July/August 2018

Volume 1 ▪ Issue 4

INSider

The official membership news publication of the Infusion Nurses Society

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American Nurses Association's recommendations for medication error prevention

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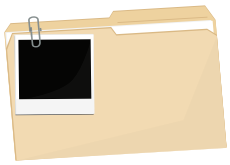

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Home Infusion Nursing: An Industry Best-Kept Secret

Felicia Schaps, MSN-Ed, RN, CRNI®, OCN®, CNSC, IgCN, INS President, 2018-2019

"Neither snow nor rain, nor heat, nor gloom of night, stays these couriers from the swift completion of their appointed rounds."[1]

I'm sure we all recognize this adage as the unofficial motto of the US Postal Service. But, I believe, it also applies to home infusion nurses, remarkable professionals who are not hindered by weather or time. Their shifts are defined by when they see their first patient to when they care for their last. Home infusion nurses are assigned on-call shifts because patient issues arise at night and on weekends, and someone must be there to care for them. It takes a great deal of flexibility to survive in the home infusion arena.

Since its introduction in the 1970s, home infusion therapy has enabled patients to receive regular infusion treatments in the comfort of their homes by using infusion pharmacies and trained nursing staffs. Infusion therapy treatments that are frequently provided in homes include antimicrobial medications, parenteral nutrition (PN), immunoglobulin, inotropes, pain management, and specialty therapies.[2]

According to the National Home Infusion Association, approximately 1.24 million infusion therapies were administered to an estimated 829,000 individual patients in 2008.[3] The home infusion therapy market grew from a $1 billion business in 1991 to a more than $16 billion industry in 2010.[3] It is the most rapidly growing sector of health care today and may be one of the best kept secrets in the industry. Many health care professionals know little about what goes on outside a typical hospital setting.

The most common model of home infusion therapy involves self-administration by the patient or caregiver. This model arose from the need to train patients to be able to provide long-term PN at home. The therapy can often be a life-long approach, requiring the patient to become independent in order to maintain a normal lifestyle. Because patients could be trained to perform the complex task of administering PN, it made sense that they could be taught to administer simpler therapies, such as antibiotics and catheter maintenance with prefilled flush syringes. The use of smart pumps, intravenous (IV) push methods of administration, and elastomeric devices has simplified processes and reduced the risk of infection for home infusion patients.[4]

Infusion therapy administered outside the hospital is less costly. The usual charge for

a day of IV antibiotics in a hospital currently is more than $1,000, compared to $200 to $300 a day for home infusion therapy. Most commercial insurance plans provide coverage for home infusion therapy. Another benefit of home infusion therapy is the reduction of nosocomial infections. Approximately 5% of hospitalized patients develop an infection during hospitalization. Each infection is estimated to cost $2,100, with a cumulative cost of more than $2 billion a year.[2]

In a typical hospital setting, patients are segregated in units based on their age or diagnosis. Nurses assigned to these units specialize in the specific needs of the patient population. Home infusion nurses must have the knowledge to care for patients of all ages and diagnoses. They are challenged to remain abreast of frequent changes in equipment and new IV drugs introduced each year. They work alone and must possess the critical thinking skills needed to handle any emergency that arises. Most important, they must be excellent teachers. A first home visit may last as long as 2 hours and include a full nursing assessment; teaching the patient how to prepare, store, and administer the medication; and possibly include the use of a pump and the care of their vascular access device.[5]

Home infusion nursing plays an important role in the provision of safe, cost-effective health care outside of institutional settings. It's not for the faint of heart, but if asked, home infusion nurses would tell you it's incredibly rewarding. There's great satisfaction in meeting a new family, acknowledging their fear, and knowing your instruction has succeeded in helping them become comfortably in control of their health and wellness, which will allow them to return to work or school and to participate in family events.

Home infusion nurses clearly leave their patients better than when they first found them.

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Deborah A. Boyle, MSN, RN, AOCNS®, FAAN

Deborah A. Boyle, MSN, RN, AOCNS®, FAAN, is an experienced oncology clinical nurse specialist who has practiced in community cancer programs and comprehensive cancer centers. She received a master's degree with a specialty in oncology nursing from Yale University and was inducted into the American Academy of Nursing in 1999. The recipient of numerous awards from the Oncology Nursing Society, she was named the 2014 Advanced Oncology Clinical Nurse Specialist of the Year by the Oncology Nursing Certification Corporation. She is the author of more than 300 publications and 4 books and is a frequent speaker in the US and abroad. Ms. Boyle presented on this topic at INS 2017 in Minneapolis.

Q & A

INSider: **What is cardiotoxicity?**

DB: It is a phenomenon in which potentially curative cancer therapies cause cardiovascular compromise.

INSider: **How rapidly has the field changed during your years of practice?**

DB: This is a contemporary dilemma that has evolved due to increasing knowledge about untoward cardiac effects in adult cancer survivors. In some large comprehensive cancer centers, cardio-oncology has become a recognized subspecialty consultative service.

INSider: **While cancer survival rates are improving, why is there concern about long-term effects of treatment?**

DB: Because there is a chance that patients may die from treatment-related organ toxicity rather than the malignancy.

INSider: **What group of chemotherapy drugs was among the first identified in the field of medical oncology to be associated with cardiotoxicity?**

DB: The anthracycline drugs, namely doxorubicin, which subsequently required total maximum dose guidelines to minimize risk.

INSider: **What are the 4 major cardiovascular targets that can be affected by cancer treatment?**

DB: There can be direct effects on the heart, issues with coagulation, and the development of hypertension and atrial fibrillation.

INSider: **What are the 3 treatment-related cardiotoxic risk considerations in cancer care at this time?**

DB: They include type of therapy received (ie, systemic antineoplastic treatments, chest irradiation), older age, and history of breast cancer.

INSider: **How is cancer-related cardiotoxicity managed when it evolves?**

DB: Therapeutic approaches should follow evidence-based heart failure guidelines as outlined by American College of Cardiology and the American Heart Association. The most recent guidelines address rationale for the choice of pharmacotherapy, as well as guidelines for referral, care coordination, adherence to therapy, cost of care, management of special populations and comorbidity, and palliative and hospice care interventions.

INSider: **What are some advances we can expect in the coming years concerning cardiotoxicity?**

DB: Increasingly sensitive biomarkers of early cardiotoxicity, prompt referral of high-risk patients to cardio-oncology specialty clinics, development of cardio-protective agents, and enrollment in cardio-oncology rehabilitation programs.

INSider: **Why is this topic important to infusion nurses?**

DB: Infusion nurses often provide or reinforce patient education about antineoplastic therapies. Keeping up with current evidence fosters their credibility and advocacy in working with oncology patients and their families.

For more in-depth information, we encourage members to read Ms. Boyle's article "Cancer and the Broken Heart: Complications and Implications of Therapy-Related Cardiotoxicity," in the July/August 2018 print issue of the Journal of Infusion Nursing *or online at https://journals.lww.com/journalofinfusionnursing.com.*

The Role of the Institutional Review Board in Infusion Nursing Research

Amy Kyes, MSN, RN, CRNI®, APRN, AGCNS-BC, INS Research Committee

As infusion nurse clinicians increasingly engage in the translation of evidence into practice through quality improvement projects or research activities, human subject protection and institutional review board (IRB) approval of research-related activities are critical components of ethical practice.

To guide ethical practice, the *Infusion Therapy Standards of Practice*[1] recognizes that clinicians should obtain approval for research and research-related activities "in accordance with federal regulations, professional standards, and criteria set forth by accrediting agencies and organizational policies and procedures."[1(S24)]

To meet this standard, clinicians interested in conducting research or research-related activities, for example quality improvement projects, should work with an IRB to help ensure the proposed project meets federal requirements for ethical research. Many universities and health care institutions where research is conducted have these committees, as well as the resources to guide the process.

Initial steps for gaining the approval of an IRB typically include the completion of training in the protection of human subjects, for example, the Collaborative Institutional Training Initiative, and the submission of a research proposal. Because many IRBs also recognize that nurse clinicians may be interested in making quality improvement or evidence-based practice changes to improve the process of delivery of care based on accepted standards or current best evidence, the IRB may not require a research proposal, but instead will likely ask to review project details to make a final determination.

If a research proposal is required, the IRB will review the proposal to determine if it qualifies as human subjects research and issue a written decision to approve, approve with modifications, or disapprove the proposal. This decision is based on approval criteria set forth by the Code of Federal Regulations (45 CFR 46.111), which may be summarized as[2(p166)]:

- Risks to subjects are adequately minimized and are reasonable in relation to anticipated benefits.
- Selection of subjects is equitable.
- Informed consent is obtained and appropriately documented.
- The research is monitored to ensure the safety of subjects.
- Subjects' privacy is protected.
- Data confidentiality is maintained.
- Additional safeguards are in place for protecting the safety and welfare of subjects classified as vulnerable.

When planning for research or research-related projects, clinicians should also consider the time necessary for IRB review. Time frames are based on whether the proposal needs to be reviewed by the full IRB. Proposals considered to be more than minimal risk to subjects or vulnerable populations such as pregnant women, prisoners, and children require a full IRB review. IRB notification of full reviews may take as long as 4 to 6 weeks. Proposals involving minimal risk are usually reviewed as exempt or expedited by a member of the IRB and take 2 to 4 weeks for review.[3]

Because infusion nursing research is conducted primarily on human subjects, patients or patient populations, and potentially vulnerable populations, it is subject to IRB review. Each type of IRB review serves to protect the subjects, which is the IRB's primary role.

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Making an Impact Through Service on Boards

Laurie Benson, BSN
Executive Director, Nurses on Boards Coalition

Kimberly Harper, MS, RN

Chair, Nurses on Boards Coalition

Marla Weston, PhD, RN, FAAN

Immediate Past Chair, Nurses on Boards Coalition

Have you ever thought about improving the health of people by extending and sharing your nursing knowledge and expertise through service on boards? Imagine the impact you could have serving on a nonprofit or a corporate board. INS is helping place nurses on nonprofit, corporate, and government boards, panels, and commissions through the Nurses on Boards Coalition (NOBC).

Background

NOBC was launched in November 2014 in response to the Institute of Medicine's 2011 report, "The Future of Nursing: Leading Change, Advancing Health,"[1] which called for nurses to serve in leadership positions. With support from the Robert Wood Johnson Foundation and the Center to Champion Nursing in America, and the American Nurses Foundation, NOBC became an independent coalition in 2017.

NOBC's mission is to improve the health of communities and the nation through the service of nurses on boards. Its goals include helping ensure that at least 10,000 nurses are members of boards by 2020 and raising awareness that all boards would benefit from the unique perspectives of nurses to achieve the goals of improved health, and efficient and effective health care systems at the local, state, and national levels.

INS Joins NOBC

INS recently joined 27 other national nursing associations in advancing the NOBC's mission. INS Chief Executive Officer Mary Alexander, MA, RN, CRNI®, CAE, FAAN, serves as INS' designated representative to NOBC, and has discussed with coalition members the diverse roles and contributions each can make as nurse leaders in their profession and how, together, they can provide mutual benefit toward their shared goals. Alexander also serves as a volunteer on the NOBC Board Membership Committee to help ensure the most value is provided to member organizations.

Immediate Past NOBC Chair Marla Weston, PhD, RN, FAAN, says, "Mary Alexander has served INS members well by bringing the expertise of the nursing specialty to the NOBC. She has identified strategies to strengthen the coalition's work and has identified areas in which expert nurses could serve on boards. NOBC members are pleased to have INS as a member."

"Infusion nurses – all nurses – bring distinctive and needed leadership capabilities and skills to any table they sit at," says Alexander. "INS is pleased to be an NOBC member and is dedicated to promoting its mission by encouraging all members to seek board opportunities and appointments. Our voice will make a difference in advancing the health of our nation."

Keys to Successful Board Service

One of the keys to successful board service is to find an organization that connects with your passion.

As NOBC Chair Kimberly Harper, MS, RN, says, "identifying and joining a board where one's personal values, interests, and passions match those of the organization with which they serve nearly always result in nurses reporting how gratifying they find their commitment on a personal basis. The right 'match' results in positive outcomes for the nurses and the communities in which we serve."

A perfect example of the right match comes from Mary Poyner Reed, PhD, RN, CNRN®, ANP, NEA-BC, vice president and associate chief nurse, medicine patient services at Boston Children's Hospital, Pediatric Oncology, Dana-Farber Cancer Institute. As a former neurosurgical nurse practitioner, she was involved in *Think First*, the National Neurosurgical Injury Prevention Program in the Boston Public School system. An avid biker and outdoor enthusiast, Dr. Reed has made it her mission to help better urban children's access

Nurses on Boards Coalition

to biking, skiing, and the great outdoors. In May 2018, she was chosen to serve on the national board for *Trips for Kids*, a youth development bicycling organization. Its mission is to change kids' lives 2 wheels at a time. Dr. Reed's appointment demonstrates the mission of NOBC in action: connecting organizations seeking board candidates with qualified and passionate nurses who are registered in NOBC's database.

By the Numbers

In April 2017, national member organizations came together in a highly engaged meeting to structure a strategic plan, with an emphasis on increasing the number of board placements. Staffed by volunteer member representatives, 3 board committees and 6 work groups aligned to fulfill the objectives outlined in the strategic plan.

"Identifying and joining a board where one's personal values, interests, and passions match those of the organization with which they serve nearly always result in nurses reporting how gratifying they find their commitment on a personal basis. The right 'match' results in positive outcomes for the nurses and the communities in which we serve."

Kimberly Harper, MS, RN, NOBC Chair
Chief Executive Officer, Indiana Center for Nursing
Nursing Lead, Indiana Action Coalition – National Future of Nursing Campaign for Action

Table

NOBC Database Registrants as of July 1, 2018

- 4,520 board seats held by nurses
- 6,457 nurses want to serve
- 2,137 nurses who are already on boards are interested in serving on an additional board

Mission: To improve the health of communities and the nation through the service of nurses on boards.

1. Facilitate board placement.
2. Create a dynamic organization focused on transformative growth.
3. Promote collaboration among states and national organizations to integrate strategies.
4. Demonstrate the impact of nurses on boards.
5. Develop member synergy, strategy, and value.

NOBC continues to follow this strategic plan and has built an infrastructure to monitor and actively place nurses on boards. Currently, more than 10,000 nurses are registered in the NOBC database (see Table). A more detailed infograph outlines NOBC's achievements through June 30, 2018 (see infograph).

NURSES ON BOARDS COALITION

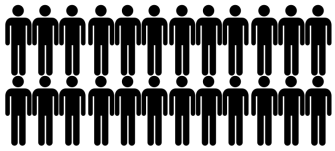
The Nurses on Boards Coalition (NOBC) represents national and state efforts by nurses and others working to build healthier communities in America. The key strategy of the NOBC is to increase nurses' presence and influence on corporate, health-related, and other boards, panels, and commissions. The Coalition's intent is to ensure that nurses are at the table filling at least 10,000 board seats by 2020, as well as raise awareness that all boards would benefit from the unique perspective of nurses to achieve the goals of improved health and efficient and effective health care systems at the local, state, and national levels.

Mission: TO IMPROVE THE HEALTH OF COMMUNITIES AND THE NATION THROUGH THE SERVICE OF NURSES ON BOARDS AND OTHER BODIES

Website: https://www.nursesonboardscoalition.org/

501(c)3 public charity: June 19, 2017 • New Website Released: August 1, 2017

10,000
nurses on boards by 2020



28 MEMBER ORGANIZATIONS

14 FOUNDING STRATEGIC PARTNERS

4 FOUNDING SPONSORS

31 FOUNDING HEALTHCARE LEADERSHIP ORGANIZATION STRATEGIC PARTNERS

5 MEMBER AFFILIATES

$937,079
Funding from inception
(Grant, member dues, partnerships and donations)
**Includes $65,961 in personal contributions*

NOBC DATABASE REGISTRATIONS

10,726 individuals registered

4,520 counting boards

2,137 on a board and want to serve on additional

6,457 want to serve

WEBSITE AUDIENCE PER MONTH

2,206 new users
342 returning visitors

MONTHLY NEWSLETTER

7,942 recipients

NATIONAL BOARD OPPORTUNITIES

52 Searches
- 17 Governmental
- 16 Civic/Non-Profit
- 3 Hospital/Health System
- 15 Corporation
- 1 Foundation

23 PLACEMENTS

NOBC works with our state contacts to find and fill numerous additional board seats at the regional, state, and local level.

STRATEGIC IMPERATIVES

1) Facilitate Board Placements
2) Create a dynamic organization focused on transformative growth
3) Promote collaboration among states and national organizations to align strategies
4) Impact of nurses on boards
5) Develop member synergy strategy and value

3 Board Standing Committees

6 Work Groups

> "Without exception, nursing representatives on the board proved to be invaluable. They were not as much an advocate for nursing, but rather an advocate for the needs of patients. As the board focused on matters of quality of care, the voice of nursing was both critical and creditable."
>
> ***John W. Bluford III***
> ***American Hospital Association***
> ***President, Bluford Healthcare Leadership Institute***
> ***President Emeritus, Truman Medical Centers***

How Can NOBC Help You on Your Board Journey?

Visit the NOBC website and check out its many resources, from how to create a board-ready resumé, to providing access to articles and free webinars to help you prepare for board service, as well as examples of mock board meetings. **www.nursesonboardscoalition.org**

How Can You Engage?

Our country is facing many challenges that affect the health of its citizens. Now is the time for nurse leaders in every community across the nation to raise their voices to shape strategy and policy decisions to promote a culture of health. Here's how to get started:

1. Step up and be counted and/or indicate your interest in future board service at www.nursesonboardscoalition.org.
2. Encourage colleagues to register on the NOBC website.
3. Share your story at https://www.nursesonboardscoalition.org/resources/for-nurses/share-your-story/.
4. Contact local nonprofits or other organizations and ask them to consider having a nurse serve on their boards.
5. Engage in your state. Support one another as you prepare to serve on boards.
6. Contribute and encourage others to do the same!

Nurses are making a difference in the boardroom. As John W. Bluford III noted, "without exception, nursing representatives on the board proved to be invaluable. They were not as much an advocate for nursing, but rather an advocate for the needs of patients. As the board focused on matters of quality patient care, the voice of nursing was both critical and creditable."

Where will you choose to serve? We want to hear from nurses across the country! NOBC looks forward to learning about the impact you are having in your community and how we can help. Thank you for your commitment to the nursing profession and for all those you serve every day. Questions? Contact Executive Director Laurie Benson at Laurie@nursesonboardscoalition.org.

Reference

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Why Enforcement of USP <797> Threatens Physician-Office Sites of Care

Amy Rios, Marketing and Communications Coordinator, National Infusion Center Association

On November 17, 2017, infusion providers across the state of New Hampshire received a letter from the state's board of pharmacy indicating that any care setting preparing intravenous (IV) and injectable medications in its office would have to comply with the same requirements, known as the United States Pharmacopeia (USP) Chapter <797>, as pharmacies and other large health care facilities. Offices that continued to prepare IV medications would have to do so in ISO 5 conditions, which would require the purchase of expensive equipment, such as sterile glove boxes, and comply with complex gowning techniques pharmacists use in sterile pharmacy clean rooms.

According to the letter, any provider found out of compliance with USP <797> after January 1, 2018, would have to cease preparing IV medications or be subject to significant fines. With only 45 days to comply, many office-based infusion providers were worried, not only for the future of their practice, but also for the inevitable interruption in their patients' care.

Background

The New Hampshire Board of Pharmacy's intention to extend compounding regulations from pharmacies to physician offices allegedly was due to concerns that there could be a risk to patient health and safety if the medications were not compounded in compliance with its rules.

Currently, infusion providers are preparing and administering medications in accordance with the US Food and Drug Administration's (FDA's) approved product labeling. The FDA is recognized as having federal authority not only over medications' preparation and administration, but also their approval. At this time, nonpharmacy care settings, such as physician offices, are required to prepare and administer injectable medications in accordance with FDA-approved product labeling. As such, medications are prepared as a continuous, uninterrupted process, and administered immediately following preparation.

New Hampshire's statutory definition of *compounding* was interpreted in a way that includes the reconstitution of biologics and other IV/injectable medications, so the state's board of pharmacy was executing its statutory mandate to enforce standards relating to the compounding of sterile products to ensure that patient health and safety was not compromised.

Impact on Quality and Cost of Care

The more imminent threat to patient safety is not related to the preparation of the medications, but to the delay in their administration if offices are no longer able to treat patients. With only 45 days remaining to comply with USP <797>, many infusion office providers proactively began to refer patients in their care to larger health care facilities. Not only was this an administrative encumbrance, but many larger facilities were unable to provide the same appointment availability to patients whose health and well-being depended on consistent and timely treatments.

If a critical health care delivery channel, such as in-office infusion facilities, are deterred or precluded from providing IV treatments, patients who seek treatment at hospital-based sites of care could incur twice the per capita cost per treatment.[1]

New Hampshire Senate Bill 581

Soon after receiving the letter, concerned infusion providers contacted the National Infusion Center Association (NICA) to articulate their concerns to the New Hampshire Board of Pharmacy. Convinced that applying USP <797> to nonpharmacy care settings would restrict patient access to care, NICA joined the fight to find an alternative solution.

The evident threat to patients' access to quality care catalyzed a meeting between the New Hampshire Board of Pharmacy and concerned stakeholders, including health care providers, patients, nonprofits, and coalition members. Although this resulted in the delay of the implementation of USP <797>,

the state's board of pharmacy was adamant about the eventual enforcement of USP <797> standards across all IV medication delivery channels. It is expected to continue fining offices that remain out of compliance after June 2018.

The New Hampshire Senate Bill 581 (NH SB 581) was introduced in the state's senate in January 2018. It amends the definition of compounding to preclude the preparation of a single dose of a nonhazardous, commercially available drug or licensed biologic for administration to an individual patient prepared in accordance with the manufacturer's approved labeling.

NH SB 581 passed in the New Hampshire Senate and passed in the House of Representatives in May with an amendment stipulating that administration must occur within 2 hours of preparation. On June 12, the bill was signed into law by New Hampshire Governor Chris Sununu.

New Hampshire's intention to develop and enforce standards that promote patient safety is both commendable and necessary. The implementation of rigorous medication preparation standards is essential in preventing contamination, mitigating error, and ensuring a consistent formula. It is important that policymakers and health care providers continue to work together to understand regulation standards, as well as the evolving health care delivery channels that protect patients' access to safe, affordable care.

Reference

1. Magellan Rx Management. Medical pharmacy trend report. https://www1.magellanrx.com/media/604882/2016mrxtrendreport_final.pdf. Published 2016. Accessed May 15, 2018.

The 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.

INS Conference Planning: A Year in the Making!

Marlene Steinheiser, PhD, RN, CRNI®, INS Director of Nursing Education

Planning continuing education for INS conferences must encompass content for infusion nurses who practice in various health care settings, with different patient populations, and with diversified levels of expertise. It is a year-long process for INS' education department that begins soon after the current meeting ends. With the ever-evolving state of health care, offering diverse and contemporary topics can be challenging. Planning is extensive and thorough, requiring a dedicated team to research speakers and subject matter that is both relevant and engaging. INS conference attendees have come to expect high-quality educational content year after year.

So how do we do it?

INS has been accredited by the American Nurses Credentialing Center (ANCC) as a provider of continuing education (CE) for more than 25 years. ANCC requires the designation of a provider unit (PU) to develop and coordinate all aspects of CE activities. As part of the ANCC PU, INS' director of nursing education serves as the lead nurse planner, and Dawn Berndt, DNP, RN, CRNI®, serves as INS' nurse educator/nurse planner. Other PU members include the National Council on Education (NCOE) and INS staff liaisons. INS' CE activities include the educational sessions presented at its conferences, as well as its virtual infusion education and webinars.

NCOE members are appointed for a voluntary, 3-year term. INS members may apply to serve on the council as vacancies become available. Current NCOE members provide a unique perspective of infusion nursing shaped by each member's professional experiences, educational background, geographic location, and rationale for volunteering. They described some of their reasons for serving on the committee which included: wanting to serve as a role model, giving back to INS and its members, helping on a national level to provide the most up-to-date education, feeling responsible to the nursing profession, and increasing interest in education for both current and prospective INS members.

As part of the PU, the NCOE helps identify the learning needs of INS members, develops and plans educational content across the 8 areas of the core curriculum for infusion nursing, identifies expert speakers, and guides the implementation of the educational activities at the conferences. In June, all members of the PU met for 3 days near INS headquarters in Norwood, Massachusetts, for the annual planning meeting, with a focus on INS 2019 Annual Meeting and Exhibition and National Academy 2019.

Members of the PU identify learning needs by networking with INS members, through their involvement in current nursing practice, reviewing professional literature, and analyzing conference evaluations. The June planning meeting began with a presentation about ANCC requirements, followed by group work sessions regarding adherence to ANCC criteria. NCOE members then began brainstorming to develop the 2019 lineup of educational sessions. We discussed professional practice gaps and evidence of those gaps. As a team, we shared ideas about educational topics and session titles. Then the strategic part of the process began—assigning topics that had been selected for the 2019 Annual Meeting and National Academy grids. Even more exciting and lively was NCOE members selecting their topic assignments. They wasted no time demonstrating their bargaining and collaborative skills so that all the topics had an assigned NCOE member. The remainder of the meeting was spent writing session titles and outlines.

NCOE members left the meeting charged with the responsibility of securing expert speakers for the chosen topics and submitting abstracts and learning outcomes for each topic. The 3 days were challenging, but exhilarating. We incorporated topics requested by members, current practice issues, and clinical developments to design innovative, educational activities. We are excited about the upcoming year and will continue to explore new topics, venues, and methods to provide substantive, professional education for INS members in 2019!

INS Provider Unit and 2018-2019 NCOE Members

Marlene Steinheiser, PhD, RN, CRNI®, is INS' director of nursing education. In this role, she is the lead nurse-planner with ANCC and works collaboratively with NCOE to plan educational content for INS conferences. She also establishes the clinical direction, content, and implementation of educational resources available in the INS LEARNING CENTER and serves as a clinical liaison with other nursing and health care organizations. Marlene has been an INS member and a CRNI® since 1991. In her 32 years as a nurse, she has held positions in acute care, long-term care, home care and home infusion settings, as well as nursing education, industry, and regulatory environments. Marlene earned a PhD in nursing from the University of Arizona, an MSN and a BSN from the University of Akron, and a nursing diploma from Cleveland Metropolitan General Hospital School of Nursing.

Dawn Berndt, DNP, RN, CRNI®, is INS' infusion nurse educator. An active INS member and a CRNI® since 2005, she served on NCOE between 2011 and 2014 and on INS' Board of Directors as a director-at-large from 2017 to 2018. Before joining the INS staff, Dawn worked for 13 years as a clinical nurse specialist for infusion and as a nurse manager of the infusion center, the venous access team, and the nurse response team at the University of Wisconsin Hospital. Dawn holds a doctor of nursing practice degree in clinical leadership from the Henry Predolin School of Nursing at Edgewood College in Madison, Wisconsin; a master's of nursing education from the University of Wisconsin School of Nursing; and a bachelor's degree in nursing from the University of Phoenix in Phoenix.

Shelley Fess, MS, RN, CRNI®, AOCN®, CNE, NCOE Chair, has been an INS member for more than 20 years. Her professional experience has encompassed a range of specialties, including critical care, home infusion, radiation and medical oncology nursing, and prelicensure nursing education. Her motivation for becoming involved with INS and NCOE, she says, has been her desire to share her expertise and give back to the organization and its members. Shelly resides in Rochester, New York.

Alice Cennamo, MSN-Ed, RN, CRNI®, VA-BC, has been a registered nurse for 26 years. Much of that time has been in infusion nursing, focusing on home infusion, acute and skilled nursing facility intravenous and peripherally inserted central catheter teams, and hospital education. In 2003, Alice founded PICC Resource Associates, LLC, in Shelton, Connecticut, and serves as its president and head of education and nursing services.

Rachel Colletta, RN, CRNI®, has 30 years of nursing experience, primarily in the home infusion setting. Her passion for education led her to her most recent role as clinical nurse educator for Bio Products Laboratory, a manufacturer of plasma products. In this role, she focuses on the education of health care professionals who administer immunoglobulin therapy. Rachel lives in Rockville, Maryland.

Beverly George, MS, RN, CRNI®, has 35 years of nursing experience. She began her career in medical/surgical nursing, the labor/delivery and newborn nursery, and neonatal intensive care. From these experiences, she segued into pediatric home care and adult home infusion, which led to outpatient infusion, her passion. Beverly is currently the clinical coordinator in a busy hospital-based outpatient infusion center in Illinois, where she continues to provide hands-on clinical patient care, while managing the day-to-day operation of the unit. Beverly says, "Recruiting and working with speakers is very rewarding, and I appreciate the opportunity to be involved in this committee."

Sue Nittler, BSN, RN, CRNI®, has worked in home infusion for 30 years and has been a CRNI® since 2008. Most of Sue's professional career has been in home care and home infusion. In 2013, she was able to combine her passion for infusion therapy with hospice nursing. Sue is currently the hospice infusion team leader for Sutter Care at Home, covering 9 branches in northern California.

Susan H. Weaver, PhD, RN, CRNI®, NEA-BC, is a nurse scientist at the Hackensack Meridian Health (HMH) Ann May Center for Nursing and the New Jersey Collaborating Center for Nursing. Sue has experience educating nurses in infusion therapy and is active on the HMH vascular access device committee. Her program of research focuses on the role of the evening and night administrative supervisor, presenting, publishing, and advocating for these critical "behind-the-scenes" nurse leaders.

INS Mourns Passing of Veleta Boswell

It is with great sadness that we inform INS members and the infusion community of the passing of Veleta Boswell, DNP, RN, CRNP, CRNI®, a member of INS' National Council on Education and an active participant at INS meetings. Veleta will be remembered by all who knew her for her dedication to her family, her profession, her colleagues, and to INS. Our thoughts and prayers go out to Veleta's family. She will be dearly missed.

What Near-Miss Medication Errors Provide a Wake-Up Call

On a typically busy Monday afternoon, health care providers hurried to evaluate, treat, and discharge patients. Then, this happened:

- A medication was prescribed that didn't make sense for the patient's condition. When a nurse questioned the order, she learned it had been prescribed for the wrong patient.
- A patient with diabetic ketoacidosis was receiving a continuous insulin infusion through a short peripheral catheter, but the status of her implanted insulin pump hadn't been addressed. When questioned, the prescribing physician said he wasn't aware the patient had an insulin pump.
- A medication was prescribed for a patient who was known to have an allergy to it. The allergy had been documented in the electronic medical record (EMR). When the prescription was questioned, it was cancelled.
- The emergency department (ED) pharmacist hand-delivered insulin for a patient who didn't have diabetes and whose laboratory values were normal. The medication had been prescribed for the wrong patient.

This article discusses why near-miss medication errors such as these occur and how they can be avoided.

Sizing up the risks

Nurses are at risk for making medication-related errors that can harm patients. The Agency for Healthcare Research and Quality defines an *adverse drug event* (ADE) as harm experienced by a patient as the result of exposure to a medication. ADEs account for nearly 700,000 ED visits and 100,000 hospitalizations each year.[1]

Medication errors result from failures in a complex, interconnected medication-use process, in which prescribers, nurses, pharmacists, other clinical ancillary providers, and administrators all participate.

Shared responsibility

Nurses should never administer a drug if they don't know what it's for, aren't able to explain it to the patient, don't understand the outcome of its administration, or can't recognize potential adverse reactions.[2] An interprofessional, evidence-based approach to medication management is essential.

Nurses traditionally have learned to follow the 5 rights of medication administration: (1) the right patient, (2) the right drug, (3) the right route, (4) the right time, and (5) the right dose. What's the problem? These 5 rights focus only on medication administration at the bedside. Because a drug's journey involves far more than what happens at a bedside, a 10 rights approach is more likely to ensure safe practice throughout the medication journey—from drug preparation to monitoring outcomes to response. The 10 rights for safe multidisciplinary drug administration provide a benchmark for good practice[2] (see Table).

Risk reduction

The American Nurses Association (ANA) is working to quantify and describe nurses' interventions related to medication error prevention by capturing information about near misses.[3] Based on the results of its survey, the ANA's recommendations for avoiding errors include the following:

- Employ a system of checks and balances for medication administration, such as medication dispensing systems that cross reference with the hospital's EMR system.
- As part of the checks and balances, ask, ask, and ask again. Question orders that don't make sense based on the patient's clinical condition.
- Maintain an adequate number of appropriately qualified staff.
- Engage the patient and family in the process of care.
- Implement technology, including computerized prescriber order entry and bar coding.
- Obtain a complete health history and perform a comprehensive physical assessment.
- Treat patients holistically, rather than focusing exclusively on their presenting complaints.
- Get enough rest.
- Always report near misses.[3]

Full disclosure of medication errors and transparency in an inherently litigious health care culture are difficult but necessary in order to develop risk-reduction strategies further for improved medication safety practices. Nurses must recognize the complexity of medication management, because it may protect them from being named in a liability lawsuit.

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What Are the 10 Rights of Drug Administration?[2]

10 Rights	Nursing Considerations
1. Right patient	• Have 2 patient identifiers been used? • Does the patient know why he or she is receiving the drug?
2. Right drug	• Is this the prescribed drug or is it a drug with a similar name? • If needed, has the drug been checked by another nurse?
3. Right dosage	• Is the dose appropriate or usual for the drug being prescribed?
4. Right time	• Has the time gap between each drug administration been appropriate?
5. Right route	• Is the route appropriate for the drug being administered?
6. Right to refuse (patient and nurse)	• Should you use your clinical judgment to refuse to give the drug? Do you have (patient and nurse) the rationale for the decision? • Do you know what actions to take if the patient refuses the prescribed medication?
7. Right knowledge	• Do you know what monitoring is required before administration? • Do you know how to prepare and administer the medication according to policy? • Do you understand the pharmacokinetics, pharmacodynamics, possible interactions, adverse reactions, and expected outcomes of the drugs you're administering?
8. Right questions	• Is this the right prescription and an appropriate drug for the patient's condition? • Can you access resources, such as formularies and patient-education materials?
9. Right advice	• Does the patient know about the drug's adverse reactions? If not, provide this information.
10. Right response or outcome	• Do you know the expected response or outcome when the drug is administered? • Do you know how to observe for allergic reactions, drug interactions, and adverse reactions, and when to call for assistance?

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Adapted from "Near-miss medication errors provide a wake-up call" by Colleen Claffey, MSN, RN-BC, CEN, CPEN, which was originally published in the January 2018 issue of Nursing *(Volume 48, Number 1) © 2018 Wolters Kluwer Health.*

Smart Pumps in Practice: Survey Results Reveal Widespread Use, But Optimization is Challenging

In 2 recent surveys on smart infusion pump use in the US, more than 1000 nurses, pharmacists, and other health care professionals provided ISMP with a unique glimpse into the successes, safety concerns, and barriers with the optimization of smart pumps. Most respondents reported widespread use of smart pumps and demonstrated a commitment to employing reliable drug libraries capable of reducing administration errors with parenteral infusions, including pump programming errors. However, respondents were also very candid about their many frustrations and challenges with maximizing this technology, which included significant limitations in pump capabilities, alarm fatigue, and persistent deficiencies related to library use and updates, availability of the pumps, programming workflow, secondary infusions, and pump data analysis.

About Smart Pumps

Smart pumps with dose-error reduction software (DERS) allow organizations to create a tailored library of medications with dosing guidelines by establishing standard concentrations, dosing limits, and alerts (eg, clinical advisories, soft stops, hard stops). Smart pumps with enabled DERS can detect dosing and programming errors that may harm patients. They can also provide a great deal of data that is useful in improving safe practices, including compliance with using the drug library, alert types and frequency, action taken in response to an alert (eg, reprogramming), and the frequency of overridden soft stops. The data can also help investigate pump-related errors and identify good catches, as well as risky practices, such as unnecessary nurse dilution of intravenous (IV) medications.

Respondent Profiles

Between November 2017 and January 2018, ISMP conducted an 18-item smart pump survey for health care practitioners. A total of 618 respondents completed this survey, including nurses (68%) and advanced practice nurses (3%), pharmacists (22%), medication or patient safety officers (3%), and others (4%). Most (65%) were staff-level practitioners working in hospitals (95%) evenly distributed by bed size. Nearly half (42%) of the respondents reported current experience with managing smart pump drug libraries.

Between January and March 2018, ISMP also conducted a 7-item smart pump survey for front-line nurses only, a copy of which appeared in the January 2018 *Nurse AdviseERR*. Most of the items in this survey mirrored some of the key items in the 18-item survey, although the focus was on nursing use of the drug library when programming infusions. A total of 438 nurses completed this survey. Almost all respondents (95%) work in hospitals in adult medical-surgical units (30%); adult critical care units (26%); the emergency department (ED) (13%); pediatric/neonatal units (7%); labor, delivery, and perioperative areas (6%); or inpatient oncology units (5%). The following is an analysis of the results from hospital respondents to either the 18-item survey (n = 592), the 7-item survey (n = 416), or both surveys (N = 1008).

Results

Scope of use (18-item survey)

More than 70% of respondents from larger hospitals with 100 beds or more and nearly half (45%) of respondents from smaller hospitals with fewer than 100 beds reported using smart pumps for more than 5 years. Another 22% of larger hospitals and 43% of smaller hospitals have been using smart pumps for 1 to 5 years. Overall, only 4% of respondents reported using smart pumps for less than 1 year, and fewer than 1% reported not using smart pumps at all in their facilities.

High use of smart pumps was reported when administering IV medications (99%), IV fluids (96%), and blood (93%), with few differences between respondents from different size hospitals. Eighty-three percent of respondents also reported using smart pumps for parenteral nutrition (PN) and patient-controlled analgesia (PCA), although use was lower in hospitals with fewer than 100 beds (PN = 69%, PCA = 74%). Smart pump use varied among hospitals with fewer than 100 beds, 100 to 499 beds, and 500 and more beds for epidural

infusions (36%, 57%, 62%, respectively) and syringe infusions (47%, 63%, 80%, respectively). Smart pump use was lowest with magnetic resonance imaging infusions, ranging from 8% in hospitals with fewer than 100 beds to 29% in hospitals with 500 and more beds. About 3% of respondents reported using smart pumps for other types of infusions, such as nerve blocks, continuous inhalation, and enteral feedings.

At least 97% of respondents reported consistently using smart pumps in medical-surgical units, pediatric units, adult and pediatric critical care units, neonatal intensive care units, inpatient oncology units, postanesthesia care units (PACUs), labor and delivery units, ambulatory infusion units, and EDs. Fewer respondents reported using smart pumps consistently in surgical suites (90%), endoscopy suites (87%), and radiology departments (84%). However, wide variability within these 3 patient care areas was reported among respondents from different size hospitals. For example, the use of smart pumps in endoscopy suites was reported by only 70% of respondents from hospitals with fewer than 100 beds, compared to 91% of respondents from larger hospitals.

Almost one-third (31%) of respondents who care for neonates and pediatric patients reported using the same smart pumps to administer parenteral infusions and enteral feedings. Most respondents (82%) who reported using different infusion pumps for these purposes also reported the availability of dedicated small-volume enteral pumps.

Interoperability (18-item survey)

Fifteen percent of respondents have implemented bidirectional interoperability between their smart pumps and electronic health record (EHR) that facilitates pump programming and documentation of the infusion in the EHR. Another 13% of respondents are planning implementation within the next 12 months. Most respondents who reported pump/EHR interoperability said it was available hospital wide; few respondents reported that pumps were not interoperable in some areas of the hospital, such as the operating room, PACU, oncology unit, cardiac catheterization laboratory, and/or ED.

Wireless connectivity (18-item survey)

One-quarter (25%) of respondents from hospitals with fewer than 100 beds do not have the infrastructure to wirelessly transfer data to and from smart pumps, while only 10% of respondents from larger hospitals reported no wireless connectivity. Most respondents with wireless connectivity use it to update drug libraries (97%) and obtain reports and data (70%). Pharmacists and manager-, director-, and administrator-level respondents (82%) reported higher use of wireless connectivity to obtain reports than nurses and staff-level respondents (57%). One-third (33%) of respondents use wireless connectivity to track a pump's location in the hospital.

Drug library profiles and updates (18-item survey)

Selection of the appropriate drug library when programming a pump is typically based on the patient care area (89%), although about half (47%) of respondents reported that the patient's weight may be used, and approximately one-third (35%) said the library is selected according to the therapeutic drug class. About 6% of respondents noted that the library is differentiated according to patient age groups—adult, pediatric, or neonate. Half (50%) of respondents who manage the pump library reported 1 to 3 library modifications and updates during the past year; another 28% reported 4 to 6 annual updates. Only 17% said that the libraries had been updated more than 6 times in the past year, and fewer than 5% reported no updates.

Engaging the drug library (both surveys)

In the 7-item survey, more than three-quarters (79%) of frontline nurses who use smart pumps said they use the drug library for IV medications more than 90% of the time. In the 18-item survey, only half (48%) of all respondents reported compliance with the drug library more than 90% of the time. However, the compliance rates may differ because, in the 18-item survey, all infusions in the drug library, including plain IV solutions and drugs by other routes of administration were included, while in the 7-item survey, nurses were asked to report compliance with using the library with IV medications separately from their compliance with using the library to program plain IV fluids. When asked the reasons for compliance rates lower than 90%, most nurses reported that medications or concentrations were not in the drug library (46% of nurses working in adult care units; 86% of nurses working in pediatric or neonatal units), or that the basic infusion mode was used in emergencies (33% of nurses working in the ED; 12% of nurses working in all other areas).

Only 3% to 5% of respondents in either survey reported using the drug library less than 50% of the time for IV medications. However, as many as 45% of nurses who responded to these surveys reported that plain IV solutions are programmed

outside the library as a basic infusion more than 50% of the time. In the 7-item survey, reasons for low compliance with using the drug library when infusing plain IV solutions included unavailability of the solution in the library (45%), a perception that it took too much time to program the plain solution through the library (19%), and nurses were not expected by the hospital to use the drug library for plain IV solutions (10%). The reasons for noncompliance did not vary much between different care locations.

Data analytics (both surveys)

Nurses who completed the 7-item survey and health care practitioners who completed the 18-item survey were consistent in reporting how often they receive smart pump compliance data. Approximately two-thirds of all respondents who review compliance data said they receive the data either monthly (33%) or quarterly (35%). Approximately 11% of respondents receive compliance data daily or weekly, and about 10% receive it yearly. The remaining respondents receive compliance data every 6 months or less often than yearly. In both surveys, more than half of the respondents reported that compliance data were not available, or they were unaware of how often the data were reviewed. Staff-level practitioners (58%) were unaware of smart pump compliance rates than manager-, director-, and administrator-level practitioners (19%).

Errors (both surveys)

More than half of all respondents were aware of at least 1 error that happened during the previous 12 months despite the use of smart pumps (Table 1). The most common types of errors reported involved secondary infusions, including delayed or omitted secondary infusions caused by a closed roller clamp, or secondary infusions that were administered at the wrong rate. Other types of errors reported included programming errors due to dose-rate confusion, decimal point errors, weight-related errors, and selecting the wrong drug or dosing method in the drug library; IV catheter or channel mix-ups and tubing misconnections; hanging the wrong drug or solution; and administration of an infusion to the wrong patient.

Biggest challenges (both surveys)

Most respondents provided detailed accounts of the significant challenges they face when using smart pumps (see Table 2 at www.ismp.org/resources/smart-pumps-practice-survey-results-reveal-widespread-use-optimization-challenging). More than 700 comments were provided. These challenges clearly fell into familiar categories of known vulnerabilities with smart pumps, the most frequent of which was related to the creation, maintenance, and use of the drug library. Common challenges detailed in this category included difficulty in securing agreement with prescribers regarding the drugs, standard concentrations, and dosing methods, and practitioners who routinely bypass the drug library. The difficulty with keeping the drug library up-to-date during the current drug shortage crisis was also frequently noted. Smart pump technology limitations were another category of challenges often cited by nurse respondents, who provided a myriad of improvements they would love to see in smart pumps, from less lag time when updating pump libraries to reducing the complexity of selecting the correct library when patients are transferred to a different care area. Some of the specified technology limitations were reinforced when describing the challenging workflow associated with programming the pump, including difficulty in finding the correct drug when scrolling through a large list of generic names, and the time-consuming and complex programming process. Challenges that often led to incorrect pump programming or problems with secondary infusions were detailed, particularly challenges associated with flushes and forgetting to restart the primary infusion when the secondary infusion has been administered. Overly sensitive and false alarms, lack of pump availability during times of high census, and problems associated with wireless connectivity and interoperability were also mentioned by dozens of respondents.

Conclusion

In May 2018, ISMP convened a national, invitational summit on smart pumps to update their current guidelines and establish new best practices. IMSP sincerely thanks the more than 1000 health care practitioners who completed the surveys. Overall, the findings from these surveys helped shape the questions that were addressed during the summit. Your thoughtful responses provided a glimpse into the current challenges and barriers to optimizing smart pump use.

Table 1. Error Types Experienced in the Past 12 Months Despite the Use of Smart Infusion Pumps

Error Type	% of Respondents Experiencing Errors			
	18-Item Survey			7-Item Survey
	All (n=592)	Pharmacists (n=128)	Nurses (n=400)	Nurses (n=416)
Secondary infusions delayed/omitted due to roller clamp being closed	62	52	65	41
Wrong rate errors for secondary infusions	36	52	24	13
Dose-rate confusion during pump programming	46	57	39	19
IV line or channel mix-ups	32	33	26	12
Omission of decimal point (eg, 1.2 entered as 12)	21	37	8	5
Selection of a zero instead of a decimal point (eg, 1.2 entered as 102)	13	21	5	1
Wrong drug selected or hung	Not asked during survey, but 3% of respondents included examples related to these errors in the "other" category			12
Administered to the wrong patient				3
Infusion attached to the wrong access site (eg, IV infusion attached to epidural site)				4
I am not aware of any errors in the past 12 months	Not asked during survey, but 80% of respondents selected at least 1 type of error			41
Other (most frequent examples included weight-related errors, selecting the wrong dosing method, pump failures)	20	14	22	8

Abbreviation: IV, intravenous.

Dates to Watch

INS NATIONAL ACADEMY
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AUGUST 26

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National Breast Cancer Awareness Month

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For information contact:
INS Publications Department
One Edgewater Drive
Suite 209
Norwood, MA 02062
(781) 440-9408
leslie.nikou@ins1.org

Welcome New Members

April 2018

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