Adverse Drug Events in Wyoming

Where We Are and Where We Need to Go

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Objectives

Upon completion of this program participants will be able to:

• Define and give an example of a medication error, adverse drug reaction and adverse drug event
• Describe the estimated rates and trends of anticoagulant, diabetic and opioid adverse drug events in Wyoming
• Outline tools, processes and policies that can address adverse drug events and prevent future adverse events
• Identify roles and responsibilities different employees can have in adverse drug event identification and prevention
2010 graduate of University of Wyoming School of Pharmacy

- Worked in retail pharmacy since 2006
  - Worked for Albertsons/Osco (SuperValu), Safeway, Emissary Professional Group (now Geneva Woods) and Walmart
  - Ran a HRSA 340b clinic-based pharmacy
  - Spent 18 months working as the director of pharmacy for an inpatient psychiatric facility
- Started with Mountain-Pacific Quality Health in January of 2017
What’s in a Name?
Medication errors, adverse drug reactions and adverse drug drug events
Medication Errors

Defined as “inappropriate use of a drug that may or may not result in harm”

• Such errors may occur during:
  – Prescribing
  – Transcribing
  – Dispensing
  – Administering
  – Adherence
  – Monitoring

Adverse Drug Reaction

Defined as “harms directly caused by a drug at normal doses”

• May or may not be related to medication error
• Includes:
  – Allergic reactions
  – Overdoses
  – Known side effects or interactions

Adverse Drug Event

Defined as “an injury resulting from medical intervention related to a drug”

- Events include:
  - Medication errors
  - Adverse drug reactions
  - Allergic reactions
  - Overdoses

Figure 1. Terms Relevant to Drug-Related Harm [2]

- Adverse Drug Events (all blue areas)
- Adverse Drug Reactions (dark blue area only)

Preventable Errors

Adverse Drug Events in Wyoming
High Risk Medications

- Anticoagulants
- Diabetic Agents
- Opioids
Reduction in Adverse Drug Events

- Measure rate of ADE/High Risk Medication (HRM) beneficiaries in state per 1000 HRM beneficiaries

Numerator: Total # of ADE identified by claims (ICD codes)

Denominator: Total HRM beneficiaries in state (part D analysis)
Overall Adverse Drug Event Rates

Wyoming ADE Rates

<table>
<thead>
<tr>
<th>Year</th>
<th>HRM ADE</th>
<th>HRM Beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013-2014</td>
<td>52.81</td>
<td>875</td>
</tr>
<tr>
<td>2015-2016</td>
<td>58.97</td>
<td>1091</td>
</tr>
<tr>
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<td>18451</td>
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Anticoagulants

Anticoagulant Associated Readmissions

<table>
<thead>
<tr>
<th>Year</th>
<th>ADE per 1000</th>
<th>ADE</th>
<th>HRM Beneficiaries</th>
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<tbody>
<tr>
<td>2013-2014</td>
<td>129.69</td>
<td>621</td>
<td>4788</td>
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<tr>
<td>2015-2016</td>
<td>118.19</td>
<td>671</td>
<td>5662</td>
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</table>
Diabetic Agent Associated Readmissions

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate per 1000</th>
<th>ADE</th>
<th>HRM Beneficiaries</th>
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</thead>
<tbody>
<tr>
<td>2013-2014</td>
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<td>602</td>
<td>67.88</td>
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<tr>
<td>2015-2016</td>
<td>65.31</td>
<td>652</td>
<td>65.31</td>
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<tr>
<td></td>
<td>8868</td>
<td>9957</td>
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Opioids

### Opioid Associated Readmissions

<table>
<thead>
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<th>Year</th>
<th>Rate per 1000</th>
<th>ADE</th>
<th>HRM Beneficiaries</th>
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</thead>
<tbody>
<tr>
<td>2013-2014</td>
<td>108.66</td>
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<tr>
<td>2015-2016</td>
<td>112.38</td>
<td>112.38</td>
<td>1095</td>
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<tr>
<td>2016-2017</td>
<td>116.79</td>
<td>116.79</td>
<td>9717</td>
</tr>
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</table>
H-CUP Data

Inpatient Stay Per 100,000

Year


Wyoming Opioid-Related Hospital Use
US National Opioid-Related Hospital Use
Hospital Use by Patient Age

U.S. National: Opioid-Related Hospital Use by Age
Rate of Inpatient Stays

- Age <1 year
- Age 1-24 years
- Age 25-44 years
- Age 45-64 years
- Age 65+ years

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National (Nationwide) Inpatient Sample (NIS), 2007-2014 (all available data as of 03/28/2017). Inpatient stays include those admitted through the emergency department.

Wyoming: Opioid-Related Hospital Use by Age
Rate of Inpatient Stays

- Age 25-44 years
- Age 45-64 years
- Age 65+ years

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID) 2007-2014 (all available data as of 03/28/2017). Inpatient stays include those admitted through the emergency department.
Overdose Deaths Involving Opioids, United States, 2000-2015

Deaths related to commonly prescribed opioids account for nearly half of all opioid overdose deaths in 2015.

Risk of ADEs

ADE Rates per 1000

- **Anticoagulant ADE per 1000**
- **Diabetic Agent ADE per 1000**
- **Opioid ADE per 1000**
ADE Goal Setting and Quality Improvement
Per the National Coordinating Council for Medication Error Reporting and Prevention the “use of medication errors rates to compare health care organizations is of no value.”

- Reporting bias
- There are NO acceptable incidence rates for medication errors
  - Goal should be continual improvement in systems to prevent patient harm
    - Monitor actual and potential errors
Patient Safety as a Value, not a Priority

Priority

• Implies that an important activity can be shifted or rearranged according to circumstance or competing concerns

Value

• Idea tied to all work/priorities in an organization
  – Change in culture
  – Decisive and consistent
Reporting in Health Care
The problems with reporting
Error Prone Times and Places

- Med rooms
- Med pass
- Patient rooms
- Patient homes
- Pharmacy
- Assisted living facilities
- Skilled nursing facilities
- Schools
- Emergency rooms
- Mornings
- Evenings
- Weekends
Failure to Report

Barriers

• Reporting time or complexity
• Differences in definition
• Company culture
  – Fear of penalty
  – No visible benefits of reporting
• Fear of litigation
Other Considerations

• No national database on medication errors
• No incentive or requirement to share information across facilities
Reporting in Health Care
Solutions and best practices
ADE Reporting

**Who:** Personnel Involved

**What:** Details of the Event

**Where:** Location of the Event

**When:** Time Event Occurred

**Why/How**
Circumstances or events that have the capacity to cause error

Did an actual error occur?

YES

Category A

Did the error reach the patient? *

YES

Did the error contribute to or result in patient death?

YES

Category I

NO

Category B

NO

Did an actual error occur?

NO

Category A

NO

Did the error reach the patient? *

YES

Did the error contribute to or result in patient death?

YES

Category I

NO

Category B

NO

Harm
Impairment of the physical, emotional, or psychological function or structure of the body and/or pain resulting therefrom.

Monitoring
To observe or record relevant physiological or psychological signs.

Intervention
May include change in therapy or active medical/surgical treatment.

Intervention Necessary to Sustain Life
Includes cardiovascular and respiratory support (e.g., CPR, defibrillation, intubation, etc.)

*An error of omission does reach the patient.
Root Cause Analysis

Assess
• Determine what is happening
  - Physical causes, human causes, organizational causes

Diagnose
• Determine WHY it is happening

Remedy
• Create a solution to reduce the chance it will happen again
Plan of Action

Should be specific and measurable

- What system failure led to the event?
- What roles where involved in the event?
- What needs have been identified?
  - New policy or change in policy needed?
  - Retraining on process or education on current policy needed?
  - IT safeguards?
    - Alert messages, double checks, peer reviews
Plan of Action (continued)

- When will needs be addressed?
- When will a follow-up occur?
  - A plan of action should be very similar to a good goal-setting session:
    - Specific
    - Measurable
    - Achievable
    - Relevant
    - Time-bound
Mountain-Pacific ADE Prevention

- Establish relationships to coordinate provider communication and medication therapy management (MTM) across care settings
- Develop or promote evidence-based or proven best practice ADE prevention toolkits
  - Easily applicable in different care settings
  - Easily implemented for rapid adoption
  - Collect best practices for med reconciliation and MTM
- Identify barriers specific to the community
Contact

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