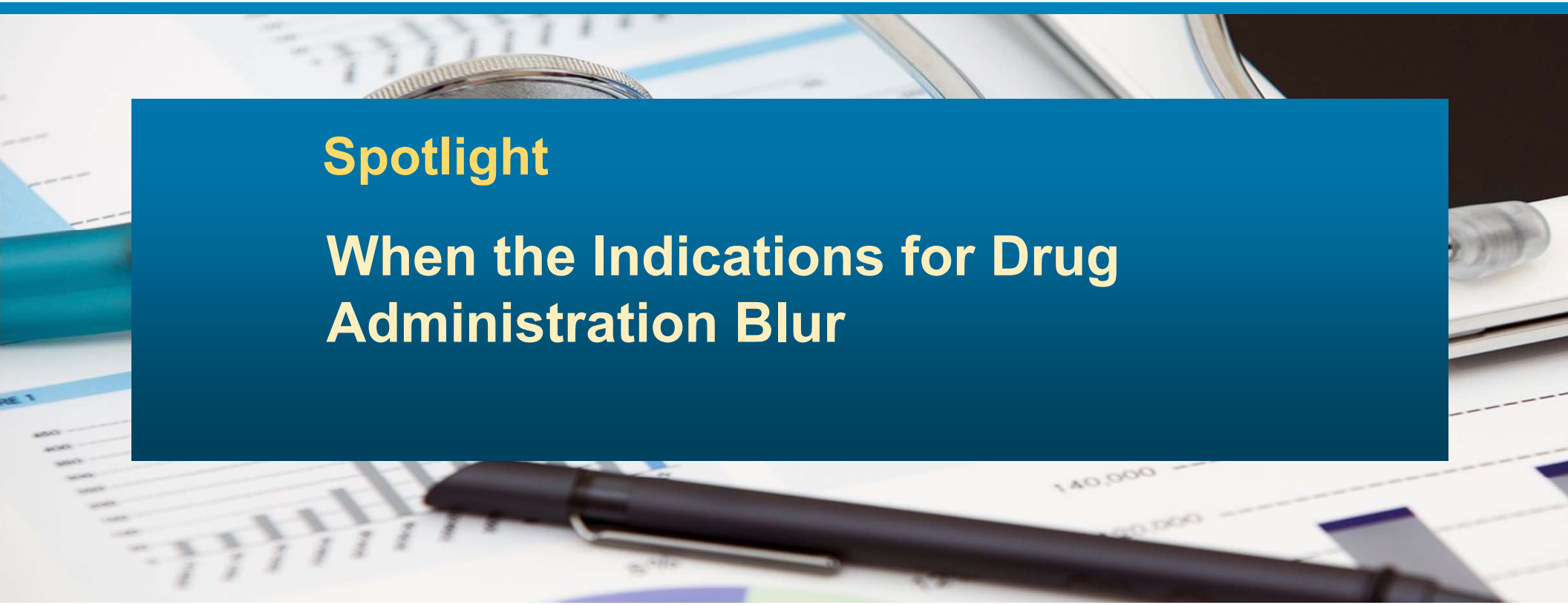
WebM&M

Morbidity and Mortality Rounds on the Web



## Spotlight

# When the Indications for Drug Administration Blur

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

PSNet PATIENT SAFETY NETWORK

# Source and Credits



- This presentation is based on the June 2020 AHRQ WebM&M Spotlight Case
  - See the full article at https://psnet.ahrq.gov/webmm
- Commentary by: Julia Munsch, PharmD and Amy Doroy, PhD, RN
  - Editors in Chief, AHRQ WebM&M: Patrick Romano, MD, MPH and Debra Bakerjian PhD, APRN, RN
  - Spotlight Editors: Jacquline Stocking, PhD, MBA, MSN, RN, NEA-BC; Patricia Poole, PharmD, BCPS, AAHIVP
  - Managing Editor: Meghan Weyrich, MPH

# Objectives



*At the conclusion of this educational activity, participants should be able to:*

- Discuss five patient safety targets associated with this case.
- State the eight rights of medication administration.
- Recognize the importance of documentation all medications
- Acknowledge the importance of handoffs in reducing medication errors
- Identify unique challenges associated with care during the night shift

# WHEN THE INDICATIONS FOR DRUG ADMINISTRATION BLUR

A case of lorazepam medication overuse during the night shift resulting in altered mental status and low blood oxygen highlights the importance of medication reconciliation upon transition of care, assessment of patient response to medications, accurate and complete documentation and communication, and the impact of limited resources during the night shift

# Case Details (1)

- 55-year old woman
- Admitted to the intensive care unit (ICU) with necrotizing pneumonia and underwent pneumonectomy and tracheostomy
- While in the ICU, she had a seizure of unclear etiology
  - Afterwards she was prescribed lorazepam 4mg intravenously (IV) every 2 hours as need
- After 24-hours in the ICU, she was stable and transferred to the inpatient floor
  - The medication list was not updated during the transition

# Case Details (2)



- During the night shift, patient became anxious and could not sleep
  - The nurse checked her vitals, which were normal
  - Seeing lorazepam on the medication list, the nurse gave 4 mg to help alleviate the anxiety
- After the first dose of lorazepam, the patient was able to sleep for a short period but woke with more anxiety
  - The nurse repeated the 4mg dose of lorazepam each time the patient complained of anxiety, resulting in a total of 4 doses (16 mg) of IV lorazepam over the course of 12-hours

# Case Details (3)



- After the morning shift change, the morning nurse found the patient to be barely arousable with a very low blood oxygen saturation of 89-90%
- Only one dose of lorazepam had been documented during the night shift and the night nurse did not communicate the additional undocumented doses when she signed out
  - This left the morning nurse unsure as to the cause of the decrease in mental status and low blood oxygen

# Case Details (4)



- Rapid Response Team was called immediately and the patient was placed on a ventilator
- Upon later finding out she had received 16 mg IV lorazepam overnight and given her petite stature, she was moved back to the ICU for treatment of altered mental status due to iatrogenic medication overuse
- Subsequently, the patient improved, was extubated, and eventually returned to her baseline mental status and safely transferred back to the floor

# WHEN THE INDICATIONS FOR DRUG ADMINISTRATION BLUR

The Commentary

By Julia Munsch, PharmD and Amy Doroy, PhD, RN

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# BENZODIAZEPINE ADMINISTRATION

# Benzodiazepine Administration



- Benzodiazepines, including lorazepam, are effective for termination of seizure activity, especially in early states and are commonly used during hospitalizations for a variety of indications
- Recommended dosing from the American Epilepsy Society for lorazepam is 0.1 mg/kg (maximum 4 mg) and may repeat once
- This class of drugs is frequently associated with errors that can result in adverse events including falls, central nervous system depression and respiratory depression
  - Due to their high-risk nature, extra attention is essential when ordering, verifying, and administering benzodiazepines

# PATIENT SAFETY TARGETS

# Patient Safety Targets



The following were unmet in this case

1. Thorough medication reconciliation
2. Accurate medication administration according to the practitioner's order
3. Appropriate and timely assessment of response and consideration of efficacy
4. Complete documentation and handoff communication regarding the medication and patient status
5. Availability of colleagues for consultation

Even partial achievement of these targets would have reduced the risk of harm to the patient

# CAUSES OF MEDICATION ERROR AND ADVERSE OUTCOMES

# Causes of Medication Error and Adverse Outcomes (1)



- Providers should always reconcile medications upon transfers between levels of care
  - In this Case, the discharging prescriber should have discontinued the order if seizure activity had subsided or limited its use to “one time only and then notify the physician”
  - While pharmacy staff may have reasonably assumed seizure activity was ongoing and that an order was warranted, they could have intervened to revise the frequency, in consideration of the transfer to a lower level of care
- Discontinuing the order or replacing it with a more conservative order for seizure management would have reduced risk of harm to the patient

# Causes of Medication Error and Adverse Outcomes (2)



The night nurse caring for this patient did not follow the “8 Rights of Medication Administration”

1. Right patient
2. Right drug
3. Right dose
4. Right route
5. Right time
6. Right documentation
7. Right reason
8. Right response

# Causes of Medication Error and Adverse Outcomes (3)



- The night nurse should have
  - Recognized that lorazepam 4 mg IV every 2 hours as needed is a high-risk medication even when given for seizures, especially in a petite women with no recent history of benzodiazepine use
  - Recognized that this dose of lorazepam is inappropriate for anxiety, which would typically be treated with a lower dose
  - Further questioned the intravenous route of administration for the indication of anxiety
- Because of the failure to recognize this as a high-risk medication, the night nurse did not consistently assess the patient's response to the medication, or they would have recognized the change in level of consciousness

# Causes of Medication Error and Adverse Outcomes (4)



- The night nurse failed to document the medication and the patient's response to each dose of the medication, and failed to provide shift-to-shift handoff communication
  - This left the day nurse without critical information needed to care for this patient

# Causes of Medication Error and Adverse Outcomes (5)



- Systems failures contributed to this situation
  - Typically, the electronic health record (EHR) could help prevent medication errors and adverse events through hard stops when maximum doses are exceeded
    - This did not happen in this case even though excessive doses of lorazepam were administered
  - As the night nurse did not document the lorazepam, the Rapid Response Team did not readily know the cause of the respiratory problem

# SYSTEMS CHANGE NEEDED/QUALITY IMPROVEMENT APPROACH

## Systems Change Needed/Quality Improvement Approach (1)



- Multiple complicating factors exist during the night shift
  - Well documented effect of sleep disturbance on shift workers
  - Reduced presence of other health care providers, such as physicians or pharmacists, for consults
  - Workload is heavier for night nurses and there are fewer resource nurses available to provide guidance
- It is possible the night nurse intended to check the patient more frequently but was stretched too thin providing care to other patients

## Systems Change Needed/Quality Improvement Approach (2)



- New, inexperienced nurses are often placed on night shift
  - Hospitals must ensure that new graduates and nurses with less experience have adequate supervision and mentoring
  - This requires both appropriate staffing levels with adequate numbers of nurses (based on patient case-mix) and enough experienced nurses and supervisors to provide oversight
- Strong orientation and onboarding to both the hospital and night/weekend shifts when supportive resources are limited can be helpful in reducing errors and harm to patients

## Systems Change Needed/Quality Improvement Approach (3)



- State Nurse Practice Act and Code of Regulations requires nurses document all instances of medication administration
  - Health systems have made attempts to decrease the likelihood of adverse drug events by implementing health information technologies such as EHR systems with embedded alerts, handheld barcode medication administration devices that document medications as they are administered in real time, and electronic medication administration records

## Systems Change Needed/Quality Improvement Approach (4)



- In most community hospitals, there may be few physicians or pharmacy staff available to inpatient units
  - A hospitalist may be available, but at night they tend to focus on patients in the ICU and step-down units and do not round regularly on medical-surgical units unless called upon
  - Had a hospitalist been making regular rounds – as is done on the day shift – the rounding physician or service-based pharmacist may have noticed and investigated the repeated lorazepam doses

## Systems Change Needed/Quality Improvement Approach (5)



- Restorative sleep initiatives may lead to the expectation that all patients need to be sleeping at night, which can be problematic in some cases
  - Encouragement of restorative sleep does not come with the explicit expectation to appropriately monitor response to a given medication
  - In this Case, the expectation of sleep/rest may have resulted in the night nurse having a lower threshold for giving medication to treat anxiety to encourage better sleep
  - This can create a risk to patient safety because of the difficulty in monitoring for over-sedation; determining whether a patient is sleeping versus becoming more obtunded can be challenging

# Approach to Anxiety & Insomnia



- Approach to anxiety & insomnia in hospitalized patients starts with non-pharmacologic sleep hygiene measures:
  - a dark and quiet environment,
  - comfortable temperature and bedding,
  - caffeine avoidance,
  - limited interruptions
- Pain control is also important and should also include a non-pharmacological and pharmacological modalities
- Persistent or extreme anxiety and insomnia warrants an investigation of underlying causes before more aggressive treatment

# TAKE-HOME POINTS

# Take-Home Points (1)



- Review and adjustment of medication orders upon patient transfer is an important safeguard to prevent inappropriate and/or unnecessary orders remaining in effect.
- Consistent use of the 8 Rights of Medication Administration is essential.
- Reading the complete medication order, including “as needed” indications and administration instructions, is critical for ensuring medications are given for the correct reasons.
- Assessment of patient response is crucial for ascertaining whether an ordered medication is having the intended or an unintended effect.

# Take-Home Points (2)



- Documentation of medication administration and thorough communication—preferably a warm handoff—helps ensure that incoming staff are fully informed about patients' conditions.
- Night shift presents unique challenges related to limited resources (fewer colleagues with whom nurses can confer, absence of a service-based pharmacist and rounding physicians who might notice and question drug administration events and patient responses).

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# THANK YOU!