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What's New in the Patient Safety World

September 2021

- **Have You Added Pandemic Preparation to Your Hospital Disaster Plan?**
- **A Primer on Deprescribing**
- **Another Unusual Cause for a 10-Fold Overdose**
- **Ambiguous Language in the OR**

Have You Added Pandemic Preparation to Your Hospital Disaster Plan?

In our November 1, 2016 Patient Safety Tip of the Week "CMS Emergency Preparedness Rule" we discussed hospital emergency plans or disaster plans. But most such plans have dealt with acute emergencies that are of limited duration. How many of you have updated your emergency preparedness plan or disaster plan for dealing with pandemics?

Disaster plans may take into account potential sudden influx of patients and need to rapidly mobilize excess staff for disasters such as a mass casualty accident or a mass hazardous material exposure. But those are limited to short timeframes. The COVID-19 pandemic led to massive influx of patients for long periods of time and resulted in significant workload burdens and staff shortages over the long haul.

Wei and colleagues recently published "Nine Lessons Learned From the COVID-19 Pandemic for Improving Hospital Care and Health Care Delivery" (Wei 2021). It includes a valuable table containing elements to include in a hospital disaster plan for dealing with increased volume of patients or workforce shortages. Elements in that table are:

- Determination of what areas of the hospital would be most suitable for expanded services
- Cancellation of elective surgeries
- Cancellation of routine outpatient appointments
- Rapid discharge of stable patients
- Transfer of patients to less affected hospitals
- Reassignment of staff with "just in time" training
- Same-day credentialing of outside clinicians

The table and text outline considerations for each of those elements.

Given that the COVID-19 pandemic may not be over yet and there may well be a surge this fall (or a new pandemic in the future), you really need to address all these elements in your emergency preparedness or disaster plans.

Go to the Wei paper for its excellent recommendations, not only on the disaster plan elements, but also on each of their 9 lessons learned from the COVID-19 pandemic:

- Prepare for Unexpected Increases in Demand for Services
- Maintain Line of Sight
- Mind the Air
- Emotionally Support Health Care Workers
- Masks Forever (at Least for Some)
- Use Technology to Connect Families Near and Far
- Maintain Caches of Supplies and Diversify Supply Chains
- Reduce the Burden of Unnecessary Documentation
- Address Persistent Racial and Ethnic Disparities in Health

And, if you are a teaching hospital, you also need to consider how a long pandemic will impact your training programs. A timely "Checklist Framework for Surgical Education Disaster Plans" (Matthews 2021) provides good recommendations for surgical residency programs but many of the recommendations could apply equally to other residency programs as well.

References:

Wei EK, Long T, Katz MH. Nine Lessons Learned From the COVID-19 Pandemic for Improving Hospital Care and Health Care Delivery. JAMA Intern Med 2021; Published online July 23, 2021
https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2782429

Matthews JB, Blair PG, Ellison EC, et al. Checklist Framework for Surgical Education Disaster Plans. Journal of the American College of Surgeons 2021; Published online: July 12, 2021
https://www.journalacs.org/article/S1072-7515(21)00493-2/fulltext

Print "September 2021 Have You Added Pandemic Preparation to Your Hospital Disaster Plan?"

A Primer on Deprescribing

Wu and colleagues recently did a systemic review of systemic reviews on deprescribing in the elderly (Wu 2021) and it serves as an excellent introduction or primer on the topic. They conclude that the evidence suggests deprescribing is safe and feasible as a management strategy in patients at risk of medication-related problems. The literature shows that deprescribing can reduce the number of potentially inappropriate medications and rarely causes adverse drug withdrawal events. However, the authors note there is actually limited evidence of its effects on global and geriatric outcomes, such as falls, hospitalization, cognitive and physical function decline. Though common sense dictates that patient outcomes will be improved by deprescribing potentially inappropriate drugs in the elderly, studies on deprescribing have been limited by small sample sizes, confounding factors, and the lack of long-term follow up.

The review has a nice table listing the challenges and solutions of implementing deprescribing at the patient, healthcare professional, and health system levels. We just discussed many of those challenges in our June 29, 2021 Patient Safety Tip of the Week "Barriers to Deprescribing".

Patient challenges include poor health literacy, reluctance to discontinue medications based on false beliefs, and fact that patients are often not involved in decision making about the use of medications. At the healthcare professional level, time constraints, lack of formal training on deprescribing, and the complexity and multiple comorbidities of the geriatric patient are challenges. At the health system level, fragmentation of care and poor communication between providers is the primary challenge.

They discuss the role of educational solutions at each of those three levels. While educational interventions are necessary, we've always pointed out that they are generally among the weakest solutions to any problem. Wu et al. do note that provision of deprescribing protocols and use of explicit criteria to guide medication review have proven to be effective in achieving deprescribing. And they discuss the role of computer clinical decision support tool, noting that most studies have demonstrated CDS tools do result in reduction of potentially inappropriate medications in the elderly. But, again, even those studies have yet to demonstrate improvement in hard patient outcomes. They also discuss the use of quality indicators, which may be tied to financial incentives, public reporting, accreditation, or continued professional development. However, they note that use of some quality indicators, particularly when tied to financial incentives, may have unintended consequences (such as healthcare providers turning away specific types of patients that might reduce their quality indicator scores). They provide a table with the New South Wales (Australia) Therapeutic Advisory Group (NSW TAG) Polypharmacy Quality Use of Medicines (QUM) Indicators as an example of the kinds of quality indicators you might consider.

The Wu review is a good place to start for those just getting started with deprescribing and has a good bibliography to help you identify relevant studies. It also points out the dearth of research linking results of deprescribing to actual patient outcomes.

We hope you'll go back to our June 29, 2021 Patient Safety Tip of the Week "Barriers to Deprescribing" and the multiple other columns we've done on deprescribing and potentially inappropriate medications in the elderly..

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"
- June 29, 2021 "Barriers to Deprescribing"

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"
- April 2021 "Alarming Use of Fall-Prone Medications in 65+ Patients"
- June 29, 2021 "Barriers to Deprescribing"

References:

Wu H, Kouladjian O'Donnell L, Fujita K, et al. Deprescribing in the Older Patient: A Narrative Review of Challenges and Solutions. International Journal of General Medicine 2021; 14: 3793-3807
https://www.dovepress.com/deprescribing-in-the-older-patient-a-narrative-review-of-challenges-an-peer-reviewed-fulltext-article-IJGM

Print "September 2021 A Primer on Deprescribing"

Another Unusual Cause for a 10-Fold Overdose

Our May 4, 2021 Patient Safety Tip of the Week "More 10x Dose Errors in Pediatrics" discussed multiple examples of errors leading to 10-fold (or higher) overdoses of medications and discussed many factors contributing to such errors.

A recent case from New Zealand (Connor 2021) highlights yet another factor contributing to such events. A 4-year-old boy with cerebral palsy was admitted to a New Zealand hospital for a surgical procedure intended to reduce his lower extremity spasticity. At one point during his recovery from the surgery he became confused and looked angry. Staff gave him morphine, thinking his symptoms may have been secondary to pain. However, he became lethargic, then obtunded, with his tongue "hanging out" and snoring. Despite his mother's pleas that something was terribly wrong, "it took three-and-a-half hours for them to agree that there was something really wrong - and that's when he coded".

Staff originally suspected the morphine as the reason for his deterioration. But his mother insisted the changes had begun to take place prior to administration of morphine. That finally led to a review of all his medications.

At the time of admission, hospital policy required his mother to hand over any of the medicines she gives her son while he is at home. One of those was baclofen, which he took for his spasticity. The staff used the baclofen from his home supply. But, at some point, they got the pharmacist in the hospital to make up his medicine and switched to the hospital supply. The concentration of the patient's personal supply of baclofen was 1 mg/ml and that of the hospital pharmacy supply was 10 mg/ml. Up until then they'd been giving 7 ml out of the home supply bottle and it was supposed to swap to 0.7 ml out of the hospital supply bottle. "The poor nurse had gone away and checked, and he was told that 7 ml was right, came back and gave it" according to the mother. Thus, he had received a 10-fold overdose of the baclofen. He required transfer to the Pediatric ICU but ultimately recovered fully.

Hospitals in the US generally do not allow administration of medications brought in from home while a patient is an inpatient. However, occasionally a patient might be taking a medication that is not on the hospital formulary. In such cases, hospital staff may temporarily use the patient's home supply, as was done at the New Zealand hospital. The time of subsequent transition to a hospital's supply of a medication is obviously a period of vulnerability.

It's not really surprising that a nurse, used to administering 7 ml from a vial, would expect to continue administering that amount. We assume there was a new order when the switch to the hospital supply occurred. But even that may have been confusing. Would one use the same size syringe (or whatever instrument was used for administration) for the new dose was supposed to be less than 1 ml? The nurse apparently did some sort of check about the amount to be given, but concluded that 7 ml was still appropriate, not recognizing the disparity in concentration of the preparation.

A second lesson learned here is not to ignore the observations and concerns of a patient's family member. There are many incidents, including the Josie King case that was a seminal event in the patient safety movement, in which concerns of a parent went unheeded as clinical deterioration was occurring.

We suggest you go back to our May 4, 2021 Patient Safety Tip of the Week "More 10x Dose Errors in Pediatrics" for many more details on factors contributing to 10-fold overdoses.

Some of our other columns on 10-fold medication dose errors:

March 12, 2007	"10x Overdoses"
September 9, 2008	"Less is More and Do You Really Need that Decimal?"
January 18, 2011	"More on Medication Errors in Long-Term Care"
April 17, 2012	"10x Dose Errors in Pediatrics"
May 4, 2021	"More 10x Dose Errors in Pediatrics"

Some of our other columns on pediatric medication errors:

November 2007	"1000-fold Overdoses by Transposing mg for micrograms"
December 2007	"1000-fold Heparin Overdoses Back in the News Again"
September 9, 2008	"Less is More and Do You Really Need that Decimal?"
July 2009	"NPSA Review of Patient Safety for Children and Young People"
June 28, 2011	"Long-Acting and Extended-Release Opioid Dangers"
September 13, 2011	"Do You Use Fentanyl Transdermal Patches Safely?"
September 2011	"Dose Rounding in Pediatrics"
April 17, 2012	"10x Dose Errors in Pediatrics"
May 2012	"Another Fentanyl Patch Warning from FDA"
June 2012	"Parents' Math Ability Matters"
September 2012	"FDA Warning on Codeine Use in Children Following Tonsillectomy"
May 7, 2013	"Drug Errors in the Home"
May 2014	"Pediatric Codeine Prescriptions in the ER"
November 2014	"Out-of-Hospital Pediatric Medication Errors"
January 13, 2015	"More on Numeracy"
April 2015	"Pediatric Dosing Unit Recommendations"
September 2015	"Alert: Use Only Medication Dosing Cups with mL Measurements"
November 2015	"FDA Safety Communication on Tramadol in Children"
October 2016	"Another Codeine Warning for Children"
January 31, 2017	"More Issues in Pediatric Safety"
May 2017	"FDA Finally Restricts Codeine in Kids; Tramadol, Too"
August 2017	"Medication Errors Outside of Healthcare Facilities"
August 2017	"More on Pediatric Dosing Errors"
September 2017	"Weight-Based Dosing in Children"
February 19, 2019	"Focus on Pediatric Patient Safety"
June 2020	"EMR and Medication Safety: Better But Not Yet There"
December 2020	"Guidelines for Opioid Prescribing in Children and Adolescents After Surgery"

May 4, 2021 "More 10x Dose Errors in Pediatrics"

References:

Connor F. Young boy 'almost killed' after 'accidentally' given 10 times normal dose of medication at Starship Hospital. Newshub 2021; July 26, 2021 https://www.newshub.co.nz/home/new-zealand/2021/07/young-boy-almost-killed-after-accidentally-given-10-times-normal-dose-of-medication-at-starship-hospital.html

Print "September 2021 Another Unusual Cause for a 10-Fold Overdose"

Ambiguous Language in the OR

Our January 5, 2016 Patient Safety Tip of the Week "Lessons from AirAsia Flight QZ8501 Crash" discussed the crash of AirAsia Flight QZ8501 into the Java Sea on December 28, 2014, killing all 162 people aboard. Though there were multiple contributory factors, there were several ambiguous communications that were significant factors in failure to avert the crash.

A series of serious miscommunications occurred once the stall alarm triggered. The pilot in command shouted "level…level…level" (repeated 4 times). But it was not clear whether he meant to level the wings or level the "attitude" or orientation of the plane to the ground. Then he followed with the command to "pull down…pull down" (repeated 4 times). As above, this order is ambiguous because if you pull the level/stick down, the plane goes up and accentuates a stall.

It should come as no surprise that use of ambiguous language in the OR can be dangerous and contribute to adverse events and poor patient outcomes. Liu et al. (Liu 2021) reviewed video recordings of six surgical procedures performed by residents under the supervision of specialist physicians. In all, there were 319 minutes of surgery recorded and reviewed. Overall, they found 3912 examples of potentially ambiguous language, a rate of 12.3 per minute. Of these, they identified 131 near misses associated with potentially ambiguous language.

Unfortunately, this paper is replete with words and concepts that, quite frankly, are foreign to us! Words like “deixis” and “anaphora” may be part of the lexicon of linguists but are hardly part of the vernacular of your typical clinician. (Fortunately, they do provide a table with definitions of the linguistic phenomena, along with examples). Also, the focus of the study is on the impact of ambiguous language on teaching and training of surgeons. But the important lesson of the study is that our failure to use precise language in the OR can lead to unintended consequences.

It does have a table that provides examples of how the various types of ambiguous language led to near misses and what alternative language might have been used.

Of interest to us is lack of comment on other forms of communication that should have taken place. Of course, we are talking about “**hearback**”. The Liu article does note that airline pilots must repeat safety messages back to the controller but does not go into detail about use of hearback in the OR.

Back in that January 5, 2016 Patient Safety Tip of the Week “Lessons from AirAsia Flight QZ8501 Crash” we noted another miscommunication that was one that did not take place but should have. When the pilot in control began to manipulate his stick/lever, standard operating procedure would have been to call out “I HAVE CONTROL” and responded by the other pilot transferring the control by call out “YOU HAVE CONTROL”. Had that happened, perhaps the cancelling action of operating to sticks/levers simultaneously would not have occurred. Perhaps the analogy in the OR would be communication between the surgeon and anesthesiologist regarding when it is safe to use electrocautery once oxygen flow has been stopped. It might go something like this: surgeon “READY TO USE ELECTROCAUTERY”, anesthesiologist “YOU MAY USE ELECTROCAUTERY”.

The Liu paper also does not focus another communication-related factor contributing to adverse events in medicine or other industries - language/cultural disparities. As our healthcare workforce is becoming more diverse, we do encounter some difficulties ensuring everyone understands the words we use. That is particularly problematic when we use idioms and slang terms.

Hierarchy in the OR may also affect communication. Liu et al. acknowledge that ambiguous language use between teaching and training surgeons has the potential to lead to catastrophic surgical outcomes, “especially when the training surgeon is junior”.

There is much more to language than the actual words. The way the words are spoken is critical. Tone and inflection count as well. We always tell the story about the copilot saying softly in a monotone voice “We are running out of gas” several times before a plane crashed because it ran out of gas. He obviously should have been shouting it out loudly. The hierarchical nature of that cockpit probably prevented the copilot from speaking up. How many times has that happened in the OR? Lots.

And you've heard us often remind everyone that 90% of communication is nonverbal. While body language may be somewhat obscured in the OR due to masks and gowns, it still occurs. People can convey an awful lot of information with their eyes.

Though the Liu article has the problems we noted above, it does have some thoughtful and useful recommendations for improving communication in the OR and avoiding ambiguity. Some are very practical. For example, defining a directional frame of reference at the start of a procedure may be very useful (eg. left-right from the patient's perspective or the surgeon's prospective, use "toward the head" rather than "up/down", etc.). It's worth having not only your surgeons, but your whole OR team, look at these recommendations.

References:

Liu C, McKenzie A, Sutkin G. Semantically Ambiguous Language in the Teaching Operating Room. Journal of Surgical Education 2021; Article in press 23 April 2021 https://www.sciencedirect.com/science/article/abs/pii/S1931720421000738?via%3Dihub

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Print "September 2021 What's New in the Patient Safety World (full column)"
Print "September 2021 Have You Added Pandemic Preparation to Your Hospital Disaster Plan?"
Print "September 2021 A Primer on Deprescribing"
Print "September 2021 Another Unusual Cause for a 10-Fold Overdose"
Print "September 2021 Ambiguous Language in the OR"

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