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INSIDER

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IV NURSE DAY 2018

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INS Board of Directors Holds Biannual Meeting

The INS Board of Directors convened its biannual meeting in York Harbor, Maine, in October 2017. The several items on the agenda included a review of INS operations and marketing; the approval of the 2018 financial budget; and a discussion of several clinical-related projects, such as a VAD care and maintenance bundle, the collaborative research effort between INS and Purdue University regarding infusion practices, and defining the specialty of infusion nursing.

Not on the agenda, but playing a key role in the meeting, was an overnight storm that uprooted trees and downed power lines. The storm left the entire hotel complex without power during the final day of the meeting.

The board remained undaunted, however. The rest of the meeting was conducted with light provided by the gray sky outside the meeting room windows. Fortunately, all of the PowerPoint presentations were delivered the day before, when the power was in full force.

The closing dinner went on as scheduled, thanks to candles, a portable generator, and the hard work of the dedicated hotel staff. Despite the challenges caused by Mother Nature, the board left the meeting with a clear focus and plans for 2018.

Patient Satisfaction is the Glue for Tomorrow's Health Care

Pamela Jacobs, MHA, BSN, RN, CRNI®, OCN®, INS President, 2017 – 2018

Under the Affordable Care Act, the Centers for Medicare and Medicaid Services ties Medicare reimbursement to patient satisfaction scores. Learning what patients want has become a priority for hospitals. And defining patient satisfaction has been difficult, with no clear consensus on what it means. Some think it's as simple as having happy patients, but in reality, patient satisfaction is so much more.

One approach to improving patient satisfaction has been an increased awareness of the effect of the "bedside manner" of physicians and members of their staff. Patients appreciate being greeted and acknowledged by name. Introducing staff members, including their names and credentials, offering explanations, and taking time to answer questions help create positive relationships with patients. Low satisfaction scores are costly, reportedly on average between $500,000 and $850,000 a year. Better outcomes are achieved with patients who adhere to treatment plans and maintain their relationships with their health care providers. This translates to lower readmission rates, reduced lengths of stay, and savings for hospitals.[1]

Patients have choices as to where they obtain their medical care. They tend to be loyal when they receive exceptional service. When patients' expectations are not met, there is a real risk of losing them forever—a loss that can prove costly. Investing in patient satisfaction is a valuable investment for the future of organizations. Patients talk to their relatives, neighbors, and friends. On average, satisfied patients talk about their positive experiences to 5 people. However, if a patient is dissatisfied, he or she will tell 9 people about their experience. Health care providers can appear cold and uncaring if they refuse to shake a patient's hand, avoid eye contact, and do not ask how the patient is doing.[2] Long wait times cause patient dissatisfaction. Ninety-

seven percent of patients report having been frustrated waiting in hospitals and in ambulatory settings, such as physician offices. This is one aspect of care many organizations are trying to improve, but as health care providers get busier, wait times are a real and persistent challenge. To minimize frustration, apologizing for the wait, letting patients know the approximate wait time, and seeking ways to minimize the wait time using a queue management system may help.[3]

Many hospitals have improved relationships with family members of patients in surgery with communication boards that give information about the status of the surgery time. Anxiety is relieved when families are kept apprised of what is happening behind the surgery doors. As patients or families wait, they wonder, "Have I been forgotten?" A simple update can relieve patient fears and anxiety regarding wait times.

Marcus Engle, author of *The Other Side of the Stethoscope,* witnessed firsthand the good and the bad of health care. Approximately 20 years ago, at the age of 18, Marcus suffered catastrophic injuries in a motor vehicle accident. Marcus' face was crushed; he was permanently blinded and was hospitalized for months. His insight can help improve patient satisfaction. Marcus talks about the importance of explanations. He recounts one experience when he waited much too long for pain medication after one of his several surgeries and was in excruciating pain. He was extremely angry with the nurse. After 45 minutes, the nurse apologized for the delay and explained that of the 5 physicians in the surgery, none had left postoperative pain medication orders. She told him that she had to speak with the main surgeon, obtain the orders, and get the medicine to him, and that she was so sorry, but she had tried as quickly as she could. Marcus said the frustration and the angst was nearly as bad as the pain and that knowing why he had been kept waiting would have helped him. He feared he had been forgotten or worse, disregarded, and a simple word from the nurse saying, "I'm on it, it's just going to take a few more minutes than I expected" would have made his situation more bearable. [4]

Infusion nurses in all settings affect patient satisfaction. When infusion nurses recall the primary reason for choosing nursing as a profession, it was about caring for patients. Simple behaviors such as an introduction, credential explanation, empathy, and confidence in being a professional infusion nurse are integral in creating positive experiences for patients. The evolution of understanding patient satisfaction will continue to provide feedback on what patients want and need in tomorrow's health care.

References

1. Murphy M. Focus on patient satisfaction: why it matters. *Medical Scribe Journal.* http://scribeamerica.com/blog/focus-patient-satisfaction-matters/. Accessed November 5, 2017.
2. Tsernov K. The importance of patient satisfaction. *Qminder.* https://www.qminder.com/importance-patient-satisfaction/. Posted June 21, 2017. Accessed November 5, 2017.
3. Merlino J. How to improve patient satisfaction scores by using data. *Health Catalyst.* https://www.healthcatalyst.com/how-cleveland-clinic-improve-patient-satisfaction-scores-data-analytics. Accessed November 5, 2017.
4. Engle M. *The Other End of the Stethoscope—33 Insights for Excellent Patient Care.* Orlando, FL: Ella Press; 2006.

How Heparin-induced Thrombocytopenia Has Changed the Management of Vascular Access Devices

Michelle Berreth, BSN, RN, CRNI®, CPP, INS Nurse Educator

Since its discovery in 1916, heparin has become one of the most prescribed medications in the world.[1(p2519)] It would take nearly 40 years to realize that this medication, intended to prevent thrombosis, could at the same time contribute to thrombosis.[2(p2607)] This article discusses heparin-induced thrombocytopenia (HIT) and the impact it has had on the practice of infusion therapy.

Heparin was first introduced for anticoagulant intravenous (IV) use in 1936. Derived from porcine intestines, the earliest compounds administered to humans caused nausea, fever, and headaches. Further studies and refinements of purification techniques produced an injectable form free of side effects.[3] Following human clinical trials, the drug was found to be highly effective not only in preventing blood clots, but also in stimulating the body's natural ability to dissolve clots.[4]

Some 20 years later, a vascular surgeon reported at a scientific meeting that several of his patients receiving systemic heparin to prevent clots experienced arterial clot formation. The clots were described as light salmon-colored and consisted of platelets, white blood cells, and fibrin. It would be another 10 years before the term *heparin-induced thrombocytopenia* would be used to describe the hallmark of the syndrome: a drop in the platelet count along with a rise in fibrinogen levels, resulting in what is also referred to as *white clot syndrome.*[2(p2607),5(p113)]

Any patient receiving heparin injection at any strength is susceptible to developing HIT. Suspect HIT in the patient receiving heparin therapy if the platelet count:

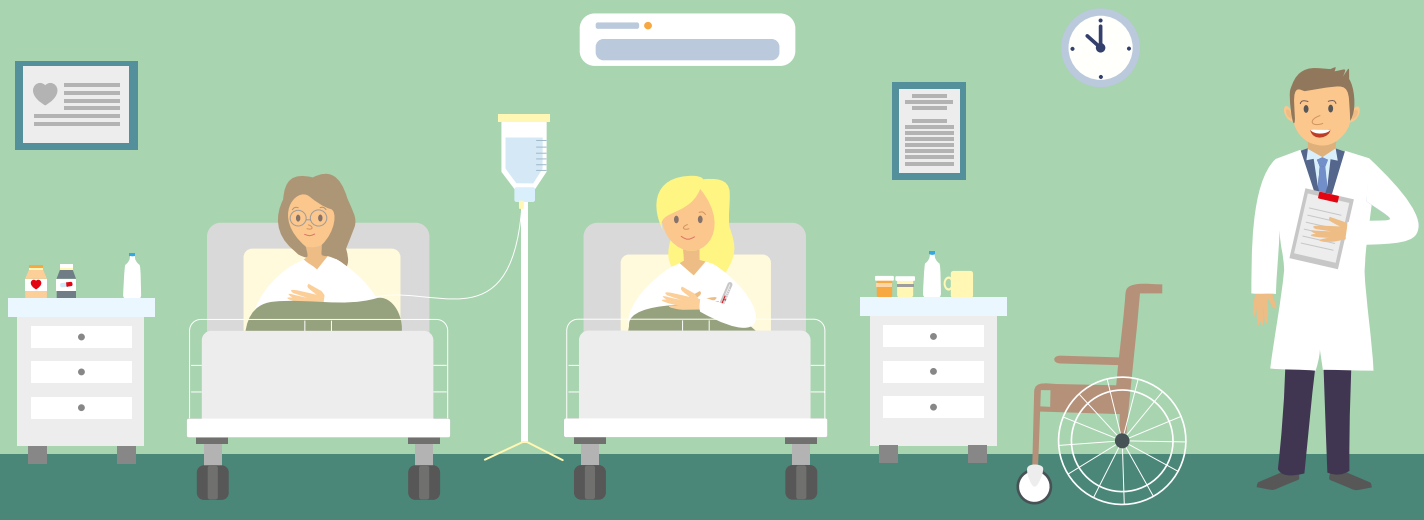
- falls below 150,000/µl
- there is a decrease in the baseline platelet count ≥50%
- if the baseline platelet count decreases ≥30% with an associated thrombotic event[5(p115)]

The onset of a significant drop in the platelet count can be rapid, typical, or delayed.

- **Rapid:** 30% of patients will develop thrombocytopenia immediately after exposure to heparin. These patients more than likely received heparin within the previous 3 months.
- **Typical:** The majority of patients (60%) develop thrombocytopenia 5 to 10 days after the initiation of therapy.
- **Delayed:** A small percentage won't show a drop in platelet counts for up to 3 weeks after starting heparin therapy.[1(p2520)]

Other clinical indicators of HIT include:

- Occurrence or progression of a thrombotic event while receiving heparin therapy
- Presence of "white clots" during thrombectomy
- Heparin-associated skin necrosis
- Systemic reactions during infusion of heparin[5(p115)]



Risk factors are variable and include drug- and patient-related factors. Male patients are less likely to develop HIT than females. Heparin obtained from bovine sources pose a higher risk than heparin obtained from porcine sources, and unfractionated heparin is 10 times more likely than low molecular weight heparin to be associated with the development of HIT. The longer the exposure to heparin (more than 5 days), the more likely the patient is to develop HIT.[1(p2520)] Any exposure to heparin, even in the smallest concentration, can begin the immune response that is responsible for this "limb- and life-threatening complication of pharmacologic heparin administration."[5(p113)]

At the first sign or symptom of HIT, heparin therapy should be discontinued. This includes any heparin, including heparin flush solutions used for the maintenance of central vascular access devices (CVADs). The intermittent instillation of heparin solution into vascular catheters to maintain patency began more than 40 years ago. A weak solution of heparin was injected into the IV catheter every 8 hours or after the administration of medication followed by a flush of 0.9% preservative-free sodium chloride (USP). Before that, the patency of peripheral IV catheters was maintained with continuous heparin infusions.[6(p6)]

Concerns about the safety and risk of using heparin to maintain vascular access device (VAD) patency have led to changes in practice as well as the introduction of new technologies. Studies conducted in the early 1990s led to the recommendation to discontinue the use of heparin for locking peripheral catheters.[6(p6)] Technology has had an impact on the use of heparin to lock some CVADs. Catheters were developed using an integrated, 1-way valve that would only allow the valve to open with injection or aspiration, effectively eliminating the need for heparin. Positive-pressure flushing techniques sought to minimize the reflux of blood into the tip of IV catheters when a syringe is removed from a connector. Needleless connectors have been developed that prevent this reflux of blood and don't require heparin to maintain patency of devices they are used with.[6(p6)]

Until further studies are conducted and evaluated, the support to eliminate heparin in the maintenance of VADs is undetermined. One systemic review and meta-analysis concludes "heparin saline is not superior to normal saline in reducing CVCs [central venous catheters] occlusion" and "data from these studies suggest that heparin saline may not be required to maintain the patency of CVCs."[7(p1,5)]

As long as there is exposure to heparin, the chance of HIT exists. While the incidence is low (0.1%-0.5%), mortality for those who experience it is as high as 30%.[1(p2519-2520)] Infusion nurses minimize the chance patients experience HIT by knowing and applying the latest evidence-based practices and guidelines in the care and maintenance of VADs.

References

1. Salter BS, Weiner MM, Trinh MA, et al. Heparin-induced thrombocytopenia. *J Am Coll Cardiol.* 2016;67(21):2519-2532. doi: 10.1016/j.jacc.2016.02.073.
2. Kelton JG, Warkentin TE. Heparin-induced thrombocytopenia: a historical perspective. *Blood.* 2008;112(7):2607-2616. doi: 10.1182/blood-2008-02-078014.
3. History of heparin. Bioiberica SA Website. https://www.heparinscience.com/. Accessed December 1, 2017.
4. Mandal A. Heparin history. News Medical Website. https://www.news-medical.net/health/Heparin-History.aspx. Updated August 12, 2014. Accessed December 1, 2017.
5. Deitcher SR, Carman TL. Heparin-induced thrombocytopenia: natural history, diagnosis, and management. *Vascular Med.* 2001;6(2):113-119. http://journals.sagepub.com/doi/10.1177/1358836X0100600208. Published May 1, 2001. Accessed December 1, 2017.
6. Goossens GA. Flushing and locking of venous catheters: available evidence and evidence deficit. *Nurs Res Pract.* 2015. doi:10.1155/2015/985686. Epub May 14, 2015. Accessed December 1, 2017.
7. Zhong L, Wang H-L, Xu B, et al. Normal saline versus heparin for patency of central venous catheters in adult patients–a systematic review and meta-analysis. *Crit Care.* 2017;21(1):5. doi:10.1186/s13054-016-1585-x.

Seth Eisenberg, ADN, RN, OCN®, BMTCN®

BIO:
Seth Eisenberg, ADN, RN, OCN®, BMTCN®, is a professional practice coordinator for infusion services at the Seattle Cancer Care Alliance Ambulatory Clinic in Seattle, Washington. He has practiced in the field of oncology since 1983. His experience includes 32 years in hematopoietic stem cell transplantation. Mr. Eisenberg specializes in hazardous drug safety, and has published numerous articles and book chapters on chemotherapy and biotherapy. He has presented as a faculty member for several INS national meetings, most recently in November 2017 at INS National Academy in Atlanta, Georgia.

Q & A

INSider: **What led you to this career path?**

SE: Working with high-dose cyclophosphamide in bone marrow transplants during the mid-1980s highlighted the exposure concerns associated with hazardous drugs. As a bedside nurse and a safety advocate, I became active in the Oncology Nursing Society in helping educate nurses through publications and presentations.

INSider: **What are you most passionate about?**

SE: In the field of nursing? Definitely hazardous drug safety, particularly since I have been handling these drugs since 1983. Those days are considered the "very, very dark ages of safety." It is disappointing that it's taken this long to get a requirement on the books.

INSider: **What is USP <800>? Why do you think it took so long for safety guidelines to be implemented and/or enforced?**

SE: First, let's remember that USP <800> is not a guideline, but a standard. We've had guidelines since 1981. The problem has been lack of enforcement, and a general sense that guidelines are suggestions, not requirements.

Most aspects of hazardous drug safety cost money. Some examples include personal protective equipment (PPE)—many facilities still do not provide gowns or they require that nurses reuse them to save money—closed system transfer devices, and chemotherapy gloves, which are as much as 10 times more expensive than standard nitrile exam gloves. The compounding requirements—recommended for decades—will require some organizations to completely remodel their IV medication rooms, and, potentially, will cause smaller private practices to stop mixing chemotherapy altogether. While this may seem like an unnecessary hardship for private practices, would we really be ok if those practices were handling radioisotopes in a manner which violated current safety regulations? Probably not. We'd expect the same level of safety. And as an employee, I would expect the same protections required by the Nuclear Regulatory Commission.

So USP <800> takes those recommended guidelines and makes them a standard, just like standards issued by The Joint Commission, the Department of Health, and the Centers for Medicare & Medicaid Services. And, as with those bodies, these standards are enforceable. In addition, we now have so much data there can be no arguing that it's not a problem. During the 1990s, people argued that the early studies were dated. They made the same arguments 10 years later about the studies in the 1990s. But now we have current data on environmental contamination and chromosomal damage that can't be blamed on "old data."

INSider: **What are some of the educational and training challenges health care facilities are facing?**

SE: Getting experienced nurses, many of whom have been practicing "the same way" for a long time, to change their behavior is a big challenge. They may think they're immune to the effects because nothing bad has happened to them. The problem, of course, is that poor safety compliance can affect other nurses on a personal level, for example younger staff who may be trying to conceive. And no one wants to take chemotherapy home to their children, which is a potential possibility if the workplace is contaminated with hazardous drugs.

This will require a change in the culture of safety, which often starts at the top. In a published survey, Martha Polovich, PhD, RN, AOCN®, discloses that some nursing managers believed the safety issues were overstated. If the culture of safety begins with our leaders, then it becomes difficult for the bedside nurse to change that culture. Policies need to be written and enforced; peer pressure becomes exceedingly important in guiding a unit or a facility's progress in adopting a zero-tolerance policy for not wearing PPE. New graduates do not receive any of this training in universities, so it is up to us to mentor them and set the example we want them to follow and subsequently teach to future generations of nurses.

USP also will require education for all staff who handle hazardous drugs to occur prior to handling. This will have an impact on nurses on nononcology units who may be required to administer a drug on the NIOSH list. And it will be a challenge for nursing educators to ensure that all staff receive this education when they're hired.

INSider: **Will these protective measures work (i.e., will they reduce exposure, etc.)?**

SE: We know that airbags and seat belts in cars save lives. We also know that people still die in auto accidents. Hazardous drug PPE, closed system transfer devices, and education will reduce the opportunity for exposure, but they will not eliminate the risk. It will always be there as long as we need to use these medications for treatment. The same can be said for radiation: We have almost 70 years of experience and regulations for radiation safety. But exposure is still a possibility. In the field of drug administration, accidents can and do happen. Tubing can become disconnected, IVs can get inadvertently pulled out, and spikes can fall off IV bags. So, while USP <800> will have a significant impact in safety, the only sure-fire way to eliminate exposure is to eliminate the drugs themselves.

INSider: **How do these measures affect patients? What is being done to protect patients?**

SE: While spills and environmental contamination are a lesser concern for patients who are receiving the drugs, there are some patient-specific ramifications. Leakage or spills from vesicant drugs can cause skin damage. And a spill usually requires remaking the dose for the patient, resulting in administration delays and waste. Perhaps the bigger concern is for family members who are being exposed, much in the same way as family members of smokers are exposed to second-hand smoke.

For more in-depth information about USP<800> and hazardous drugs, INS encourages members to read Seth's article, "USP<800> and Strategies to Promote Hazardous Drug Safety," in the January/February 2018 print issue of the Journal of Infusion Nursing or online at http://journals.lww.com/journalofinfusionnursing.

Take Action for Patients in Your State

Savannah Rudkin, Director, New Media and Communications, National Infusion Center Association

Happy New Year. As we embark on 2018, we invite you to take your advocacy for your patients and others across your state to the next level.

Over the past year, we have invited you to educate yourself about the issues facing patients and the challenges that prevent them from receiving the care they need. To influence positive change, we have called on you to collect and share their stories. And we have worked to equip you with the knowledge you need to prepare for difficult circumstances and continue to provide the care your patients would need in a crisis. Now, we'd like you to step up and become part of the legislative process.

This year, most states will be in legislative session. This is when states pass laws. As health care professionals, we challenge you to take an active interest in this process and become a participant in your state's lawmaking as it affects your patients.

There are many moving parts behind the scenes that produce a successful bill. First, an idea from legislators, public officials, or even constituents must be sponsored by a senator or a representative and then drafted into a bill. If the bill successfully navigates the early stages of the process, it is assigned to a committee, which will determine the fate of the potential legislation.

This is where your work begins.

During state sessions, most committees are bombarded with bills, and if a committee does not choose to hear a bill, it will die. However, your voice can make a difference. Most bills that could affect patients are addressed by the public health committee or the insurance committee. If one of those committees is considering a bill that might help your patients, and you want the bill to succeed, start by contacting the committee and asking its members to push the bill to the floor. In other words, tell committee members that you want the bill to be heard. You can contact the committee in a number of ways. Most can be reached by email, mail, or phone. It's also possible to arrange a face-to-face meeting to express your concerns.

If you contact the committee, remember to keep your message brief and to the point. You can include personal testimony based on your experiences as a health care professional. Encourage other providers, as well as patients and caregivers, to reach out and call for a hearing, as well. The more constituent support a bill receives at this stage, the more likely it is to have the opportunity to become law.

If the committee agrees to hear the bill, you'll be needed again. Many bills don't make it beyond a committee hearing, so the first thing to do at this stage is to contact your senator and ask for his or her support for the bill which will be coming to the floor.

The easiest way you can take action is to submit written testimony supporting the bill. You can include stories of patients whose lives could be changed if the bill were passed. You can volunteer to appear in person at the bill hearing to share your testimony. And personal patient and provider testimony can be incredibly powerful and useful in moving a bill toward law.

The key to taking part in your state's legislative process is patience. The process can be exciting and tedious. There are many roadblocks to putting in place new protections for patients. To be effective and to stay involved, you must connect with your patients. Hone in on the suffering of those who have been harmed by misguided policies which have prevented them from receiving the care they need. The process may be long, but the benefits for patients certainly merit the effort.

If you would like to learn more about bills in your state this year and how you can take an active role in the legislative process, please visit infusioncenter.org/mystate today.

National Infusion Center Association (NICA) is a nonprofit organization formed to improve patient access to office-administered intravenous and injectable medications and therapies. For more information about NICA, visit infusioncenter.org.

NICA NATIONAL INFUSION CENTER ASSOCIATION

IV NURSE DAY 2018

Learn about the history of IV Nurse Day and plans for this year's celebration.

CELEBRATE IV NURSE DAY

Infusion therapy has evolved from an extreme measure used on only the most critically ill to a highly specialized mode of treatment used for 90% or more of all hospitalized patients. No longer confined to the hospital setting, infusion therapies are now delivered in alternative care sites, such as homes, skilled nursing facilities, and physicians' offices.

Nursing involvement in the practice of infusion therapy has become a highly specialized practice. The role of the nurse in infusion therapy has changed a great deal over the past 50 years. Today's infusion nurse is responsible for integrating the holistic principles of medicine and nursing, management, marketing, education, and performance improvement into the patient's plan of care. Clinical expertise is key. Nurses who specialize in infusion therapy, particularly, certified registered nurses of infusion (CRNI®s), are an integral part of health care teams that provide the correct dose of medication and keep patients safe from catheter-related bloodstream infections and other complications. CRNI®s are part of a global community of elite nurses across multiple disciplines—including home care, pediatrics, oncology, and many more—who have demonstrated through certification that they are the most informed and most highly qualified infusion nursing specialists. CRNI®s are continuously exposed to the newest advances and latest developments, technologies, and techniques in the infusion nursing specialty.

On January 25, infusion nurses and other health care professionals will observe National IV Nurse Day. Proclaimed by then Massachusetts Congressman Ed Markey in 1980, the U.S. House of Representatives designated this day to honor and recognize the accomplishments of the nation's infusion nurse specialists each year, as well as the Infusion Nurses Society (INS). Markey called the specialty "a vital branch of our nation's nursing profession." INS CEO Mary Alexander, MA, RN, CRNI®, CAE, FAAN, stated that "INS and infusion therapy have come a long way in the last 50 years. Medical technology has changed dramatically and today our specialty looks very different. Celebrating IV Nurse Day gives us an opportunity to recognize the evolution of our specialty and the significant contributions that infusion nurses make in their patients' lives."

> *"This year's theme, "It's About Us. It's About Infusion," invites nurses everywhere to commemorate their commitment to their work and to their patients."*

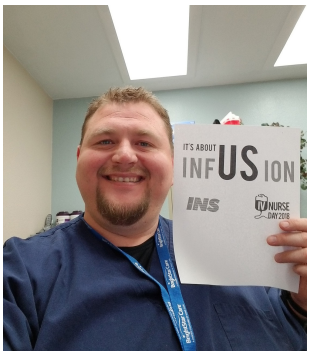
IV Nurse Day promotes the advancement of the specialty and recognizes decades of continuing education, advocacy, and professional development offered by the infusion nursing community. This year's theme, "It's About Us. It's About Infusion," invites nurses everywhere to commemorate their commitment to their work and to their patients.

It is the perfect opportunity to increase recognition of the specialty, whether displaying IV Nurse Day posters around your medical practice, hosting a CRNI® educational event, or sporting some new IV Nurse Day gear. Order yours at www.jimcolemanstore.com/ins. Email photos of your IV Nurse Day event to **ins@ins1.org**, and we'll share them in a future *INSider*. Happy celebrating!

IT'S ABOUT INFUSION

INS

IV NURSE DAY 2018



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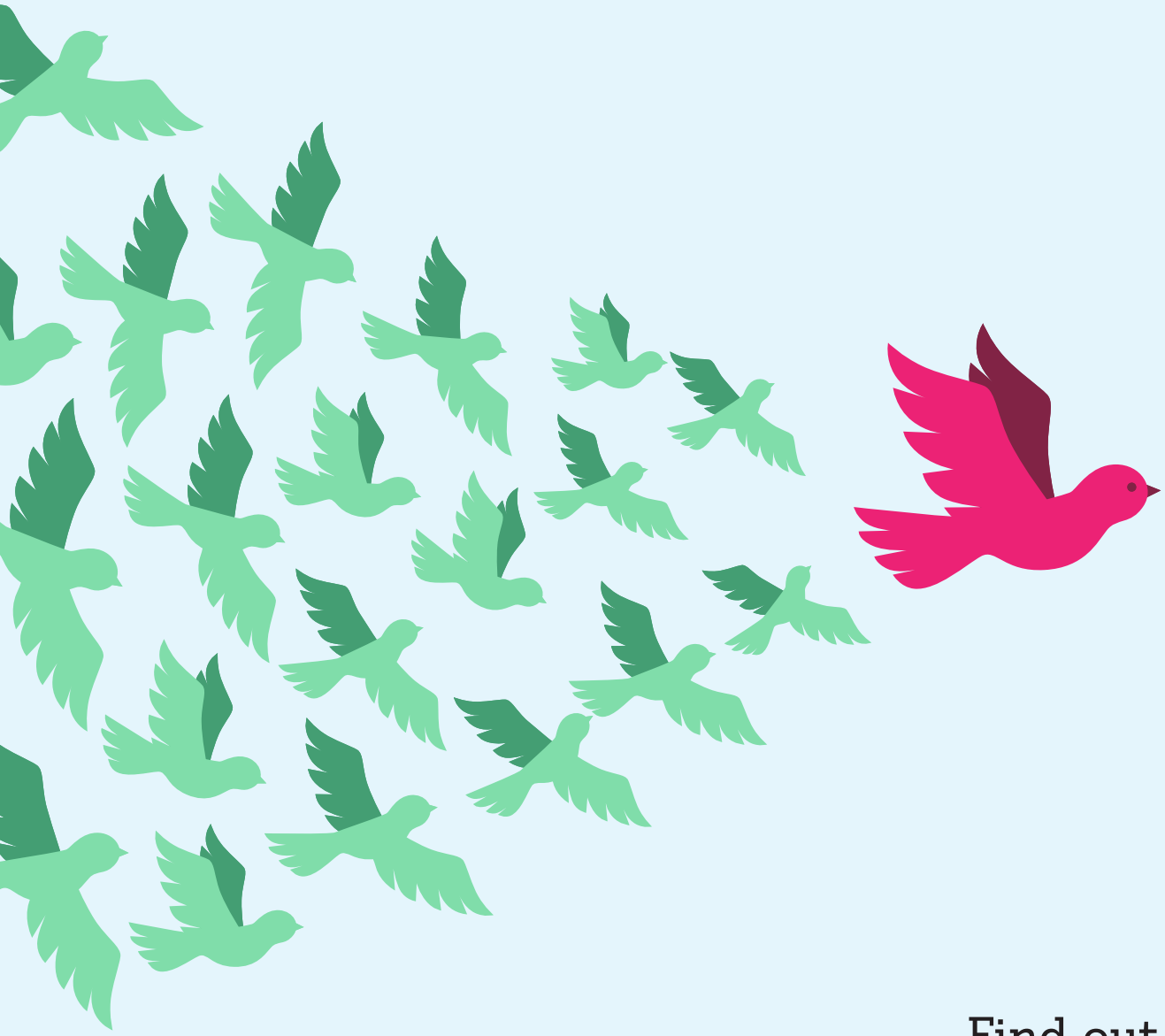

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Descriptive and Inferential Statistics

Jeanette Adams, PhD, RN, ACNS, BC, CRNI®, INS Research Committee Chair

The practice of evidence-based nursing requires infusion nurses to practice and make decisions based on evidence. Searching for evidence leads to identifying research studies related to the topic under examination. Each research study needs to be critiqued or appraised for the credibility and applicability to clinical practice.

Statistics is usually met with a groan or a turn of the page by most nurses. This is certainly understandable considering statistics is not a competency in undergraduate nursing education. However, statistics are an important part of quantitative research studies needed for evidence.

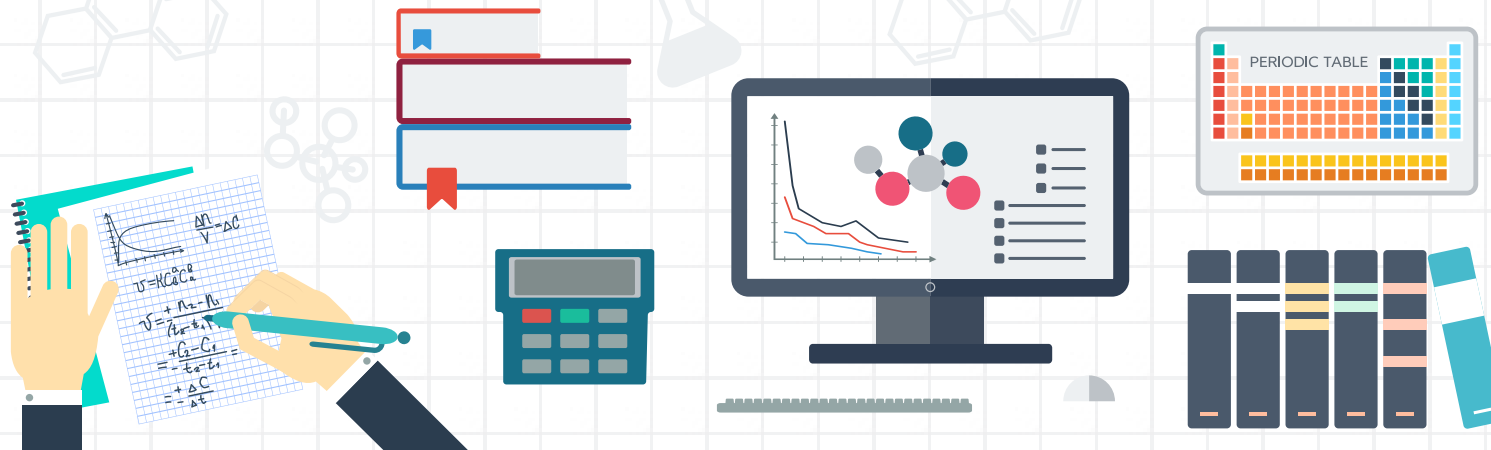
Statistics is a branch of mathematics that allows researchers to manage the data collected in a research study. Data are the crux of research studies that provide interpretation and create meaningfulness for application. Without the ability to collect, organize, and interpret data, researchers would have no value to generate new knowledge. The purpose of statistics is to describe and summarize the data, to make predictions based on the data, and to identify associations, relationships, or differences with the data.[1]

There are 2 types of statistics. *Descriptive statistics* is used to summarize data into a more manageable form.[2] For example, suppose a research study found that phlebitis occurred in patients with short peripheral catheters (SPCs) 10% of the time. This is a number representing each patient with an SPC that results in a complication of phlebitis. If 500 patients with SPCs were evaluated, the descriptive statistics would be 50 of the 500 patients with SPCs resulted in phlebitis. Five hundred data bits were summarized into 1 number to describe the study's findings. *Mean, mode,* and *median* are common terms used in descriptive statistics. Descriptive statistics can only provide information about the patients included in the study. In other words, descriptive statistics do not allow generalization of the results. This is an important point to remember when reviewing research articles and the applicability to your clinical practice.

The second type of statistics is known as *inferential statistics.* These infer or deduce information from a sample of the population using probability theory. Inferential statistics uses statistical tests to test hypotheses of sample representations of populations.[3] For example, if researchers wanted to know the incidence of phlebitis for all patients with SPCs, a representative sample of this population could be obtained. Then this hypothesis could be tested using the correct statistical test and the results could be generalized to this entire population. Based on this definition, inferential statistics has a higher degree of evidence than descriptive statistics. When reviewing research studies with inferential statistics, you need to evaluate whether the population used in the study represents your clinical population. Then, you can determine whether the study results can be generalized to your practice.

Obviously, there is more to these types of statistics than can be addressed here. However, this brief introduction explains how research studies and statistics can be evaluated and critiqued for accuracy between the charts and figures provided and the discussion of the results and findings. Even asking simple questions such as "Does it make sense?" is useful. This is a great opportunity to enlist a colleague skilled in statistics or to start a journal club to increase your knowledge of evaluating statistics. Future research committee articles will delve further into this subject.

References
1. Kellar SP, Kelvin EA. *Munro's Statistical Methods for Health Care Research.* 6th ed. Philadelphia, PA: Wolters Kluwer/Lippincott Williams & Wilkins; 2012.
2. Fisher MJ, Marshall P. Understanding descriptive statistics. *Aust Crit Care.* 2009;22(2):93-97.
3. Marshall G, Jonker L. An introduction to inferential statistics: a review and practical guide. *Radiol.* 2011;17(1):e1-e6.



Breaking Barriers to Patient Compliance

Jennifer Flynn, CPHRM, Risk Manager, Nurses Service Organization (NSO)

Despite a nurse's best efforts, some patients aren't willing to follow instructions, but the impact of patient noncompliance is too serious to ignore.

Nurses can enhance patient understanding of and adherence to their overall treatment plans by strengthening communication, rapport, and education.

It starts with communication

Asking the right questions and opening the lines of communication between the patient and nurse can uncover critical barriers to treatment compliance.

- Pose questions in a constructive, probem-solving manner. For example, "I see you have not been completing your daily exercises. I wonder if they are causing you too much pain, or if there is some other reason?"
- Try to relate personally to the patient to build a stronger therapeutic partnership. Get the patient to express what the nurse and care team can do to help them better meet their personal health goals.
- Set and adhere to a discussion agenda for every encounter. Begin with a discussion of the patient's personal goals and issues before moving on, for example, "First, tell me what concerns you most, and then we'll discuss test results."

Encouraging cooperation and participation

Explain to patients that they must take some responsibility for the outcome of their care and treatment. Let them know that everyone caring for them wants them to be successful in regaining their health.

- Clearly and explicitly convey the severity of the problem and the risks of not properly carrying out instructions. Give the patient an opportunity to ask questions and clarify the instructions.
- Find out if there are any underlying factors affecting compliance. For example, "It sounds as though you may be concerned about the medication's possible side effects. Is that why you have not taken it as prescribed?"
- Identify any practical or logistical difficulties that may hinder compliance.
- End each encounter by having the patient verbalize at least one self-management goal.

Helping patients manage logistics

Sometimes a patient's noncompliance issue is out of their hands; for example, because of a lack of personal support at home or financial restraints. Uncover where those patients are struggling:

- Do health care information records note who can help your patient when they're outside of the health care setting? Do they have the consistent help of a spouse, relative, friend, or paid caregiver to aid with their care?
- Are patients asked whether they can get to appointments via car or public transportation, and are responses documented in the patient care record?
- If a patient lacks the physical or mental capacity to perform such essential tasks as changing dressings or picking up prescriptions, has a relative or friend been asked to assist, with the permission of the patient or legal guardian?
- Does the patient lack the financial resources to comply with their current care plan? Are they concerned about the out-of-pocket costs for treatment, or having to take time off from work?
- Document these concerns in the patient care record, and work with the patient and their primary care provider (with the patient's permission) to find solutions.

Supporting the effort with documentation

To help staff deal with hostile, manipulative, or uncooperative patients, written protocols should be in place to help all staff respond to and deal with difficult patients. This should include ways to document and establish procedures for such common concerns as:

- Repeated prescription refill requests of questionable nature
- Narcotic use and general pain management in drug-seeking patients
- Appointment or procedure cancellations
- Unacceptable behavior, such as belligerent voicemail messages or yelling or cursing at staff
- After-hours patient calls
- Refusal to consent to recommended treatment
- Neglecting to take medications, to exercise, or to make necessary lifestyle changes
- Terminating the patient-provider relationship

Monitoring compliance

Driving patient compliance often means health care teams need to repeat themselves again, and again, and again. Different tools and strategies can help nurses drive compliance.

- Remind patients of upcoming appointments, including referrals and laboratory visits, via telephone and/or email.
- Try electronic alerts to remind patients with a history of noncompliance about screening and monitoring requirements.
- Inform blind or visually impaired patients of subscription services that use wireless devices to deliver reminders to take medications or perform vital self-care activities.
- Schedule follow-up and referral appointments before patients leave the facility.
- Document no-shows and conduct telephone follow-up within 24 hours.

Know if there is a written policy for terminating the patient-provider relationship if the patient is chronically noncompliant and fails to respond to reminders and other messages.

Keep at it

Patient noncompliance is a deep issue with no easy answers or simple solutions. Nurses in almost any setting will encounter noncompliant patients, but with consistent communication and a persistent, but cooperative spirit, nurses can work to overcome the risk of noncompliance one patient at a time. Nurses also can explore Nurses Service Organization's patient self-assessment checklist to help facilitate open communications.

Adapted from "Breaking Barriers to Patient Compliance" by Jennifer Flynn, CPHRM, which originally appeared in Minority Nurse, and is used with permission from Nurses Service Organization (NSO).

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Marketing News

Justin Pelletier, INS Marketing Specialist

The marketing department at INS is all about providing members like you with the best possible experience. Recent additions to the marketing department staff have brought promising, innovative ideas to INS' marketing strategy. Many exciting changes are being planned for 2018.

First up on the list: INS' website will undergo a total redesign. We've heard your feedback and we have been working diligently to improve your web experience. New navigational tools are in the works to help you find what you're looking for faster and easier. Look for new Publications tabs that will take you directly to digital versions of *INSider* and the *Journal of Infusion Nursing*.

Aimed at highlighting the array of INS' online educational material, the LEARNING CENTER will also undergo a facelift. Soon members will be able to navigate a brand new interface and easily find INS' most current resources, including new webinars and podcasts. This new interface will also provide navigational pathways to better direct you to the educational content that piques your interests. All of our educational materials will remain available during the redesign, including our Virtual Infusion Education platform. Visiting this section lets you attend INS meetings and earn CRNI® recertification units from the comfort of your own home.

Next, INS has created a new subscription management page which will enable members to choose which email communications they would like to receive. Found on the bottom of every email is a link which will direct members to a page tailored to their personal account.

Finally, we are ramping up our social media presence. Watch for #INSinfusehappiness anecdotes on Facebook, connect with colleagues on LinkedIn, or send us a tweet @ins1org. And of course we invite you to "like" our pages!

We will keep you informed every step of the way. Watch for announcements of everything new in your email inbox as well your mailbox at home.

Dates to Watch

INS2018
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Early-Bird Registration Ends
JANUARY 15

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MARCH 15

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MARCH 15

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MAY 19-22

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March 1-31

September 1-30

2018 Certified Nurses Day

MARCH 19

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ISMP Survey Shows Provider Text Messaging Often Runs Afoul of Patient Safety

From June through August 2017, ISMP invited readers of its acute care, community/ambulatory care, long-term care, and nursing newsletters to complete an online survey about the texting of medical orders in health care. Seven hundred seventy-eight respondents completed the survey, which included nurses (40%, n = 312), pharmacists (38%, n = 299), physicians and other prescribers (7%, n = 54), medication/patient safety officers and quality/risk managers (7%, n = 53), and others (8%, n = 60, educators, pharmacy technicians, etc.). Almost all respondents were from the United States (95%) and practiced in a hospital setting (86%). About two-thirds (63%) of the respondents were staff-level practitioners; the remaining were managers (21%), directors (10%), or administrators (6%).

ISMP conducted this survey to gain insight into the practice of texting medical orders given the ongoing debate regarding its use.[1] Technology-savvy health care professionals have embraced the convenience of this 21st-century form of communication, while opponents feel it is too informal to properly document patient care. They also have concerns about data security and the potential impact on patient safety with texting medical orders. Both sides of the debate offer compelling viewpoints, which were both clearly evident in the survey results of U.S. respondents (n = 742) that follow.

Survey Results: Scope of Texting in Health Care

Texting opinions. Thirty-three percent of all respondents, and more than half (55%) of all medication/patient safety officers and risk/quality managers, do not believe medical orders should be texted under any circumstances in health care. Another 40% of all respondents thought the practice was acceptable only when using an encrypted device application (e.g., TigerText, Doc Halo). While 26% of physicians reported that texting should be allowed in any circumstance, only 15% of nurses and pharmacists, and only 4% of medication/patient safety officers and risk/quality managers felt the same way.

Texting policies and practices. More than half (53%) of all respondents indicated that texted medical orders are not allowed per policy in their facility. Most of the other respondents said they had no policy on the topic (19%) or were uncertain whether a policy existed (16%). Only 12% of all respondents reported that texting was allowed in their facility per policy—8% for any orders if using an encrypted device, 3% under any circumstances, and 1% under certain circumstances (e.g., to communicate information other than medication orders, for clarifications only, to alert prescribers to call).

Still, 45% of pharmacists and 35% of nurses reported that medical orders are regularly being texted irrespective of a policy. Another 36% are uncertain whether the practice occurs. No physicians reported awareness of a policy that allowed the practice, yet 38% reported that medical orders are being texted. Less than a quarter (22%) of respondents were certain that medical orders are not being texted in their facility.

Frequency of texting. Among respondents who reported receiving texted orders during the past year, more than half receive them every day (20%) or at least every week (35%). Another 17% receive texted orders once or twice a month, and the remainder (28%) receive them less frequently. Pharmacists reported receiving texted orders more frequently than nurses.

Types of texted orders. For those who thought texted orders should be allowed in health care (67%), half thought orders

for chemotherapy (50%) and complex order sets (54%) such as those for parenteral nutrition should be prohibited. More than a quarter thought orders for high-alert medications (30%) and controlled substances (29%) should not be allowed. However, in practice, very few types of texted orders were prohibited in respondents' facilities. Only 9% said that texted chemotherapy orders were not allowed, and only 3% reported that complex order sets could not be texted. Less than 2% reported any further restrictions, although more than half (56%) of the respondents said they were uncertain about restrictions or were unaware of any policy on the topic.

Devices for texting. Among facilities where texted orders have been received during the past year, more than two-thirds (69%) reported that the facility allows the use of standard cell phones. In fact, about 42% indicated that standard cell phones are the only device from which texted orders have been received in the past year. Approximately half (48%) of all respondents told us that they have received texted orders via an encrypted device during the past year, but only 24% of all respondents reported that this is the only way they have received texted orders. About a quarter (25%) of all respondents said they have received texted orders from both a standard cell phone and an encrypted device during the past year. Thus, even when encrypted devices are available, standard cell phones are still being used to send and receive texted orders.

Texting to clarify orders. More than half of all respondents (55%) have sent text messages to prescribers to ask questions or to clarify orders that may be unclear, incorrect, or inappropriate. This practice was more frequently reported by pharmacists (65%) and physicians (62%) than by nurses (47%). Almost all respondents (86%) who sent text messages to prescribers to clarify orders reported that prescribers responded or replied to these messages via texting.

Documenting texted orders. According to nurses and pharmacists, texted orders are almost always (98%) entered into the patient's medical record by the person receiving it, similar to a verbal order. However, numerous respondents commented that the order may not be specifically identified as a texted order. Less than 2% of respondents reported that the texted order is automatically entered into the health record by the technology being used.

Survey Results: Risks With Texting Orders

Most respondents reported a high level of concern regarding potential risks associated with the texting of medical orders (Table 1). Overall, medication/patient safety officers and

Table 1. Level of Concern with Texting Medical Orders

Potential Risk	All US Respondents (n=742)	
	Level of Concern (1=Low Concern and 5=High Concern)	
	Mean	% (4/5)[1]
Phone/device autocorrection leading to wrong drug/patient names	4.09	70
Use of potentially confusing abbreviated text terminology (e.g., 2day)	3.91	66
Patient misidentification	3.79	60
Misspellings	3.73	58
Incomplete orders	3.62	56
Failure to retain/document the text message	3.43	52
Lack of security of protected health information	3.41	49
Error-prone transcription of texted orders	3.40	49
Inability to authenticate the sender/receiver	3.38	50
Distractions while texting from incoming calls/texts/notifications	3.34	48
Lack of prescriber clinical decision support while texting	3.31	46
Delay in receipt, transcription, or carrying out of texted orders	2.98	37
All rated concerns	3.5	53

[1]Percent of respondents who selected 4 or 5 based on a scale with 1=low concern and 5=high concern

continued on next page

risk/quality managers and nurses were more concerned about the potential risks associated with texted orders, and physicians were least concerned about the risks. Respondents reported that the 5 most concerning risks associated with texted orders were associated with safety issues impacting order clarity, completeness, and correctness, rather than information security, authentication, or documentation issues:

1. ***Unintended phone/device autocorrection:*** The majority of all respondents were concerned (15%) or highly concerned (55%) about the risk of unintended autocorrection of medical terms, abbreviations, drug names, or patient names since they are unlikely to be in the device's dictionary. This could lead to incorrect entries which, if unnoticed by the prescriber or other practitioners, could lead to a delay in care if the order must be clarified, or to a clinically significant error. Most comments from respondents indicated that any autocorrection feature should be disabled on devices used for texting orders to prevent inaccurate corrections since most people fail to reread messages before sending.
2. ***Use of potentially confusing abbreviated text terminology (e.g., 2day).*** Nearly two-thirds of all respondents were concerned (16%) or highly concerned (50%) about the risk of using abbreviated text terminology (e.g., 2day for today, 2 for to, b/4 for before, 3D for 3 times daily, MT for empty). Nurses and pharmacists reported that about 19% of the texted orders they had received in the past year contained abbreviated text terminology, but such occurrences were infrequent. However, almost half (46%) of all physician respondents reported that texted orders contained these potentially confusing abbreviations, and 30% said it happened frequently in more than a quarter of all texted orders.
3. ***Potential for patient misidentification.*** A majority of all respondents were concerned (19%) or highly concerned (41%) about the risk of misidentifying the patient with a texted order since most transmission devices and phones may not facilitate the communication of two unique patient identifiers. Medications could be dispensed and administered to the wrong patient if a spelling error occurs, or autocorrection changes the intended patient's name. In addition, there were repeated comments from respondents who alarmingly said they only include the patient's initials, unit, room number, or another abbreviated patent identifier with their text messages and orders to offset the risks associated with the security of protected patient information.
4. ***Misspellings***. Well more than half of all respondents were concerned (17%) or highly concerned (41%) about the risk of spelling errors with patient names or drugs (particularly similar drug names) and doses. Most texted orders must be entered as free-text rather than selecting drugs and doses from a drop-down menu, or via a voice-recognition feature that may mishear and, thus, misspell words, including drug names.
5. ***Incomplete orders.*** More than half of all respondents were concerned (20%) or highly concerned (36%) about the risk of communicating incomplete orders when texting. Free-text orders that lack the prompts often found in electronic prescribing systems may be missing critical components, such as the route of administration or, for pediatric weight-based medications, the mg/kg dose. Having no way to prevent an order from being sent via text without all the required components, the need for more clarifications than with electronic prescribing systems, and issues with punctuation and hitting "send" before the order has been completed, were also frequent concerns listed by respondents.

Half or more of all respondents felt that these risks, along with the failure to retain or document the text message, and the inability to authenticate the sender/receiver, were of the highest concern. The least concerning risks, which still clearly worried most respondents, included a delay in receipt or transcription of texted orders, and the lack of prescriber clinical decision support while texting. For the latter concern, many respondents commented that nurses who enter the texted order into the prescribing system, and pharmacists who verify the order, should receive any alerts and clarify the orders if concerns arise. However, other respondents commented that the lack of decision support when prescribing could lead to unnecessary variation in practices and transfer responsibility for the correctness of the order from the prescriber to the nurse (or pharmacist).

Survey Results: Errors With Texted Orders

Seven percent of all respondents were aware of errors or close calls that have occurred involving a texted order. While this does not seem to be an excessive amount of errors, those described by respondents were primarily associated with the set of risks that were described above, some of which are unique to texted orders (Table 2).

Conclusions

Given that texting is just too convenient, many in health care feel that the text messaging of orders is unlikely to go away, despite policies prohibiting their use or the known safety concerns. Our survey results tend to support this conclusion, although more scientifically rigorous research should be conducted to further confirm the scope of current use. The benefits of texting orders are primarily related to its popularity and convenience, workflow synergy and speed, and perception of similar risks when compared to other forms of communicating orders. In fact, numerous respondents to our survey noted that, while texting of medical orders is clearly not as safe as electronic prescribing, it may be safer and more timely than verbal or telephone orders.

Particularly given that verbal or telephone orders can be read back to ensure accuracy and understanding, and because most practitioners who responded to our survey are texting orders via standard cell phones or devices without encryption or critically important safety features. While other forms of communicating medical orders carry some of the same risks as texting orders, the informal nature of texting orders, often without a known policy or procedure associated with the process, has resulted in uniquely alarming risks, including abbreviated language, improper autocorrection, and texting orders without full patient names and a second unique identifier to offset some data security concerns, to name a few.

The texting of medication-specific orders should not be allowed until the safety issues have been identified and resolved through advanced technology along with the development of vetted, industry-wide clinical guidelines that can be employed in organizations to ensure standardized, safe, and secure texting processes. Leadership must establish and communicate policies on the texting of orders and take a strong stance on avoiding texted medication-specific orders at this time until they can be safely introduced into health care through careful pilot testing and implementation plans.

Table 2. Examples of Errors with Texted Orders

Misidentified Patients
A physician texted an order to discharge a patient using just a room number, but the patient had moved to another room, and the new patient in the room was almost discharged prematurely.
A prescriber texted an order to increase the dose of a controlled substance for a young patient without including two unique patient identifiers, which was mistaken as an order to increase the dose of the same drug for an elderly patient. The increase in dose caused clinically significant respiratory depression requiring activation of a rapid response team and naloxone administration.
A busy hospitalist texted an order for the wrong patient, which was identified when a pharmacist clarified the order because it did not seem correct for that patient.
Misunderstood Abbreviations
A texted order with the abbreviation BTW (meaning "by the way") was thought to be a typo and mistaken for the frequency BID (twice daily) of a newly prescribed medication.
A prescriber ordered amino acids using the abbreviation AA, which was misinterpreted as albuterol and Atrovent.
Autocorrection Mistake
Autocorrection of a drug name led to dispensing the wrong drug.
Lack of Security of Protected Information
A texted order was sent to the wrong person outside the facility.
A nurse almost sent a question about an order to the wrong person from his contact list in his phone.
Delay in Carrying Out Orders
A texted order that included just a bed (room) number led to a delay in administering the drug to the correct patient.
A CT scan was delayed for a patient because the nurse did not see the texted order.
A nurse received an order for a medication without any patient's name, which required texting the physician to clarify the order and a delay in enacting the order.
Duplicate Therapy
A texted order to the nurse, along with a verbal order to a pharmacist, led to a duplicate order entered into the patient's profile.

References

1. ISMP. The texting debate: beneficial means of communication or safety and security risk? *ISMP Medication Safety Alert!* 2017;22(13):1-4. www.ismp.org/sc?ed=3038.

Welcome New Members

October 2017

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