

What's New in the Patient Safety World

April 2021

- **ECRI Top 10 Patient Safety Concerns for 2021**
- **Alarming Use of Fall-Prone Medications in 65+ Patients**
- **Anticonvulsants High Risk: How Did We Miss That?**
- **Old Habits Are Hard to Break**

ECRI Top 10 Patient Safety Concerns for 2021

ECRI has released its annual list of "Top 10 Patient Safety Concerns" for 2021. ([ECRI 2021](#)). ECRI is quick to point out that this year's Top 10 list is dominated by topics having a relation to the COVID-19 pandemic.

Here's the full list of ECRI's top 10 patient safety issues for 2021:

1. Racial and ethnic disparities in healthcare
2. Emergency preparedness and response in aging services
3. Pandemic preparedness across the health system
4. Supply chain interruptions
5. Drug shortages
6. Telehealth workflow challenges
7. Improvised use of medical devices
8. Methotrexate therapy
9. Peripheral vascular harm
10. Infection risk from aerosol-generating procedures

Item #2 focuses on long-term care facilities. It points out that, in addition to the COVID-19 pandemic, other disasters created emergency situations in long-term care facilities in recent years, citing several hurricanes. ECRI recommends facilities have in place plans that address:

- All-hazards vulnerability assessment
- Shelter-in-place; evacuation; or modified admission, transfer, or transition protocols
- Communication plans for staff, residents, families, emergency responders, and the public
- Crisis standards of care, including modified visitation

- Staffing and scheduling
- Supplies and equipment
- After Action Reports (AARs) to identify successes and improvement opportunities

Item #6 “Telehealth workflow challenges” is a topic we’ve recently addressed. In our November 2020 What’s New in the Patient Safety World column “[Telemedicine Here to Stay But Use It Safely](#)” we pointed out that one of the few positive things to come out of the COVID-19 pandemic (yes, there are some positives!) is that telemedicine has flourished. We talked about the advantages of telemedicine but also pointed out the barriers and challenges to effective telemedicine.

ECRI and the ISMP PSO reviewed a sample of 42 telehealth-related events and found several evolving themes, including:

- Poor WIFI accessibility in the healthcare setting
- Inadequate or inappropriate monitoring
- Inadequate availability of monitors and rooms with monitoring capability
- Inadequate language services
- Health Insurance Portability and Accountability Act (HIPAA) privacy concerns

Our November 2020 What’s New in the Patient Safety World column “[Telemedicine Here to Stay But Use It Safely](#)” discussed challenges in telemedicine sessions due to patients having impaired hearing, neurological conditions impacting ability to communicate, and patient-related difficulties dealing with technology.

We refer you to ECRI’s full list ([ECRI 2021](#)) for details on all the other top 10 concerns.

References:

ECRI. Top 10 Patient Safety Concerns for 2021. ECRI 2021
https://assets.ecri.org/PDF/Solutions/Patient-Safety-Organization/ECRI_Top10_Patient-Safety-Concerns_2021.pdf

Print “[April 2021 ECRI Top 10 Patient Safety Concerns for 2021](#)”

Alarming Use of Fall-Prone Medications in 65+ Patients

Medications are a prime factor contributing to falls, particularly in the elderly. Categories include antidepressants, anticonvulsants, antipsychotics, antihypertensives, opioids, sedative/hypnotics, benzodiazepines, and others, including some nonprescription medications.

A recent study showed an alarming increase in the prevalence of prescriptions for such medications in the 65 and older population ([Shaver 2021](#)). Their analysis used data on adults aged 65 years and older from the National Vital Statistics System (NVSS) and the medical expenditure panel survey (MEPS) for years 1999–2017. The study assessed prescription of medications considered fall risk increasing drugs (FRID's), defined according to the CDC's Stopping Elderly Accidents, Deaths, and Injuries-Rx ([STEADI-Rx](#)) fall checklist.

The number of persons who received at least one prescription for a FRID increased from 57% in 1999 to 94% in 2017. Antihypertensives were far and away the most commonly prescribed drug category. But, the trend remained significant even after excluding antihypertensive drugs. The use of antidepressants increased dramatically in this population during this timeframe, from 7% to 16%, even as there was a slight decrease in tricyclic antidepressants (TCA's) from 4% in 1999 to 2% in 2017. The percentage of the population receiving an opioid reached a high in 2015 of 21% but began declining to a 2017 level of 16%. Prescribing of multiple FRID classes has increased as well.

Falls increased significantly across all demographics (sex, race, age category). Importantly, age-adjusted mortality due to falls increased from 29.40 per 100,000 in 1999 to 63.27 per 100,000 in 2017.

Notably, use of FRID's was considerably higher among females. The authors stress this is relevant because female gender is an independent risk factor for falls and fractures. They note that this highlights the importance of additional patient risk factors for falls when considering making medication interventions.

Though antihypertensives were by far the most frequently prescribed category, there is likely considerable variation of fall risk between individual antihypertensives. For example, those more likely to cause orthostatic hypotension are probably more likely to increase the fall risk. But, the trends in the current analysis remained significant even after excluding antihypertensive drugs.

Perhaps the most striking finding was the increase in second-generation antidepressants such as selective-serotonin reuptake inhibitors (SSRI's), serotonin-norepinephrine reuptake inhibitors (SNRI's), and various agents with novel mechanisms (ex. mirtazapine, trazodone, nefazodone, bupropion). Keep in mind that, though these drugs are in the "antidepressant" category, they are often prescribed for conditions other than depression, particularly certain types of pain.

The study highlights the importance of assessing individual fall risk factors in addition to the fall related risk of medications when prescribing, particularly in seniors. It would be a good idea to re-examine these risks when doing the recommended annual “brown bag” medication review. Undoubtedly, such review can lead to multiple opportunities for “deprescribing” (see our many columns potentially inappropriate medications in the elderly and on deprescribing listed below).

By the way, CDC's Stopping Elderly Accidents, Deaths, and Injuries-Rx ([STEADI-Rx](#)) Guide for Community Pharmacists is an excellent resource and set of tools, not just for pharmacists but for anyone dealing with medications and the older patient.

Some of our prior columns related to falls:

- April 16, 2007 [“Falls With Injury”](#)
- July 17, 2007 [“Falls in Patients on Coumadin or Heparin or Other Anticoagulants”](#)
- January 1, 2008 [“Fall Prevention”](#)
- October 7, 2008 [“Lessons from Falls....from Rehab Medicine”](#)
- November 18, 2008 [“Ticket to Ride: Checklist, Form, or Decision Scorecard?”](#)
- August 4, 2009 [“Faulty Fall Risk Assessments?”](#)
- September 22, 2009 [“Psychotropic Drugs and Falls in the SNF”](#)
- December 22, 2009 [“Falls on Toileting Activities”](#)
- January 2010 [“Falls in the Radiology Suite”](#)
- June 2010 [“Seeing Clearly a Common Sense Intervention”](#)
- May 29, 2012 [“Falls, Fractures, and Fatalities”](#)
- June 5, 2012 [“Minor Head Trauma in the Anticoagulated Patient”](#).
- January 15, 2013 [“Falls on Inpatient Psychiatry”](#)
- March 2013 [“Sedative/Hypnotics and Falls”](#)
- December 3, 2013 [“Reducing Harm from Falls on Inpatient Psychiatry”](#)
- June 2014 [“New Glasses and Fall Risk”](#)
- July 8, 2014 [“Update: Minor Head Trauma in the Anticoagulated Patient”](#)
- August 2014 [“Cataract Surgery and Falls”](#)
- November 4, 2014 [“Progress on Fall Prevention”](#)
- March 2015 [“Another Paradox: Falls Due to Walking Aids”](#)
- June 9, 2015 [“Add This to Your Fall Risk Assessment”](#)
- July 28, 2015 [“Not All Falls Are the Same”](#)
- October 2015 [“Patient Perception of Fall Risk”](#)
- October 27, 2015 [“Sentinel Event Alert on Falls and View from Across the Pond”](#)
- February 16, 2016 [“Fall Prevention Failing?”](#)
- March 14, 2017 [“More on Falls on Inpatient Psychiatry”](#)
- July 2017 [“Mobility vs. Falls”](#)
- February 2018 [“Global Sensory Impairment and Patient Safety”](#)

- February 20, 2018 [“Delirium and Falls”](#)
- March 2019 [“Newborn Falls”](#)
- July 2019 [“Increasing Mortality After Falls in Elderly”](#)
- January 14, 2020 [“More on Newborn Falls”](#)
- June 16, 2020 [“Tracking Technologies”](#)
- October 2020 [“Pre-op Testing Before Cataract Surgery Leads to What?”](#)

Some of our past columns on Beers’ List and Inappropriate Prescribing in the Elderly:

- January 15, 2008 [“Managing Dangerous Medications in the Elderly](#)
- June 2008 [“Potentially Inappropriate Medication Use in Elderly Hospitalized Patients”](#)
- October 19, 2010 [“Optimizing Medications in the Elderly”](#)
- September 22, 2009 [“Psychotropic Drugs and Falls in the SNF”](#)
- September 2010 [“Beers List and CPOE”](#)
- June 21, 2011 [“STOPP Using Beers’ List?”](#)
- December 2011 [“Beers’ Criteria Update in the Works”](#)
- May 7, 2013 [“Drug Errors in the Home”](#)
- November 12, 2013 [“More on Inappropriate Meds in the Elderly”](#)
- January 28, 2014 [“Is Polypharmacy Always Bad?”](#)
- March 4, 2014 [“Evidence-Based Prescribing and Deprescribing in the Elderly”](#)
- September 30, 2014 [“More on Deprescribing”](#)
- February 10, 2015 [“The Anticholinergic Burden and Dementia”](#)
- May 2015 [“Hospitalization: Missed Opportunity to Deprescribe”](#)
- July 2015 [“Tools for Deprescribing”](#)
- November 2015 [“Medications Most Likely to Harm the Elderly Are...”](#)
- August 2, 2016 [“Drugs in the Elderly: The Goldilocks Story”](#)
- October 31, 2017 [“Target Drugs for Deprescribing”](#)
- January 2018 [“What Happens After Delirium?”](#)
- May 2018 [“Antipsychotic Use in Nursing Homes: Progress or Not?”](#)
- June 2018 [“Deprescribing Benzodiazepine Receptor Agonists”](#)
- October 2018 [“STOPP/START/STRIP”](#)
- November 27, 2018 [“Focus on Deprescribing”](#)
- March 19, 2019 [“Updated Beers Criteria”](#)
- March 10, 2020 [“Medication Harm in the Elderly”](#)
- June 2020 [“The Antipsychotics in Dementia Conundrum”](#)
- February 2021 [“Under the Radar: Muscle Relaxant Use”](#)

Some of our past columns on deprescribing:

- March 4, 2014 [“Evidence-Based Prescribing and Deprescribing in the Elderly”](#)
- September 30, 2014 [“More on Deprescribing”](#)
- May 2015 [“Hospitalization: Missed Opportunity to Deprescribe”](#)

- July 2015 “[Tools for Deprescribing](#)”
- April 4, 2017 “[Deprescribing in Long-Term Care](#)”
- October 31, 2017 “[Target Drugs for Deprescribing](#)”
- January 2018 “[What Happens After Delirium?](#)”
- June 2018 “[Deprescribing Benzodiazepine Receptor Agonists](#)”
- November 27, 2018 “[Focus on Deprescribing](#)”
- March 19, 2019 “[Updated Beers Criteria](#)”
- March 10, 2020 “[Medication Harm in the Elderly](#)”
- June 2020 “[The Antipsychotics in Dementia Conundrum](#)”

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Shaver AL, Clark CM, Hejna M, et al. Trends in fall-related mortality and fall risk increasing drugs among older individuals in the United States, 1999–2017.

Pharmacoepidemiol Drug Saf. 2021; 1- 8

<https://onlinelibrary.wiley.com/doi/10.1002/pds.5201>

CDC (Centers for Disease Control and Prevention). STEADI-Rx.

<https://www.cdc.gov/steady/steady-rx.html>

Print “[April 2021 Alarming Use of Fall-Prone Medications in 65+ Patients](#)”

Anticonvulsants High Risk: How Did We Miss That?

The Pennsylvania Patient Safety Authority recently sent an email Safety Alert to subscribers regarding errors with anticonvulsants during admission and transitions of care. They had noted several serious events involving omitted or incorrect dosages of anticonvulsants when the patient is admitted and during transitions of care, noting that omissions or errors in dosages related to anticonvulsants can result in seizures or other adverse conditions. PPSA was aware of a least one recent death potentially related to this type of error.

The PPSA had recently published a study on serious events related to failures in the medication reconciliation process ([Harper 2021](#)). The usual suspects that we refer to as “high-risk” medications were, of course, frequently involved. But, most surprising was that the most frequent drug class involved was not one typically considered as “high-risk”. It was not insulins, anticoagulants, benzodiazepines, or opioids. Rather, it was anticonvulsants! These accounted for 16.4% of the serious events reported in the study. Errors in dosing of anticonvulsants most often resulted in seizures.

The transition point of care at which the errors occurred was most often admission or triage, with discharge as the second most common point. **Order entry or transcription** was the most common process during which errors occurred. Such events included missed orders, decimal place errors, orders where the total daily dosage was confused for individual dosages, orders for the wrong type or formulation of a drug, and entry of duplicate orders for the same medication. These resulted in wrong dose errors, dose omissions, wrong medications, duplicate therapy, and wrong formulation errors.

Source of information contributed to 19.4% of the events. Those errors involved incorrect, outdated, or illegible information provided by patients, family members, transferring facilities, old electronic records from a previous admission, or using the wrong patient’s information.

The PPSA study does not specifically detail the factors leading to the anticonvulsant errors. One of the problems we can foresee as contributing to the errors with anticonvulsants is the fact that we often need to adjust a patient’s anticonvulsant regimen to achieve a “therapeutic blood level” of that drug. For example, we might start a patient on 300 mg. of phenytoin daily but find that his/her serum levels are “subtherapeutic” and that at 400 mg. per day the levels are in the “toxic” range. So, we end up recommending 300 mg. one day alternating with 400 mg. every other day. But the problem is that such a regimen is **often not reflected accurately in either the pharmacy records or the electronic medical record (EMR)**. So, if someone is doing medication reconciliation using either of those sources as the sole sources of information (for example, when a patient cannot give a history and no family or caregiver is available), errors will ensue.

But, in fact, many of the anticonvulsants most often implicated in the PPSA study were ones for which we do not routinely aim for a therapeutic serum level. So, there must be other contributing factors. We think another factor likely to contribute is relative unfamiliarity with some of the drugs. For example, if a patient is admitted to a surgical or general medical service, the clinicians may not be as familiar with the anticonvulsants as they would be with many of the patient’s other medications.

The PPSA email alert to subscribers included the following key points:

- Consider additional triggers for alerts, monitoring, or laboratory testing when anticonvulsants are ordered.
- Review facility lists and processes for high-alert medications. Consider adding anticonvulsants to your facility high-alert medication list and incorporating high-leverage error reduction strategies into management of these medications.

- Develop standardized processes to ensure clinicians follow consistent procedures (including medication reconciliation) throughout the continuum of care, including admission and discharge procedures.
- Include the medication indication on the home medication list and all documentation systems for medication orders, care planning, and discharge planning.
- Consider a dedicated pharmacy role to assist with various medication reconciliation processes.
- Develop technology for shared electronic medication lists and processes.

Also, keep in mind that sometimes drugs in the anticonvulsant class are actually being used for indications other than seizures (for example, gabapentin and carbamazepine may be used for management of certain forms of pain). That is a reminder that it is crucial we always include an indication when prescribing or ordering a medication.

Some of our previous columns on medication reconciliation:

- October 23, 2007 “[Medication Reconciliation Tools](#)”
- December 30, 2008 “[Unintended Consequences: Is Medication Reconciliation Next?](#)”
- May 13, 2008 “[Medication Reconciliation: Topical and Compounded Medications](#)”
- September 8, 2009 “[Barriers to Medication Reconciliation](#)”
- August 2011 “[The Amazon.com Approach to Medication Reconciliation](#)”
- January 2012 “[AHRQ’s New Medication Reconciliation Tool Kit](#)”
- September 2012 “[Good News on Medication Reconciliation](#)”
- October 1, 2019 “[Electronic Medication Reconciliation: Glass Half Full or Half Empty?](#)”
- July 2020 “[Not Following Medication Changes after Hospitalization?](#)”

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Harper A, Kukielka E, Jones R. Medication Reconciliation Process Failures: A Study of Serious Events Reported by Pennsylvania Hospitals. Patient Safety Journal 2021; 3(1): 10-21
<https://patientsafetyj.com/index.php/patientsaf/article/view/medication-reconciliation-process-failures/medication-reconciliation-process-failures>
 (Harper 2021)

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Old Habits Are Hard to Break

Medical directors are responsible not only for patient safety, but also for quality and efficiency. One of our first projects in the early 1990's was to identify wasteful practices that added costs but did not improve patient outcomes. One of the first places we looked was our ICU's. It was mind-boggling the number of patients receiving daily chest x-rays without significant clinical changes, daily CBC's and electrolytes despite stable results, and receiving continuous oxygen despite adequate oxygen saturations on room air. So, we instituted policies to reduce any of these practices that could not be justified on clinical grounds and saw substantial reductions in these unnecessary practices.

Don't get us wrong. There are legitimate reasons to need repeat chest x-rays. There is seldom reason to need another prompt chest x-ray in a patient with pneumonia. Typically, a repeat x-ray will look worse because the pneumonia is consolidating regardless of how the patient is faring clinically. But sometimes you will need another x-ray if you suspect empyema, pneumothorax, significant atelectasis, or even pulmonary embolism. But, in all those situations there should be other clinical information that dictates you look for complications (eg. rising or recurrent fever, increasing white blood cell count, drop in oxygen saturation, etc.). And sometimes you need a repeat x-ray to check tube or line placement. But all those call for just a single repeat x-ray, not daily x-rays.

We've long thought that the "daily chest x-ray" was a thing of the past. Apparently, not so! Scott and colleagues just published a study documenting significant cost savings from a program to reduce such daily utilization of portable chest x-rays in ICU's in a major public teaching hospital ([Scott 2021](#)). They begin by noting several studies that had showed such reductions had resulted in no difference in mortality, length of stay, or ventilator-free days compared with routine, daily use. They also note that the ACR (American College of Radiology) recommends against the practice of obtaining routine daily chest x-rays. But, they note that daily portable chest x-rays often remain the standard practice at many hospitals.

They describe a multidisciplinary team (representatives from radiology, surgery, internal medicine, and nursing) that changed resident education, ordering protocols, and workflows to discontinue the use of routine daily chest radiography, emphasizing that it should be ordered only in specific situations, such as on admission or after central line placement. They tracked not only radiology utilization but also complications such as unplanned extubations and ventilator days.

The practice of standing daily CXR orders on ICU admission was discontinued. Instead, the need for CXR was determined only after examining the patient or on the basis of clinical events such as placement of a line, oxygen desaturation, or fever.

Changing ordering practices in the adult ICUs to align with established evidence-based guidelines resulted in a 37% decrease in the utilization of portable chest radiography between June and December, without a concomitant increase in unplanned extubations or ventilator days. When the number of chest radiographic examinations is normalized to ventilator days, there was still a decrease, from an average of 1.5 before the intervention to 1.1 after the intervention, a change of 27%.

In addition, a proportionate cost savings was realized. They calculated that the total average monthly cost of portable CXR decreased from \$11,633 before the intervention to \$7,348 after the intervention, also representing a 37% decrease.

We do take some exception with their method of calculating costs savings. A big chunk of the costs of CXR included the costs of the radiology technician and supervision. Of course, any actual cost savings would only be incurred if there was a reduction in the number of RT's and their supervisors or if they were shifted to some other procedures that brought in net income for the hospital.

Nevertheless, the study shows that the inappropriate practice of ordering the daily "routine" CXR persists and can be fixed, with consequent cost savings. The authors also point out that unnecessary CXR's may have other unwanted effects aside from unnecessary costs. These include radiation exposure, disturbing the patient's sleep, equipment dislodgement, and skin shear injuries from positioning maneuvers.

The Scott publication nicely describes the staff education and workflow alterations implemented. One problem, frequently seen in teaching hospitals, is the need to hold multiple educational sessions because residents and interns may change monthly. They also attribute the success of the project to use of a multidisciplinary team with strong project champions.

References:

Scott J, Waite S, Napolitano A. Restricting Daily Chest Radiography in the Intensive Care Unit: Implementing Evidence-Based Medicine to Decrease Utilization. JACR 2021; 18(3): 354-360

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