
Results of a recent ISMP survey show that many hospitals are reducing the risk of potentially catastrophic medication errors by implementing the six ISMP 2014-2015 Targeted Medication Safety Best Practices for Hospitals (www.ismp.org/sc?id=486). Close to 400 hospitals participated in the latest survey to measure progress with implementing the Targeted Best Practices. Overall, the survey showed modest but meaningful gains in protecting patients from errors with vincristine and methotrexate, eliminating glucic acetic acid from hospitals, dispensing oral liquids in oral syringes, and moving to a metric-based system for weights and liquid dose measurements.

In January 2014, ISMP introduced the 2014-2015 Targeted Medication Safety Best Practices for Hospitals. The Targeted Best Practices are intended to inspire and mobilize national adoption of consensus-based best practices related to medication safety issues that continue to cause harmful and fatal medication errors, despite repeated warnings from ISMP and others. We initially conducted a baseline survey of the Targeted Best Practices early in 2014 to document implementation in hospitals. Late in 2014, we conducted a follow-up survey to measure progress. According to the survey results, there have been modest increases in full implementation of the practices in hospitals and/or increases in activities directed toward achieving these goals. While there is room for continued growth, ISMP is encouraged by the forward progress 1 year into this national effort. The survey findings can be found in Table 1 (page 2), with details below.

Respondent profile: The respondents from the early 2014 survey were similar to the group who participated in the latest survey. About half (47%) of all respondents worked in non-academic, non-governmental, non-profit hospitals. Twenty-seven percent worked in academic hospitals; 10% worked in for-profit hospitals, 10% worked in government-owned hospitals, and 6% worked in critical access hospitals. About 60% of the respondents were pharmacists, and 38% were nurses.

Dispense vincristine (and other vinca alkaloids) in a minibag of compatible solution and not in a syringe.

An increase from 53% to 68% was found among respondents who reported full compliance with this practice (answer choice F in Table 1, page 2). Another 8% of respondents in the current survey reported partial compliance (answer choices D and E), and 6% reported making plans to implement the practice (answer choice C). Forty percent fewer respondents in the current survey reported taking NO ACTION to implement the practice (answer choices A and B), bringing the percent down from 30% in the earlier survey to 18% in the current survey.

Some respondents who have NOT implemented the practice told us they feel they have appropriate verification processes in place to prevent an error, such as manual double checking on page 2—Practices >

Follow-up survey results

SAFETY briefs

Bloxiverz-Vazculep mix-ups. We’ve received several reports in the past 2 months about the potential for mix-ups between two relatively new presentations of older medications. BLOXIVERZ, available from Eclat Pharmaceuticals, became the first FDA-approved neostigmine product in 2013. It is a cholinesterase inhibitor indicated for the reversal of non-depolarizing neuromuscular blocking agents after surgery. The company has a 5 mg/10 mL and 10 mg/10 mL vial. The issue is with the latter product.

Several hospitals have reported that cartons of the 10 mg product were found mixed in with the company’s phenylephrine 50 mg/5 mL VAZCULEP, which was approved last year and recently became available as the only FDA-approved phenylephrine injection available in 3 vial sizes (1 mL, 5 mL, 10 mL). The cartons look somewhat similar in size, color, and design (Figure 1). A mix-up could be problematic, either way. Patients on phenylephrine for hypotension could also be on paralytics, which neostigmine could reverse if accidentally given. To complicate the matter, nurses may invite a problem by requesting a bag of “neo” (referring to phenylephrine by the brand name NEO-SYNEPHRINE), which could be confused with neostigmine if staff are unfamiliar with the Neo-Synephrine brand of phenylephrine. Also, neostigmine is given intravenous (IV) push as a weight-based dose. If someone has a
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checks, taking vinCRIStine to the bedside by itself, dispensing vinca alkaloids in a large syringe or taking other steps to differentiate the syringe, and prohibiting vinCRIStine administration in areas where intrathecal medications are administered. But these risk-reduction strategies do not take into account the risk associated with mistaking a syringe of vinCRIStine as one containing a different medication. All of the risk-reduction strategies focused on vinCRIStine will not be carried out if the syringe is mistaken as containing a different drug from the outset. Misadministration of IV vinCRIStine by the intrathecal route has occurred despite all of the usual safeguards except administration in a minibag.

Other surmountable barriers to implementation of this practice included the absence of a central venous access line in all patients, the potential for extravasation, and resistance from pediatric providers who worry about the fluid volume to be infused using a small minibag. In some cases, respondents also reported that changes have not been made because an outside vendor prepares the drug in a syringe or because syringe pumps are typically used for pediatric IV drug administration—neither trumps the safety gained from dispensing and administering vinCRIS tine in minibags. Outsourcing sites can be asked to provide the drug in minibags, and infusion pumps are typically not used for vesicants such as vinCRIS tine. One respondent reported concerned that the order entry system in his hospital still allows prescribing of vinCRIS tine via syringe even though minibags are usually dispensed. This can result in pharmacy preparing and dispensing vinCRIS tine in a syringe. If staff administering the drug are expecting vinCRIS tine in a minibag but receive it in a syringe, this is especially risky and can lead to a fatal error.

Table 1. Implementation of ISMP 2014-2015 Targeted Medication Safety Best Practices for Hospitals

<table>
<thead>
<tr>
<th>Targeted Medication Safety Best Practice (see full description of each practice in article)</th>
<th>Date of Survey</th>
<th>Percent (%) Implementation*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dispense vinCRIS tine (and other vinca alkaloids) in a minibag, not a syringe</td>
<td>Early 2014</td>
<td>22 8 7 5 5 53</td>
</tr>
<tr>
<td></td>
<td>Late 2014</td>
<td>13 5 6 4 4 68</td>
</tr>
<tr>
<td>2a. Use a weekly dosage regimen default for oral methotrexate; if overridden to daily, require a hard stop verification of cancer indication</td>
<td>Early 2014</td>
<td>38 2 13 17 2 28</td>
</tr>
<tr>
<td></td>
<td>Late 2014</td>
<td>19 3 12 19 4 43</td>
</tr>
<tr>
<td>2b. Pharmacists provide education to patients discharged on weekly oral methotrexate</td>
<td>Early 2014</td>
<td>62 3 13 8 3 11</td>
</tr>
<tr>
<td></td>
<td>Late 2014</td>
<td>37 4 13 16 7 23</td>
</tr>
<tr>
<td>3. Measure and express patient weights in metric units only; scales set and measure only in metric units and lock out the ability to measure in pounds; only measured weights are used</td>
<td>Early 2014</td>
<td>18 7 6 25 11 33</td>
</tr>
<tr>
<td></td>
<td>Late 2014</td>
<td>7 5 12 27 13 36</td>
</tr>
<tr>
<td>4. Dispense oral liquids not commercially available as unit dose products in oral syringes that do not connect to parenteral tubing; use auxiliary labels that state “For Oral Use Only”</td>
<td>Early 2014</td>
<td>7 3 4 20 14 52</td>
</tr>
<tr>
<td></td>
<td>Late 2014</td>
<td>3 2 4 16 8 67</td>
</tr>
<tr>
<td>5. Use oral liquid dosing devices that display only the metric scale; provide patients discharged on oral liquid medication with oral syringes</td>
<td>Early 2014</td>
<td>31 4 9 10 7 39</td>
</tr>
<tr>
<td></td>
<td>Late 2014</td>
<td>16 4 17 10 4 49</td>
</tr>
<tr>
<td>6. Eliminate glacial acetic acid from the hospital and replace with vinegar (5%) or commercially available diluted products (0.25%, 2%)</td>
<td>Early 2014</td>
<td>13 &lt;1 5 2 6 74</td>
</tr>
<tr>
<td></td>
<td>Late 2014</td>
<td>4 &lt;1 1 1 3 90</td>
</tr>
</tbody>
</table>

Don’t open Pradaxa capsules. Nurses and others may not be aware that the dabigatran package insert states, “The oral bioavailability of dabigatran etexilate (PRADAXA) increases by 75% when the pellets are taken without the capsule shell compared to the intact capsule formulation. Dabigatran capsules should therefore not be broken, chewed, or opened before administration.” Pharmacokinetic studies have shown that the absorption increases significantly if administered this way, increasing patients’ risk for severe bleeding.

A hospital notified us recently that a patient brought to its emergency department (ED) from an outside care facility was admitted for hematemesis. It is believed that some nurses at the care facility may have been opening the dabigatran capsule and sprinkling the contents on the patient’s food. The hospital wants to alert others to be aware of this potential risk of confusion.

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phenylephrine vial in hand and doses the drug by volume as they have with neostigmine, the patient could receive too much phenylephrine, risking a cardiac event.

The two reports thus far have been close calls. In the process of preparing phenylephrine infusions for a patient in the intensive care unit (ICU), staff accidentally removed several vials of neostigmine that were stored with the phenylephrine supply in error. The infusion bags were prepared but during the checking process, a technician and pharmacist noticed the vials of neostigmine. All of the infusions had to be remade. Another hospital experienced a similar situation. The neostigmine was also found mixed together in the phenylephrine bin. An IV technician pulled neostigmine assuming it was phenylephrine, but caught the mix-up prior to compounding. Also, it is possible that the letters N and P, being close alphabetically, may put these drugs in close proximity to one another on a shelf, thereby increasing the risk of choosing the wrong product. To prevent mix-ups, keep supplies of these drugs separated and alert staff to the potential risk of confusion.

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A hospital notified us recently that a patient brought to its emergency department (ED) from an outside care facility was admitted for hematemesis. It is believed that some nurses at the care facility may have been opening the dabigatran capsule and sprinkling the contents on the patient’s food. The hospital wants to alert others to be aware of this potential risk of confusion.
An increase during the year from 28% to 43% was found among respondents who reported full compliance with this practice. Another 23% reported partial compliance in the recent survey. Twelve percent of respondents in the current survey reported making plans to implement the intervention. Forty-five percent fewer respondents in the current survey reported taking NO ACTION to implement the practice, bringing the percent down from 40% in the earlier survey to 22% in the current survey.

Respondents who had NOT implemented the practice reported barriers related to electronic health records (EHRs) or electronic order entry systems that could not support the change or would require significant customization. Some respondents who were planning implementation of the practice reported working on an electronic solution to the problem; others reported that the initiative is not considered high priority by IT staff with the skills to develop a solution. Numerous respondents reported changing the default to a weekly dosing regimen for methotrexate, but were unable to create a hard stop if the weekly default was then changed by a provider to a daily schedule.

Some respondents suggested that the practice was not practical or necessary if treating mostly cancer patients. While the focus of this best practice is to reduce errors when methotrexate is prescribed for nononcologic indications, the same medication safety practices should apply to all patient care settings, including cancer centers.

Provide patient education by a pharmacist for all weekly oral methotrexate discharge orders.

An increase from 11% to 23% was noted during the year among respondents who reported full compliance, and another 23% reported partial compliance in the recent survey. Thirteen percent of respondents in the current survey reported making plans to implement the practice. Thirty-seven percent fewer respondents reported taking NO ACTION to implement the practice, bringing the percent down from 65% in the earlier survey to 41% in the current survey. However, this practice has the largest percent of respondents who have made no plans to implement it.

Respondents who have NOT implemented this practice reported concern about disruptions in pharmacy workflow, lack of pharmacy coverage around the clock, and low availability of pharmacists to carry out the education. Others suggested that the frequency of patients discharged on weekly methotrexate was low and manageable. Some respondents felt the practice was not necessary given infrequent use of the drug in their practice settings. A few respondents who had partially implemented the practice suggested that knowing when patients are being discharged has been challenging.

Measure and express patient weights in metric units only. Ensure that scales used for weighing patients are set and measure only in metric units (kg, g). If scales can measure in pounds and kilograms/grams (kg/g), modify the scale to lock out the ability to weigh in pounds. Document weights using metric designations only. Use measured weight, not stated, historical, or estimated weight.

Full implementation increased from 33% in the earlier survey to 36% in the current survey.
survey. The increase in partial implementation during the year was also low, moving from 36% to 40%. However, 52% fewer respondents reporting taking NO ACTION to implement the practice, bringing the percent down from 25% in the earlier survey to 12% in the current survey. An increase was also seen in the percent of respondents who are currently planning to implement this change (6% earlier vs. 12% currently).

Respondents who have NOT implemented the practice reported an inability to modify the EHR to allow kilogram (kg) entries only, which may require corporate changes, or the use of scales that do not lock out the ability to weigh in pounds. Some respondents were awaiting funding to replace existing scales and beds with units that weigh only in kg. A few respondents reported resistance to the practice by staff who felt it would require a huge practice and culture change to convert to the metric scale for weights.

A few respondents reported issues with private practice offices that communicate with hospitals regularly but still use pounds. This led some respondents to allow the use of both units of measure. However, numerous respondents also reported that nonstandard use of one or the other has led to errors. This risk was equally associated with paper chart forms that still prompt for weights in pounds despite changes made in electronic systems, and scales to weigh and document in kg. A few respondents suggested “fear of the metric system” as a barrier to this practice.

Ensure that all oral liquids that are not commercially available as unit dose products are dispensed by the pharmacy in an oral syringe. Use of an auxiliary label, “For oral use only,” is preferred if it does not obstruct critical information. Ensure that oral syringes do not connect to parenteral tubing in the hospital.

An increase from 52% to 67% during the year was found among respondents who reported fully implementing this practice. Another 24% reported partial implementation in the current survey. All but 5% of respondents reported planning (4%) or implementing (91%, partial and full) this Targeted Best Practice.

A few respondents who have NOT fully implemented this practice reported they were awaiting a required and lengthy change in the billing process to accommodate a different dispensing procedure. Based on respondents’ comments, however, some may have misunderstood the Targeted Best Practice, mistakenly believing that the medication available in manufacturer-provided unit dose cups that match the patient’s ordered dose must be repackaged in an oral syringe. However, some respondents listed exceptions to the practice that are not compatible with its intent, including fast moving oral liquid antibiotics or any oral liquid medication if the entire volume will be needed during the course of treatment. Respondents commented that some exceptions made in their hospitals lacked a sound rationale. Several respondents were still evaluating the processes used to dispense oral medications that require reconstitution. Lack of pharmacy resources to implement standard doses for common oral liquid medications and to repack oral liquid doses were cited as barriers to the practice, as were timing delays in pharmacy dispensing. Establishing a process that works with as-needed (PRN) doses was cited as a challenge by a few respondents.

Purchase and use oral liquid dosing devices (oral syringes/cups/droppers) that only display the metric scale.

An increase from 39% to 49% during the year was seen among respondents who continued on page 5—Practices >

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EPIDURAL OR INFILTRATION USE admixture label along with suitable warnings about the proper route of administration. Hospitals may also find it helpful to have pharmacy provide epidural tubing with the product when dispensing it. Hopefully, we will soon begin to see all premixed products for epidural or infiltration use in bags with special connectors that won’t allow attachment to an IV administration set.

Educational materials for measles outbreak. The Immunization Action Coalition (IAC) has put together a list of web resources (www.ismp.org/sc?id=488) to spotlight educational materials in the wake of the measles outbreak we are seeing around the US. The free IAC educational materials are for healthcare professionals and patients, with many available in different languages. Please refer to the information and resources as we work together to help stop the spread of measles during this multi-state outbreak.

Law firm advertisements. Readers have notified us about advertisements being run by at least two national law firms that mention findings from ISMP’s QuarterWatch™ reports about the newer oral anticoagulants and bleeding risk. ISMP remains a nonprofit, unbiased organization and has NO involvement whatsoever with law firms working on malpractice suits. These firms quote material that was published as part of our advocacy efforts and is in the public domain, so its use cannot be restricted.

Drug shortages report. ISMP has just posted (www.ismp.org/sc?id=489) a full report of a Drug Shortages Summit held in August 2014. The summit was held to examine in depth the manufacturing, economic, and regulatory factors that contribute to drug shortages and consider possible solutions. ISMP was one of the summit organizers. The summit validated a number of existing efforts to address shortages and identified new potential solutions that merit further consideration.
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reported full implementation of this practice. Another 14% of respondents in the current survey reported partial implementation, and 17% have made plans to purchase oral liquid dosing devices that only display in the metric scale. Down from 35% in the earlier survey, 20% of respondents in the current survey still have no plans to implement the practice.

Many respondents wanted to use up their current supply of dosing devices before ordering new supplies with metric markings only. Several respondents were coordinating the implementation of this practice with the transition in enteral feeding devices to the new ENFit syringe for feeding tube use, which will be available this quarter.

Respondents who have NOT implemented this practice reported unavailability of dosing devices with metric-only markings or substandard products on the market. But now that the US Food and Drug Administration, the American Academy of Pediatrics, the Emergency Nurses Association, and other professional organizations have stepped up their support for use of the metric system for liquid medication doses, more commercial vendors are expected to make these devices available, including Baxter, MediDose, NeoMed, and BD.

Best Practice 6

Eliminate glacial acetic acid from all areas of the hospital (laboratory excluded if the glacial acetic acid is purchased directly from an external source). Replace glacial acetic acid with vinegar (5% solution) or commercially available acetic acid 0.25% (for irrigation) or 2% (for otic use).

This practice has the highest percent of respondents reporting full implementation, at 90%. This represents an increase from 74% in the earlier survey. In addition, 69% fewer respondents reported NO ACTION towards achieving this goal, down from 13% in the earlier survey to 4% in the current survey.

Few barriers to implementing this practice were reported, although several respondents mentioned that certain providers still want to use a specific percent of acetic acid solution for procedures. Even though we are happy to see a 90% full adoption rate, the challenge going forward will be the steps that organizations take to maintain a glacial acetic acid free-zone, such as eliminating the ability to order the product, or removing pharmacy recipes (paper or electronic) that use glacial acetic acid as a compounding solution.

Conclusion

Survey respondents who were very familiar with the ISMP 2014-2015 Targeted Medication Safety Best Practices for Hospitals prior to taking the current survey reported higher implementation rates for all targets than those who were unaware of the initiative. Thus, ISMP will be ramping up its promotion of the Targeted Best Practices to expand awareness. During 2015, we plan to feature one Targeted Best Practice at a time in the newsletter, addressing many of the barriers to implementation that were listed by respondents in the recent survey. We also plan to spotlight facilities that have achieved full compliance to help share any lessons learned from the field. Please let us know if you would like a particular barrier covered in an upcoming feature, or if you would like to share what your hospital has done to implement these best practices (ismpinfo@ismp.org). Meanwhile, if you are having problems with implementing any of these best practices, visit the Frequently Asked Questions section under the Targeted Best Practices for more information (www.ismp.org/tools/bestpractices/faq.aspx).

Special Announcements

ISMP webinar

Join us on March 19 for the Evolution of Anticoagulants and the Effects on Patient Safety. In the past 5 years, anticoagulation therapy has undergone significant changes. These changes, combined with increased use of reversal agents, optimization of smart infusion pumps, and electronic prescribing have changed the anticoagulation safety landscape in fundamental ways. During this webinar, learn about the new anticoagulants on the market and their risks, contemporary use of prothrombin complex concentrates and common errors, and practical steps that can be taken to prevent errors with anticoagulants. For details, visit: www.ismp.org/educational/webinars.asp.

HIMSS15 Conference & Exhibition

From April 12-16, more than 38,000 healthcare IT professionals, clinicians, executives, and vendors will join the Healthcare Information and Management Systems Society (HIMSS) at the McCormick Place in Chicago, IL, for the annual conference and exhibition. ISMP is serving again as an official endorser of the conference. For details, visit: www.himssconference.org.
Resources & Services

Don’t Miss the PIR
The Practitioner in Residence Program (PIR) is a rigorous one-week “rotation” at ISMP that provides direct access to our experts. Professionals learn to use a unique model for identifying and controlling risk and get help with specific organizational challenges. Spaces for the March rotation are going fast, so sign up soon.

www.ismp.org/Consult/practitioner.aspx

Targeted Best Practices
We are entering the second year of ISMP’s 2014-15 Targeted Medication Safety Best Practices for Hospitals; visit our website to download a copy and help us measure progress.

www.ismp.org/tools/bestpractices/default.aspx

2015 MSI Workshops
Fast-track your medication safety program and gain the tools to promote successful safety improvements by attending one of ISMP’s Medication Safety Intensive (MSI) workshops. Register for any 2015 MSI by February 15, 2015 and receive a discounted rate.

www.ismp.org/educational/hsi/default.asp

2015 MSI workshops are scheduled for:

- April 16 and 17—Indianapolis, IN
- September 17 and 18—Bellevue, WA
- December 4 and 5—New Orleans, LA

Fellowships Deadline
ISMP’s Safe Medication Management Fellowships are unique 12-month learning experiences beginning each July that engage select professionals in the Institute’s efforts to improve error prevention and safe medication use. Applications for 2015-2016 fellowships are due March 31, 2015.