



A Deep Dive Into Adverse Drug Events

Learning Through Cases and Best Practice

Jean Storm DO, CMD
Medical Director Quality Insights



Quality
Insights

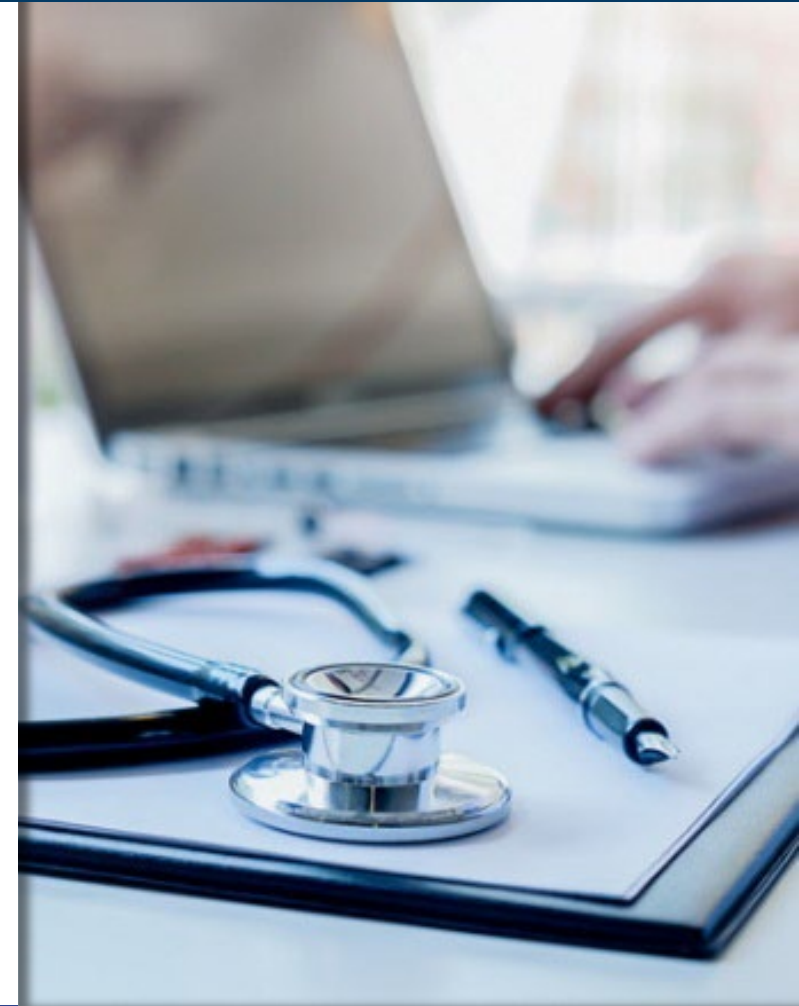
QIN-QIO

Quality Innovation Network -
Quality Improvement Organizations
CENTERS FOR MEDICARE & MEDICAID SERVICES
iQUALITY IMPROVEMENT & INNOVATION GROUP

Continuing Education

- To complete the course, the learner must:
 - Watch the 60-minute webinar (live or recorded)
 - Complete evaluation, reflective questions, and post-knowledge check
- Approved for 1.25 contact hours for Nursing
- Quality Insights is accredited as a provider of nursing continuing professional development by the American Nurses Credentialing Center's Commission on Accreditation

Quality Insights and Dr. Storm have no further disclosures



Today's Speaker



Jean Storm, DO, CMD

**Medical Director
Quality Insights**

Learning Outcomes

After this course, the learner will:

- Understand the definition of adverse drug event (ADE) and be able to recognize the different ways an adverse drug event presents in the clinical setting
- Know the drug classes that cause the most ADEs
- Understand which individuals are at greatest risk for experiencing an ADE
- Be able to describe three areas for improvement for hospitals and nursing homes to reduce ADEs
- Be able to recognize the different types of ADEs and understand what action needs to be taken (if any) by defining the type of ADE
- Understand the purpose of MedWatch and the U.S. Food & Drug Administration (FDA) Adverse Event Reporting System (FAERS) and the importance of these systems in collecting data surrounding ADEs

Learning Outcomes

After this course, the learner will:

- Recognize the steps hospitals have taken to be successful in ADEs and appreciate how these steps can be used in other health care environments
- Learn the prevention opportunities that exist in the nursing home environment to avoid and reduce ADEs in this health care setting
- Recognize the potential signs of ADEs in the nursing home resident that the resident might not be able to communicate to the provider
- Understand what role cognitive bias plays in ADEs – especially antibiotic prescribing – and utilize methods like meta-cognition to overcome these biases and improve patient care
- Understand that some medications may cause ADEs in certain ethnic groups

“Do as much as possible *for*
the patient, and as little as
possible *to* the patient.”

DR. BERNARD LOWN



Definition

- **Centers for Medicare & Medicaid Services (CMS)**

“An untoward, undesirable, and usually unanticipated event that causes death, serious injury, harm, or the risk thereof.”¹

- **Centers for Disease Control and Prevention (CDC)**

“When someone is harmed by a medication.”²

- **U.S. Food & Drug Administration (FDA)**

“Any untoward medical occurrence associated with the use of a drug in humans, whether or not considered drug related.”³

1. <https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/QAPI/downloads/adverse-drug-event-trigger-tool.pdf>

2. [https://www.cdc.gov/medicationsafety/adverse-drug-events-specific-medicines.html#:~:text=An%20adverse%20drug%20event%20is,hypoglycemia\)%20related%20to%20insulin%20use](https://www.cdc.gov/medicationsafety/adverse-drug-events-specific-medicines.html#:~:text=An%20adverse%20drug%20event%20is,hypoglycemia)%20related%20to%20insulin%20use)

3. <https://www.fda.gov/drugs/investigational-new-drug-ind-application/ind-application-reporting-safety-reports#:~:text=Adverse%20event%20means%20any%20untoward,drug%20caused%20the%20adverse%20event.X>

Numbers

- Outpatient:
 - Four emergency department (ED) visits per 1,000 individuals occurred 2013-2014 for ADEs, and 28.3% of these visits resulted in hospitalization.¹
- Hospital:
 - In 2019, there were 70-139 ADEs per 1,000 discharges (depending on diagnosis).²



1. Shehab N, Lovegrove MC, Geller AI, Rose KO, Weidle NJ, Budnitz DS. US Emergency Department Visits for Outpatient Adverse Drug Events, 2013-2014. *JAMA*. 2016;316(20):2115–2125. doi:10.1001/jama.2016.16201

2. Eldridge N, Wang Y, Metersky M, et al. Trends in Adverse Event Rates in Hospitalized Patients, 2010-2019. *JAMA*. 2022;328(2):173–183. doi:10.1001/jama.2022.9600

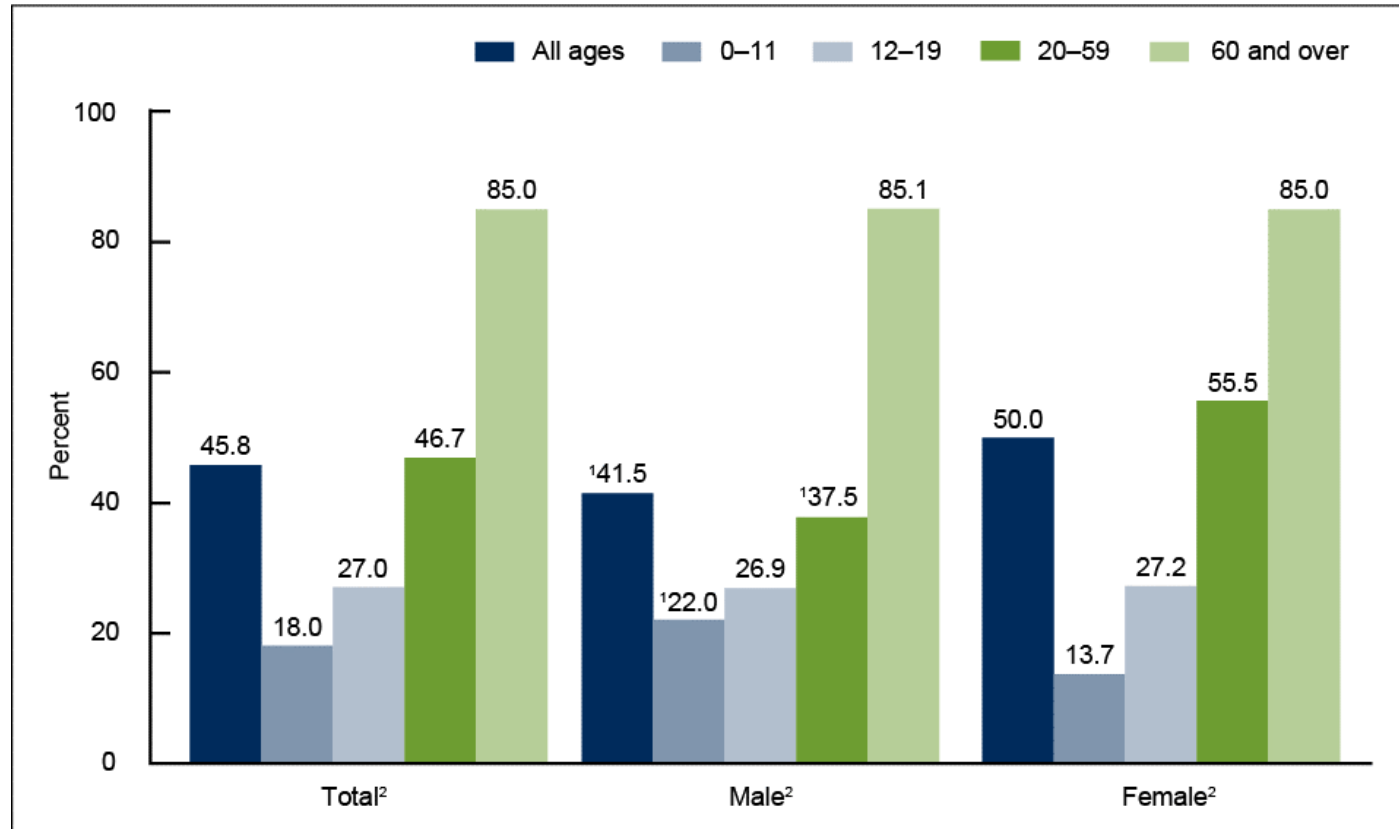
Numbers

- Nursing Homes:
 - Office of Inspector General (OIG) report released in 2014 found that in a sample of individuals admitted to skilled nursing facilities (SNFs) in their first 35 days:
 - 22% experienced adverse drug events
 - 11% of ADEs caused temporary harm
 - 59% of ADEs were preventable



Medication Use

Figure 1. Use of one or more prescription drugs in the past 30 days, by age (years) and sex: United States, 2015–2016



¹Significantly different from females.

²Significant increasing trend with age.

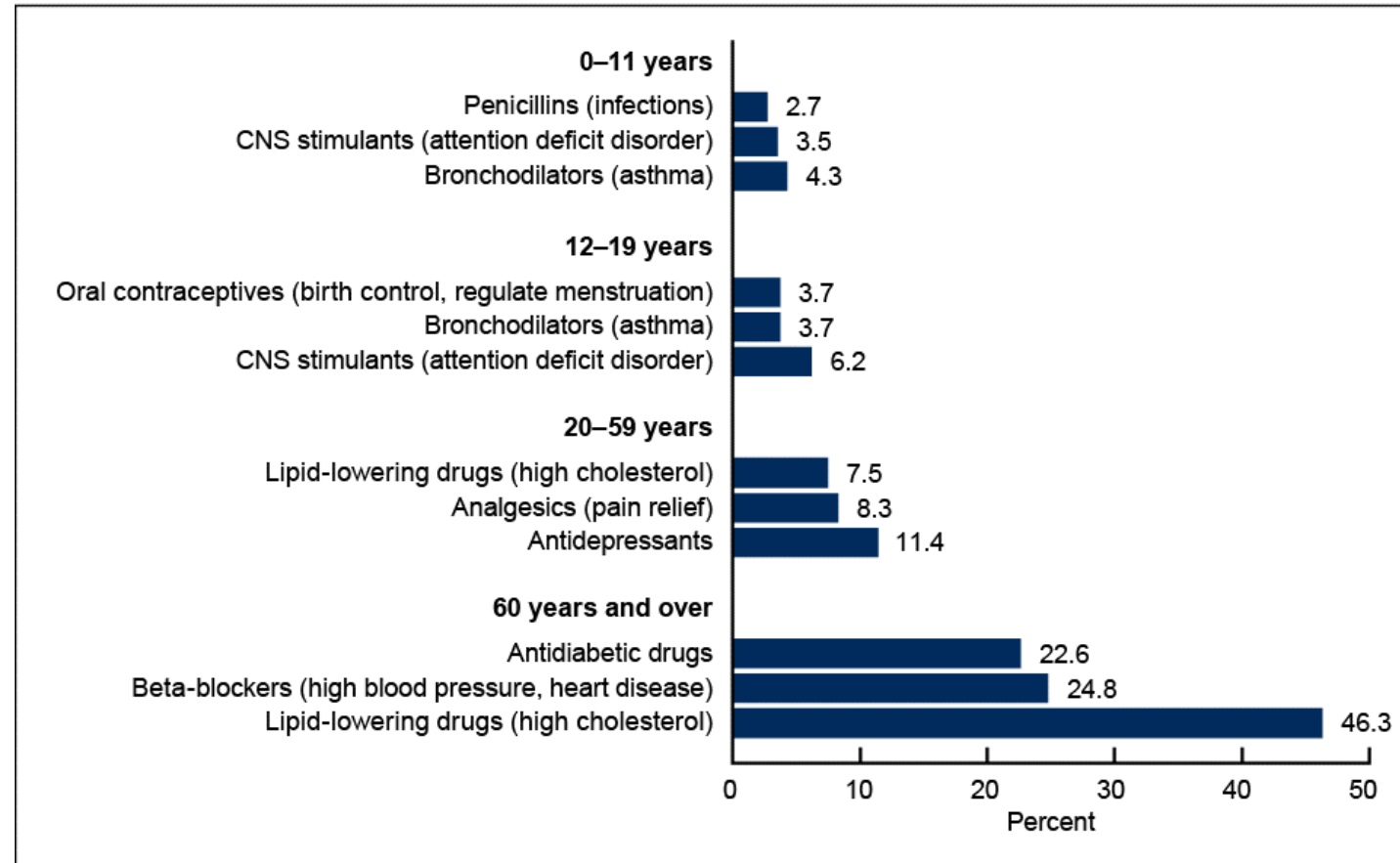
NOTES: Estimates for all ages are age adjusted by the direct method to the 2000 projected U.S. population using age groups 0–11, 12–19, 20–59, and 60 and over. Crude estimates are 48.1% for total, 43.0% for male, and 53.1% for female. Access data table for Figure 1 at:

https://www.cdc.gov/nchs/data/databriefs/db334_tables-508.pdf#1.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 2015–2016.

Classes of Medications

Figure 3. Use of the most commonly used prescription drug types in the past 30 days, by age group: United States, 2015–2016



NOTES: The primary indication for use of the drug type is in parentheses. Other drug types may also be used for the same indications as those shown. CNS is central nervous system. Oral contraceptives were used by 7.5% of girls aged 12–19. Access data table for Figure 3 at: https://www.cdc.gov/nchs/data/databriefs/db334_tables-508.pdf#3.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 2015–2016.



ADE Biggest Drug Offenders

- Anticoagulants
 - Direct oral anticoagulants
 - Acetylsalicylic acid (ASA)
 - Warfarin
- Diabetic medications
 - Insulin
- Antihypertensives/heart medications

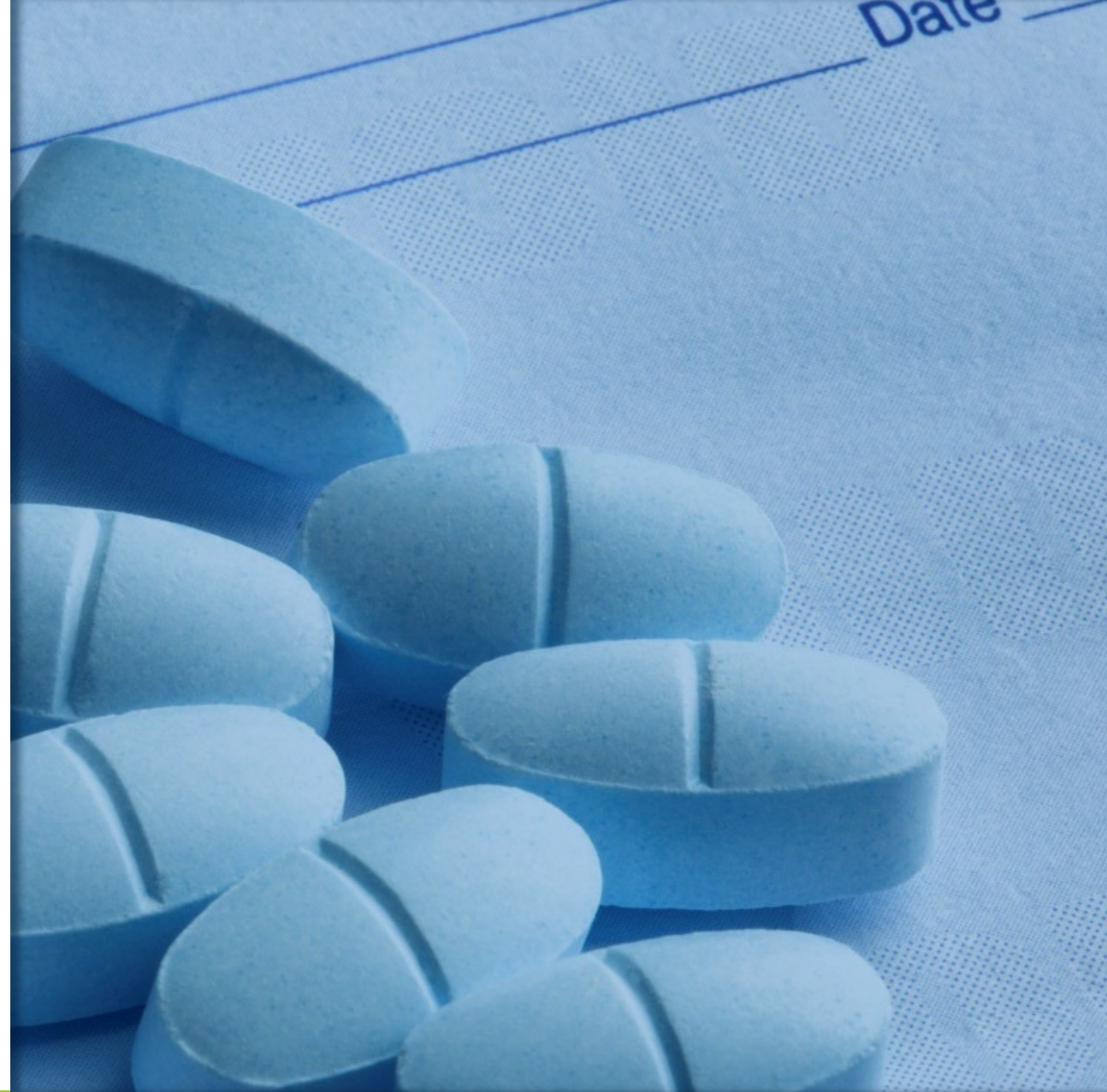


ADE Biggest Drug Offenders

- Opioids
 - Overdose
 - Non-fatal issues/combination with other drugs
 - Tramadol
- Antipsychotics
- Benzodiazepines
- Antibiotics

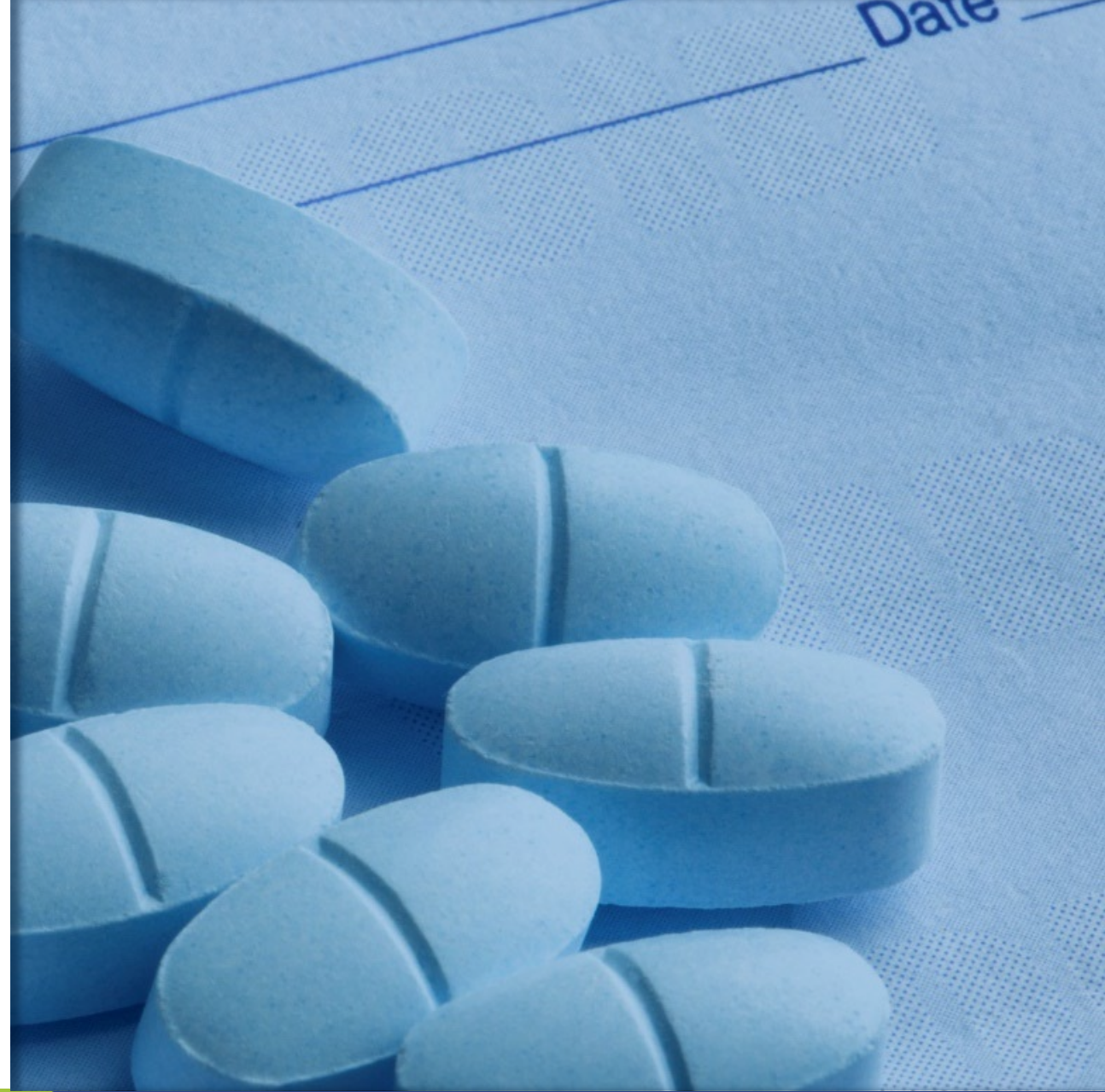
Types of ADEs

- Medication Error
 - An error at any point along the pathway that begins when the provider orders a medication and ends when the patient receives the medication
- Preventable ADEs
 - Cause harm and are due to medical error
- Potential ADEs
 - Harm prevented



Types of ADEs

- Ameliorable ADEs
 - Harm could not have been completely avoided, but could have been mitigated
- Non-preventable
 - Harm could not be avoided

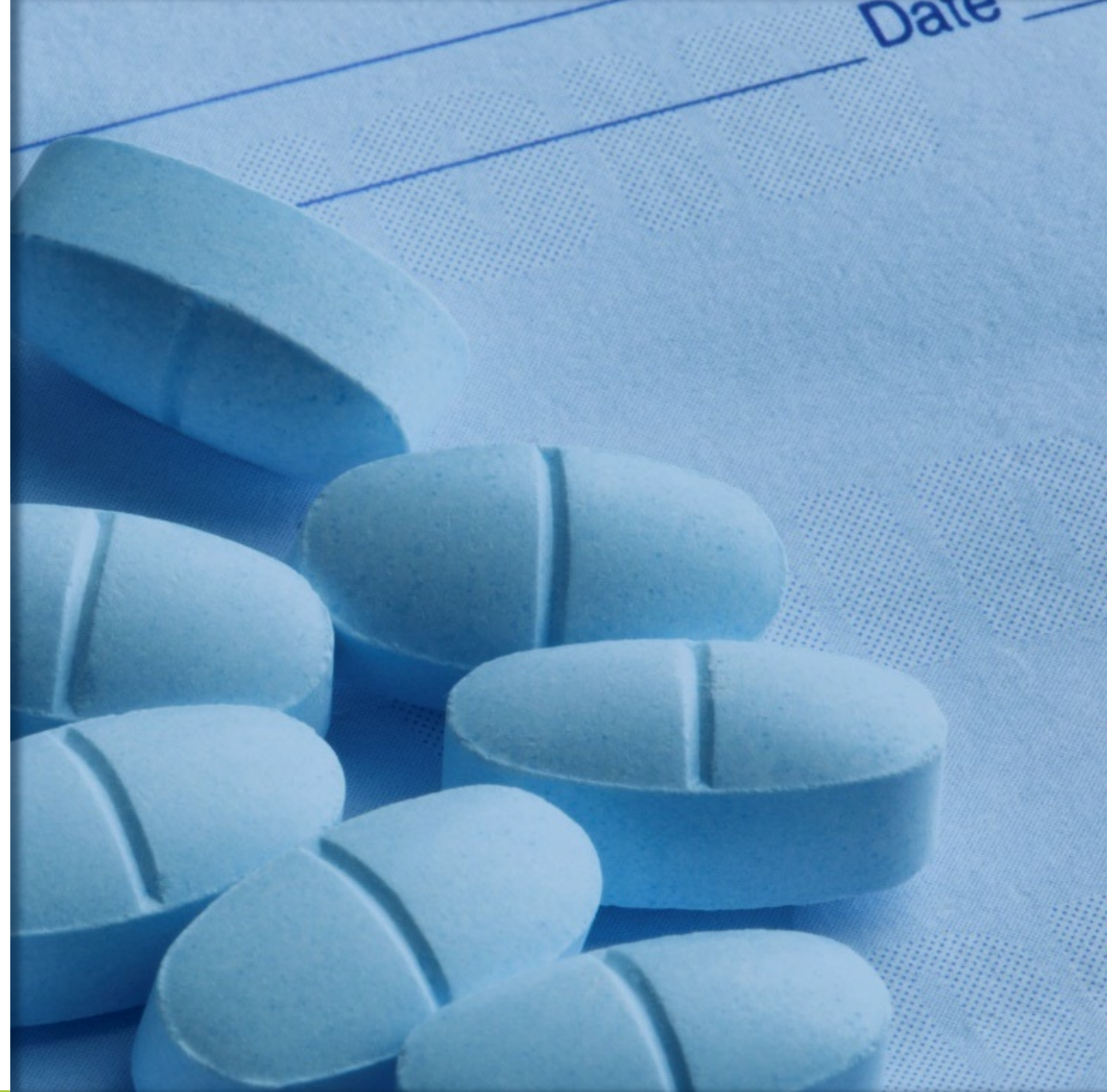


Difficulties in Determining ADE Numbers

1. Infrequent physician contact
2. Patients may not recognize symptom as ADE
3. Patients may not be able to communicate symptoms to describe ADEs
4. Patients may stop medication due to ADE and not report it to provider
5. Physicians may not recognize symptom as ADE
6. Physician might not know how or where to report ADE
7. ADE may be due to drug-drug interaction and unrecognized as such

Individuals at Risk

- Individuals taking multiple medications (polypharmacy)
- Older age
- Individuals with chronic disease
- Individuals taking supplements



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Pharmacoepidemiol Drug Saf. 2010 September ; 19(9): 901–910. doi:10.1002/pds.1984.

Adverse Drug Events in the Outpatient Setting: An 11-Year National Analysis

Florence T Bourgeois, MD, MPH^{1,2}, Michael W Shannon, MD, MPH^{1,2}, Clarissa Valim, MD, ScD^{4,5}, and Kenneth D Mandl, MD, MPH^{1,2,3}

¹Division of Emergency Medicine, Children's Hospital Boston

²Department of Pediatrics, Harvard Medical School, Boston, MA

³Children's Hospital Informatics Program, Children's Hospital Boston

⁴Division of Biostatistics, Clinical Research Program, Children's Hospital Boston

⁵Department of Surgery, Harvard Medical School, Boston, MA

Abstract

Purpose—Adverse drug events (ADEs) are a common complication of medical care resulting in high morbidity and medical expenditure. Population level estimates of outpatient ADEs are limited. Our objective was to provide national estimates and characterizations of outpatient ADEs and determine risk factors associated with these events.

Methods—Data are from the National Center for Health Statistics which collects information on patient visits to outpatient clinics and emergency departments throughout the United States. We examined visits between 1995 and 2005 and measured the national annual estimates of and risk

Outpatient Numbers

- The study looked at all outpatient visits to office and hospital-based clinics and all visits to emergency departments 1995-2005 using the National Ambulatory Medical Care Survey (NAMCS) and the National Hospital and Ambulatory Medical Care Survey (NHAMCS)
- During the study period, outpatient visits for ADEs increased from 9.1 to 16.9 per 1,000 persons
- Antibiotics were the most frequently implicated causative agent of ADEs

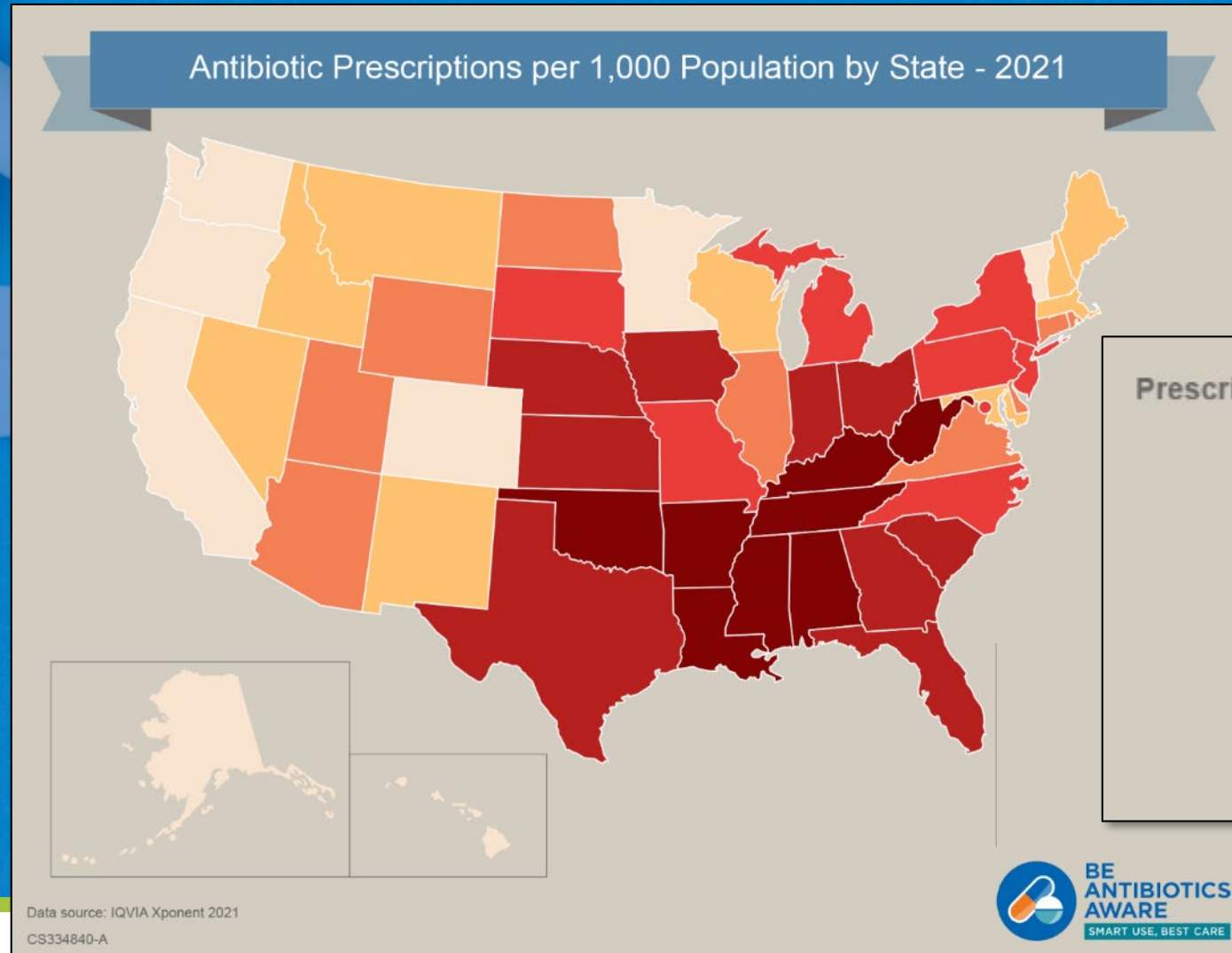


Individuals at Risk

- Increasing patient age
- Polypharmacy
- During the study period (1995-2005) the number of patients taking ***five or more medications*** more than doubled

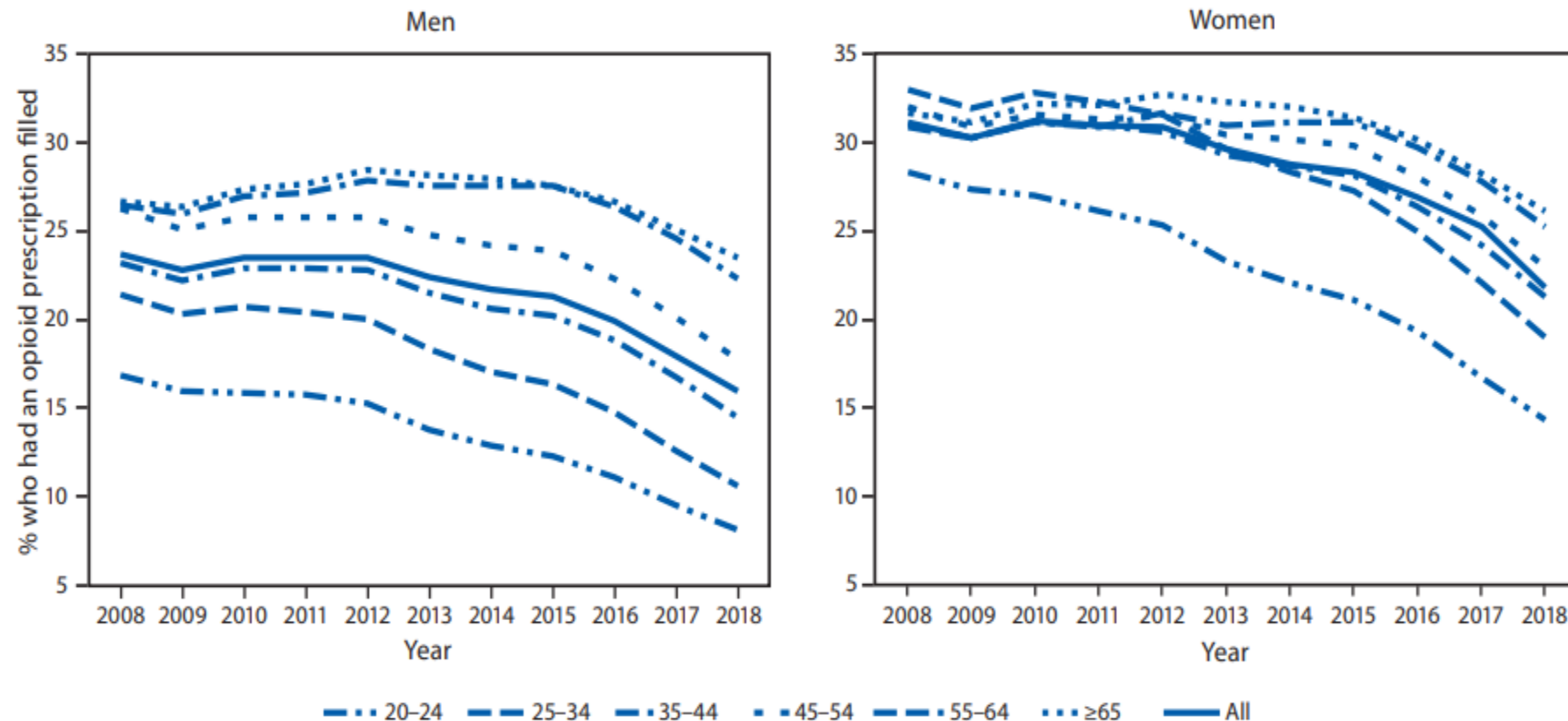


Antibiotic Prescriptions



Opioid Prescriptions

FIGURE 1. Comparison of trends*† in the annual percentage of adults aged ≥20 years who had an opioid prescription filled, by age group and sex — United States, 2008–2018



Patient Case Example #1

A 75-year-old male calls into his physician's office with a complaint of burning and pain with urination. No fever or chills. No hematuria. The physician sends a prescription for a course of ciprofloxacin to the patient's pharmacy even though the patient has ciprofloxacin listed as a drug allergy. The patient presents to the emergency department two days later with a diffuse, pruritic rash.

WHAT TYPE OF ADE OCCURRED?

Patient Case Example #2

A 28-year-old female sustains a fall and is diagnosed with ankle fracture. While awaiting an appointment with an orthopedic surgeon, she sees her primary care doctor, who prescribes oxycodone for pain. The next day the patient sustains a motor vehicle accident after she takes the medication and becomes dizzy and confused while driving to pick up her son at school.

WHAT TYPE OF ADE OCCURRED?

Patient Case Example #3

A 78-year-old female presents to her primary care physician's office in follow-up after being seen in the emergency room for DVT of the right lower leg. She was discharged with a prescription of apixaban. Her physician counsels her on the medication and provides additional refills. One week later, she presents to the emergency room with rectal bleeding and is admitted to the hospital with a diagnosis of gastrointestinal bleeding.

WHAT TYPE OF ADE OCCURRED?

Patient Case Example #4

A 42-year-old male was diagnosed with diabetes mellitus type 2 several years ago. His blood sugar remains uncontrolled on oral medications, and his physician gives him a prescription for insulin. Two weeks later, the patient presents to the emergency room with a blood glucose of 32 because he started a “crash diet” and continued to take his insulin as prescribed.

WHAT TYPE OF ADE OCCURRED?

Patient Case Example #5

An 82-year-old male was recently discharged from a stay at a skilled nursing facility for a hip fracture. He is taking hydrocodone for pain. He presents to his primary care provider for follow-up and complains of continued hip pain and constipation. The primary care provider sends a refill for hydrocodone to the pharmacy. The patient presents to the emergency room five days later with nausea and vomiting. He is found to have fecal impaction.

WHAT TYPE OF ADE OCCURRED?

Opportunities for Prevention and Improvement

- Increased provider education
- Increased provider communication to patient
- Patient education
- Checklists



Sino CG, Bouvy ML, Jansen PA, Schop IM, Egberts TC, Schuurmans MJ. Signs and symptoms indicative of potential adverse drug reactions in homecare patients. J Am Med Dir Assoc. 2013 Dec;14(12):920-5. doi: 10.1016/j.jamda.2013.09.014. PMID: 24286711.

Date: ___/___/___ Function: Helper nursing aid Nurse

Name:	
Address:	
Telephone number:	
Date of Birth:	
Sex:	<input type="radio"/> Male / <input type="radio"/> Female
Living Situation:	<input type="radio"/> Living alone / <input type="radio"/> Living with partner
Number of medicines:	

Process

Is there a printout of the list of medication from the pharmacy?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
If yes: - Note the date: ___/___/___			
If yes: - Does the patient take the medicines on the list?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> ?
Comments			

Pill

	YES
Does the patient have:	
- Stomach ache?	<input checked="" type="radio"/> <input type="radio"/>
- Very black feces?	<input checked="" type="radio"/> <input type="radio"/>
- Regular nosebleeds?	<input checked="" type="radio"/> <input type="radio"/>
- Bruises / black and blue spots?	<input checked="" type="radio"/> <input type="radio"/>
- Dizziness when standing up?	<input checked="" type="radio"/> <input type="radio"/>
- Drowsiness?	<input checked="" type="radio"/> <input type="radio"/>
- Thirst?	<input checked="" type="radio"/> <input type="radio"/>
- (Increasingly more) tightness of chest?	<input checked="" type="radio"/> <input type="radio"/>
- Fainting spells?	<input checked="" type="radio"/> <input type="radio"/>
- Nausea, vomiting and/ or no appetite?	<input checked="" type="radio"/> <input type="radio"/>
- Abdominal pain and/or no bowel movement for more than 5 days?	<input checked="" type="radio"/> <input type="radio"/>
- For diabetes: Irregular heart rhythm and perspiration?	<input checked="" type="radio"/> <input type="radio"/>
- For diabetes: Feeling of hunger?	<input checked="" type="radio"/> <input type="radio"/>
Has the patient fallen recently without a clear cause?	<input checked="" type="radio"/> <input type="radio"/>

Patient

	YES
Does the patient regularly forget to take his/her medication?	<input checked="" type="radio"/> <input type="radio"/>
- Does the week package contain medicine from previous days?	<input checked="" type="radio"/> <input type="radio"/>
- Does the robot-dispensed dosing aid contain pouches of medicine from previous days?	<input checked="" type="radio"/> <input type="radio"/>
Is the supply of medicine in house:	
- Disordered? (is medicine left lying around?)	<input checked="" type="radio"/> <input type="radio"/>
- Regularly insufficient?	<input checked="" type="radio"/> <input type="radio"/>
Does the patient have problems taking the medication? (for example, problems swallowing)	<input checked="" type="radio"/> <input type="radio"/>
Does the patient have trouble opening the packaging?	<input checked="" type="radio"/> <input type="radio"/>
Does the patient have pain?	<input checked="" type="radio"/> <input type="radio"/>
Does the patient take more than 8 painkillers a day without a prescription?	<input checked="" type="radio"/> <input type="radio"/>
Does the patient use other painkillers without a prescription?	<input checked="" type="radio"/> <input type="radio"/>
Does the patient drink more than 3 glasses of alcohol a day?	<input checked="" type="radio"/> <input type="radio"/>
Is the patient very different from usual? (for example, suddenly confused, very irritable or lethargic)	<input checked="" type="radio"/> <input type="radio"/>



Reporting

MedWatch: the FDA Safety Information and Adverse Event Reporting System

- Receives reports from the public for FDA-regulated products such as prescriptions, medical devices, cosmetics and food
- <https://www.fda.gov/safety/medwatch-fda-safety-information-and-adverse-event-reporting-program>

FDA Adverse Event Reporting System (FAERS)

- Collects data from the MedWatch reporting system
- Allows for the general public to search the database and presents data in a user friendly fashion
- <https://www.fda.gov/drugs/questions-and-answers-fdas-adverse-event-reporting-system-faers/fda-adverse-event-reporting-system-faers-public-dashboard>

MedWatch

Health professionals, consumers and patients can voluntarily report observed or suspected adverse events for human medical products to FDA. Voluntary reporting can help FDA identify unknown risk for approved medical products. Reporting can be done through our online reporting portal or by downloading, completing and then submitting FDA Form 3500 (Health Professional) or 3500B (Consumer/Patient) to MedWatch: The FDA Safety Information and Adverse Event Reporting Program.

While not mandatory, FDA encourages reporters to provide their contact information in case FDA needs to gather more information. Note that reporters can request, within the report, FDA not release their contact information to the manufacturer.

Begin Online Report

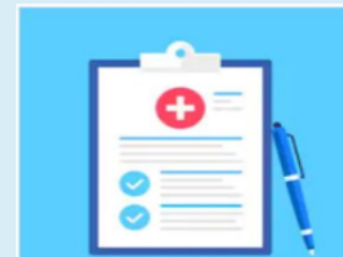


Health Professional
(FDA Form 3500)



Consumer/Patient
(FDA Form 3500B)

**En español para el consumidor
/ paciente** (formulario 3500B de la
FDA)



Continue an incomplete report

Click here to continue filling out an incomplete report. You will need Report ID and Report Date. You will have 3 days to complete this report from the start date.

Thank you for taking the time to submit a MedWatch report. If you wish to download and print a copy of your report please review the [MedWatch Voluntary Report Frequently Asked Questions](#).

FDA Adverse Event Reporting System (FAERS)

FDA Adverse Events Reporting System (FAERS) Public Dashboard

Home Search COVID-19 EUA
Disclaimer Report a Problem FAQ Site Feedback

Total Reports
26,004,135

Serious Reports (excluding death)
14,478,327

Death Reports
2,413,911

Reports by Report Type

Since 1968 Last 10 Years

Reports received by Report Type

Year Report Type

	Total Reports	Expedited	Non-Expedited	Direct	BSR
Total Reports	26,004,135	14,128,829	10,689,249	1,185,194	863
2022	2,347,431	1,317,724	951,630	78,077	-
2021	2,333,687	1,392,602	868,536	72,549	-
2020	2,205,273	1,244,225	882,488	78,560	-
2019	2,176,772	1,216,371	855,013	105,388	-
2018	2,140,827	1,155,913	897,363	87,551	-
2017	1,805,279	942,019	801,230	62,030	-
2016	1,683,519	863,410	769,118	50,991	-
2015	1,719,852	833,170	845,023	41,659	-
2014	1,198,487	744,522	433,724	24,241	-

Data as of December 31, 2022

Reports received by Report Type

Report Count

Legend: Expedited (blue), Non-Expedited (yellow), Direct (green), BSR (red)

This page displays the number of adverse event reports received by FDA for drugs and therapeutic biologic products by the following Report Types.

- Direct Reports are voluntarily submitted directly to FDA through the MedWatch program by consumers and healthcare professionals.
- Mandatory Reports are submitted by manufacturers and are categorized as:

[Vulnerability Disclosure Policy](#)

FDA Adverse Event Reporting System (FAERS)

FDA Adverse Events Reporting System (FAERS) Public Dashboard FDA U.S. FOOD & DRUG ADMINISTRATION

Home Disclaimer Report a Problem FAQ Site Feedback

Search by Product Search by Reaction Term *(Up to 5 products can be selected)*

Escitalopram	P
Escitalopram Oxalate	G
Escitalopram Oxalate\Flupentixol Dihydrochloride	G
Escitalopram\Etizolam	G
Citalopram Hydrobromide Or Citalopram Hydrochloride Or Escitalopram Oxalate	G
Seropram (Escitalopram Oxalate)	P

FDA Adverse Event Reporting System (FAERS)

FDA Adverse Events Reporting System (FAERS) Public Dashboard



Home Demographics Reaction Group Reaction Listing of Cases

Q Search by Product

CITALOPRAM HYDROBROMIDE OR CITALOPRAM HYDROCHLORIDE OR ESCITALOPRAM OXALATE (G); ESCITALOPRAM OXALATE (G)

Total Cases 34,503

Serious Cases (including deaths) 29,932

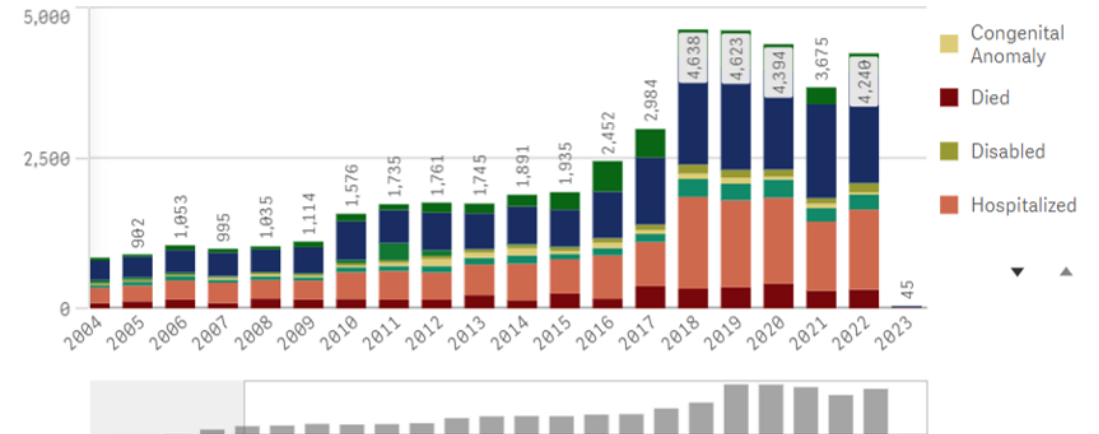
Death Cases 4,139

Received Year vs Outcome

Reaction Group and Reaction

Reaction Group	Reaction	Number of Cases
Total Cases		34,503
Psychiatric Disorders		13,339
General Disorders And Administration Site Conditions		12,693
Nervous System Disorders		12,532
Injury, Poisoning And Procedural Complications		10,414
Investigations		5,862
Gastrointestinal Disorders		5,735
Cardiac Disorders		3,969
Respiratory, Thoracic And Mediastinal Disorders		3,400

Outcome counts by Received Year



Data as of December 31, 2022

[Vulnerability Disclosure Policy](#)

This page displays the number of cases identified for the product/reaction term of interest by "Reaction Group", "Reaction", patient age and sex, and report outcome. A case may describe one or more "Reaction Group", "Reaction", or outcome. "Reaction Groups" are based on a classification of the side effect (also known as "Reaction" or adverse event or adverse drug reaction), using the MedDRA dictionary of adverse event terms. For example, "Cardiac Disorders" is one of the "Reaction Groups" defined by the MedDRA dictionary as a grouping of several related "Reactions" such as "Cardiac Arrest", and "Cyanosis". "Reaction" corresponds to the suspected reaction reported by the Reporter. The "Reaction" is based

Important Points About FAERS

- Information in reports is not validated
- Existence of a report does not indicate causation
- Rates of occurrence cannot be established with the reports
- Duplicate and incomplete reports are in the system



Hospital Settings



Adverse Drug Events Occurring in U.S. Hospitals

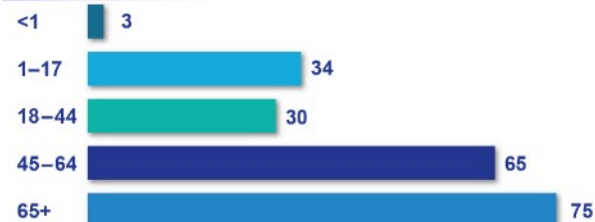
Adverse drug events (ADEs) are the most common nonsurgical adverse events that occur in hospitals. New data from all payers in 32 States in HCUP show characteristics of the four most frequent specific causes of ADEs originating in the hospital in 2011.

The four most common causes of in-hospital ADEs—rates per 10,000 discharges

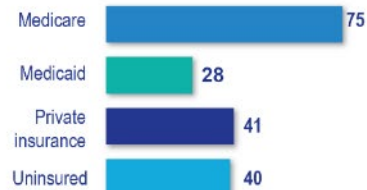


Rates of the four most common in-hospital ADEs per 10,000 discharges

By patient age



By payer



By hospital region



Source: Statistical Brief #164: Characteristics of Adverse Drug Events Originating During the Hospital Stay, 2011 (<http://hcup-us.ahrq.gov/reports/statbriefs/statbriefs.jsp>)



Agency for Healthcare Research and Quality
Advancing Evidence in Health Care • www.ahrq.gov



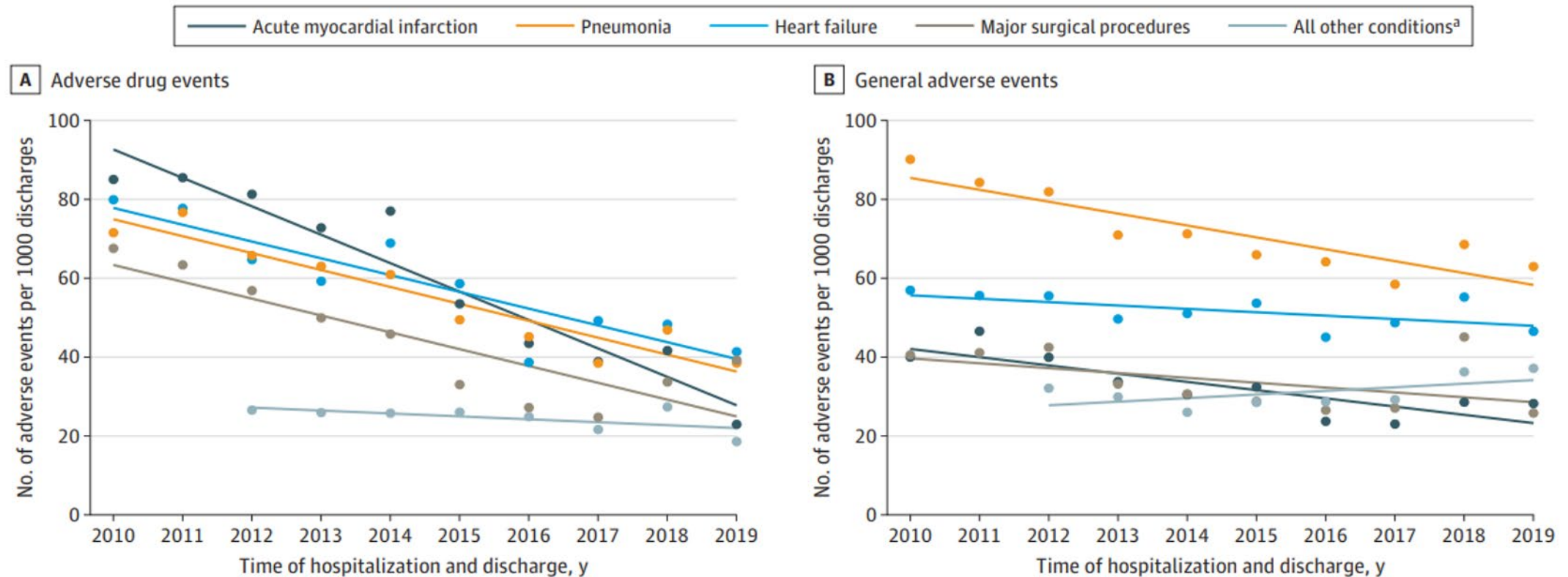
Partnership for Patients

- Implemented in 2011 by CMS to reduce preventable hospital acquired conditions (including ADEs) in 3,700 hospitals
- Hospital Engagement Networks provided education and assistance to reduce preventable patient harm
- The initiative was successful in reducing patient harm and 30-day readmissions



Hospital ADEs 2010-2019

Figure 1. Observed Adverse Event Rates by the 4 Medicare Patient Safety Monitoring System Adverse Event Domains



Opportunities for Continued Improvement

- Care transitions communication with other facilities
- Improve education for patients/families at discharge
- Improve communication with patients/families
- Improved communication with primary care physician (PCP)

Patient Case Example #1

A 55-year-old male presents to the emergency department with dyspnea and is diagnosed with atrial fibrillation. He is started on heparin drip in the ER after initial CBC, PT, and PTT are done. He is admitted to the medical floor and repeat labs are not done until 24 hours later when he develops hematuria. His PTT is found to be >200 .

WHAT TYPE OF ADE OCCURRED?

Patient Example #2

An 82-year-old female presents to the emergency room after falling at home. She is diagnosed with right femur fracture and admitted for surgical repair. Post-operatively, she is ordered oxycodone 10mg orally every 4 hours as needed for pain. On post-op day 2, she complains of abdominal pain, bloating, and nausea. Abdominal X-ray is done and reveals ileus.

WHAT TYPE OF ADE MIGHT HAVE OCCURRED?

Patient Example #3

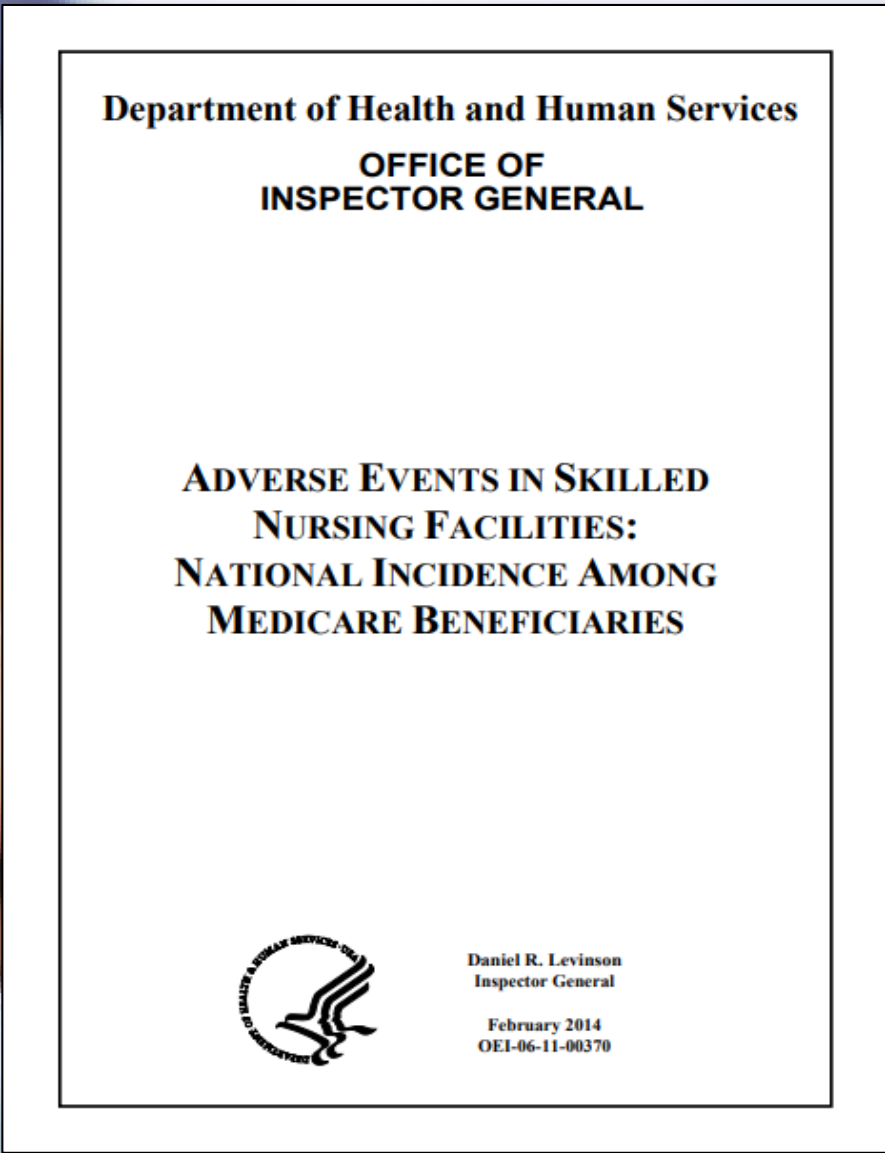
A 74-year-old male presents to the emergency department from the nursing home, where he resides, with fever and tachycardia. He is admitted to the hospital with a diagnosis of sepsis. The day after his admission, he becomes agitated and refuses oral medications. He is given haloperidol and lorazepam IM for agitation. Two hours after the medication is administered, he falls and sustains a fracture of the left femur.

WHT TYPE OF ADE OCCURRED?

Patient Example #4

A 42-year-old female is admitted to the hospital due to abdominal pain from appendicitis. Post-operatively, she is ordered oxycodone 10mg every 4 hours as needed for pain. She is discharged with a prescription for 90 oxycodone 10mg pills. She does not take any of the oxycodone after her discharge and it remains in her medicine cabinet. Her 14-year-old son finds the prescription 2 months later. He overdoses on the oxycodone and is not able to be resuscitated.

WHAT TYPE OF ADE OCCURRED?



- 22% of Medicare residents experienced an adverse event during their SNF stays
- 37% of these adverse events were due to medications
- 4% of residents experienced at least one “cascade event” which is a series of multiple, related events
- 59% of the adverse events were determined to be preventable



Table 3: Adverse Events Identified Among Medicare SNF Residents by Category

Types of Adverse Events	Percentage*
Events Related to Medication	37%
<ul style="list-style-type: none"> • Medication-induced delirium or other change in mental status • Excessive bleeding due to medication • Fall or other trauma with injury secondary to effects of medication • Constipation, obstipation, and ileus related to medication • Other medication events 	12% 5% 4% 4% 14%
Events Related to Resident Care	37%
<ul style="list-style-type: none"> • Fall or other trauma with injury related to resident care • Exacerbations of preexisting conditions resulting from an omission of care • Acute kidney injury or insufficiency secondary to fluid maintenance • Fluid and other electrolyte disorders (e.g., inadequate management of fluid) • Venous thromboembolism, deep vein thrombosis (DVT), or pulmonary embolism (PE) related to resident monitoring • Other resident care events 	6% 6% 5% 4% 4% 14%
Events Related to Infections	26%
<ul style="list-style-type: none"> • Aspiration pneumonia and other respiratory infections • Surgical site infection (SSI) associated with wound care • Urinary tract infection associated with catheter (CAUTI) • <i>Clostridium difficile</i> infection • Other infection events 	10% 5% 3% 3% 5%
Total	100%

*The percentages for conditions listed within the clinical categories do not sum to 100 percent because of rounding. See Appendix D for percentage estimates and confidence intervals. See Appendix F for a complete listing of all adverse events identified by the reviewers. Source: OIG analysis of SNF stays for 653 Medicare beneficiaries discharged in August 2011.



Why are ADEs such a big problem in the SNF?

- Infrequent physician visits
- Staff turnover
- Medically complex patients
- Limited support
- Limited pharmacist input



Geriatric Syndromes

- Cognitive impairment
- Delirium
- Depression
- Falls
- Frailty
- Incontinence

ADE Warning Signs

- Weight loss
- ADL decline
- Mental status change
- Resident complaints
- Physical signs (rashes)
- Falls
- Constipation
- Urinary retention
- Sudden change in labs

Drug Offenders

- Antipsychotics
- Opioids
- Warfarin and other anticoagulants including ASA
- Insulin
- Gabapentin
- Tramadol
- Benzodiazepines
- Antibiotics
- Digoxin
- Anticholinergics
- Proton pump inhibitors
- NSAIDs
- Metoclopramide

ADE Prevention Opportunities

- Care transitions
- Care plan meetings
- Physician visits/medication reconciliation
- Antibiotic stewardship plan
- Quality Assurance and Performance Improvement (QAPI)
- Pharmacy recommendations
- Outside consultant visits
- Beers criteria

Case Example #1

A 57-year-old female presents to the hospital for elective lithotripsy. She becomes confused post-procedure and is diagnosed with CVA. Nursing reports that she is “agitated” at times. She then presents to SNF for rehab.

Medications: atorvastatin 40mg qd, asa 81mg qd, levemir, olanzapine 10mg qhs, Depakote 500mg bid and 250mg qhs

Diet: dysphagia advanced diet, honey thickened liquids

Continued . . .

Case Example #1 (continued)

Resident has frequent falls, and nursing reports she is restless, confused, unable to participate with PT, and unable to communicate.

Labs are finally done a week after admission: Ammonia <9, Na 164, K 4.8, Cr 3.8, BUN 51, Mg 2.4

She is sent to the emergency department after a trial of IVF is unsuccessful.

WHAT TYPE OF ADE OCCURRED?

Case Example #2

A 79-year-old male is found to be having a seizure by nursing staff (on a Sunday afternoon). On-call provider is called and an order for lorazepam 4mg IM x 1 is given. Several hours later the resident is unresponsive and BP cannot be obtained and the resident is transferred to the ER. After admission to the hospital, it is determined that the resident is DNR/CMO per MPOA discussion one month earlier. Resident is transferred to hospice facility per MPOA request.

DID AN ADE OCCUR?

Case Example #3

A 55-year-old male complains of worsening chronic back pain. He is receiving hydrocodone/acetaminophen 7.5mg/325mg po q4 prn. Nursing contacts his PCP over the phone and an order is given to d/c hydrocodone and start fentanyl patch 50mcg q72. He continues to complain of pain and the patch is increased to 75mcg five days later. A day after the increase in dose, he is found unresponsive and hypotensive. EMS administer Narcan to the resident with good results.

WHAT TYPE OF ADE OCCURRED?

Case Example #4

A 79-year-old female is prescribed a 7-day course of levofloxacin for UTI after UA was ordered for symptoms of nausea. No fever, leukocytosis, dysuria, or abdominal pain. Three months later, she stands up from her bed and develops acute, severe left lower leg pain. She is sent to the ER and diagnosed with left Achilles tendon rupture and is admitted for repair.

WHAT TYPE OF ADE OCCURRED?

Cognitive Bias and ADEs

- We make decisions in one of two ways:
 - Type 1: fast, intuitive
 - Type 2: slow, deliberate (how most medical decisions should be made)
- Type 1 thinking can reduce cognitive load, but is influenced by subconscious, emotional, or habitual responses that can lead to medical errors
- This error in judgement is called cognitive bias and it has a huge impact on medical decisions



Cognitive Bias & Antibiotic Prescribing

- A 75-year-old nursing home resident is sent to the ER after a fall. No fractures are found, but a prescription for ciprofloxacin is given for UTI after SNF nurse reports resident has “foul smelling urine” to ER nurse. It is reported that UA is “highly suggestive.”
- This is an example of “diagnostic momentum” cognitive bias which is an incorrect suspicion that gathers momentum as it is passed from individual to individual (like the game telephone).



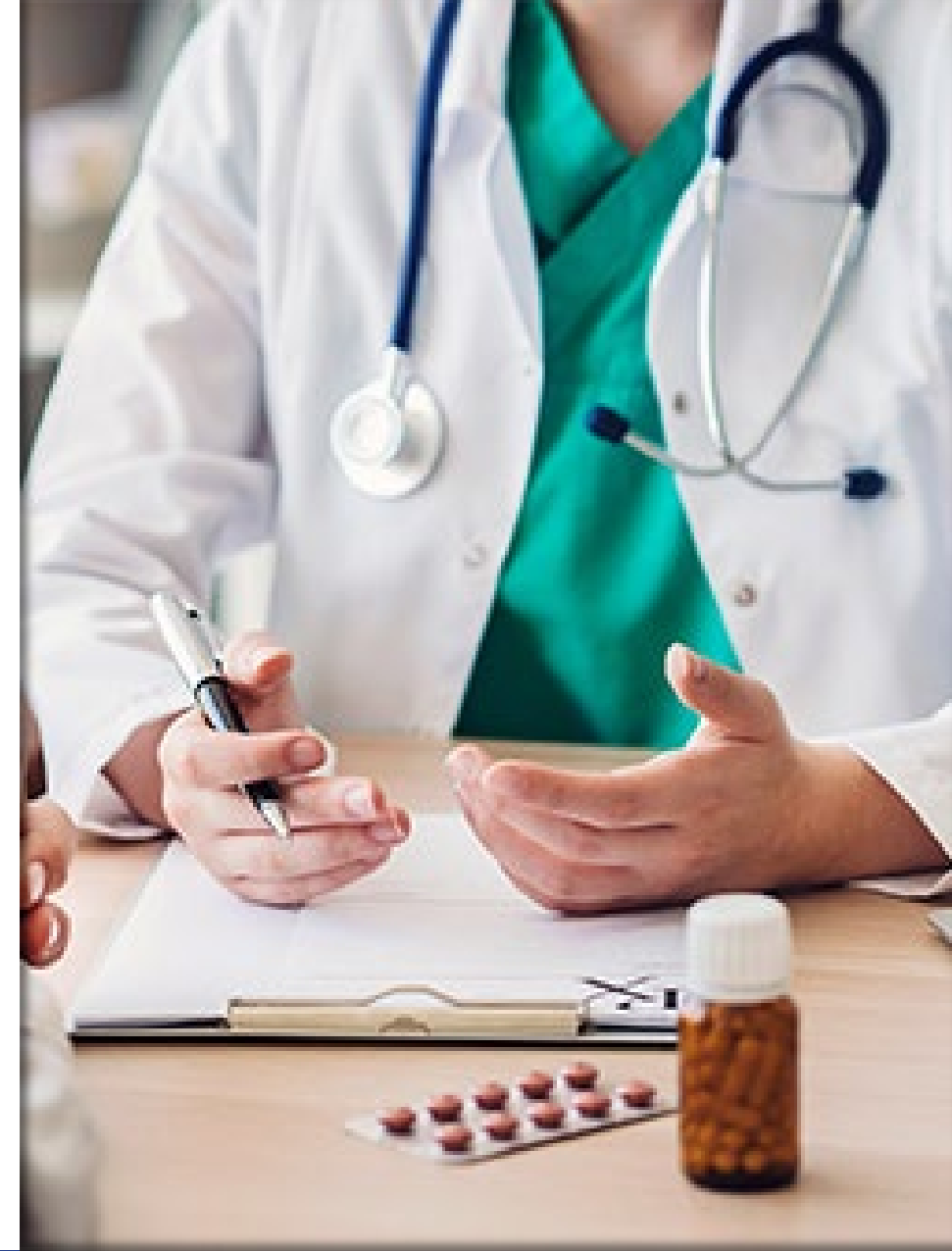
Tools to Recognize and Overcome Cognitive Bias

- SLOW DOWN
- Practice mindfulness
- Deploy meta-cognition
- Utilize checklists
- Double check and triple check yourself
- Seek the input of colleagues
- Take a timeout



Ethnic Differences and ADE Risk

- One clinical trial described significant more depression associated with HCTZ use in black patients as compared to white patients
- Five studies have demonstrated significantly increased risk of angioedema with ACE inhibitor use in black patients
- Three studies showed increased risk of bleeding with thrombolytic therapy in black patients



Take-Home Points

- There are several types of ADEs, and by determining type we can respond appropriately.
- Polypharmacy and increased age puts individuals at risk for ADEs.
- Health professionals, consumers, and patients can report ADE information to MedWatch and search for information regarding ADEs in FAERS.
- Hospital ADEs have declined due to increased education and awareness.

Take-Home Points

- ADEs remain a problem in LTC facilities, but individual facilities can take advantage of many opportunities to reduce these rates.
- Providers serving the LTC population need to become aware of the unique challenges in recognizing ADEs in this population.
- Cognitive bias contributes to medical errors; it is important for each provider to recognize how their own bias can cause ADEs.
- It is important to have an awareness that some ethnic groups may be susceptible to certain ADEs in order to make the best medical recommendations for an individual.



Questions?

Contact

People wanting CE Credits: Please remain for instructions for accessing post-webinar evaluation and questionnaire.



JEAN STORM, DO, CMD

Medical Director, Quality Insights

EMAIL ADDRESS

jstorm@qualityinsights.org

ONLINE

qualityinsights.org/qin

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