Targeted Medication Safety Best Practices 2020

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ISMP
Institute for Safe Medication Practices
An ECRI Institute Affiliate

ISMP Targeted Medication Safety Best Practices for Hospitals

- Purpose: to identify, inspire, and mobilize widespread, national adoption of consensus-based best practices on specific medication safety issues that continue to cause fatal and harmful errors in patients, despite repeated warnings in ISMP publications
  - Realistic practices, already adopted by many hospitals
  - Reviewed by an external expert advisory panel

Find at:
https://www.ismp.org/guidelines/best-practices-hospitals

Recurrent Issues of Serious Harm Examples:

- Intravenous vinca alkaloids (vin**CRIS**tine) accidentally administered intrathecally
- Oral methotrexate for non-oncological indications given daily instead of weekly
- Confusion over measurement of patient's weight in kg/g and pounds resulting in dosing errors
- Unintended administration of oral products by the IV route
- Errors with measurement of liquid oral medications due to confusion between metric and non-metric labeling
- Harm from direct application of glacial acetic acid on patients

2018-2019
Targeted Medication Safety Best Practices for Hospitals

The purpose of the Targeted Medication Safety Best Practices for Hospitals is to identify, inspire, and mobilize widespread, national adoption of consensus-based best practices for specific medication safety issues that continue to cause fatal and harmful errors in patients, despite repeated warnings in ISMP publications. Hospitals can focus their medication safety efforts over the next 2 years on these best practices, which are realistic and have been successfully adopted by numerous organizations. While targeted for the hospital-based setting, some best practices may be applicable to other healthcare settings. The *Targeted Medication Safety Best Practices for Hospitals* have been reviewed by an external expert advisory panel and approved by the ISMP Board of Trustees. Related issues of the *ISMP Medication Safety Alert!* are referenced after each best practice.

ISMP encourages hospitals that have not implemented the 2016-2017 Targeted Medication Safety Best Practices for Hospitals to do so as a priority, while implementing the 2018-2019 best practices. Organizations need to focus on previous best practices 2, 3, 9 and 11 since these have the lowest implementation rate. **Two of the 2016-2017 Targeted Medication Safety Best Practices for Hospitals (number 4 and 7) have been revised for 2018-2019. Best practices number 12 through 14 are new for 2018-2019.**

www.ismp.org

ISMP
INSTITUTE FOR SAFE MEDICATION PRACTICES

Best Practice 1

- Dispense vin**CRIS**tine (and other vinca alkaloids) in a minibag of a compatible solution and not in a syringe.

ISMP strongly recommends against dispensing and administering intravenous Vincristine in a syringe.

Best Practice 1 (vinca alkaloids in minibag)

- Vinca alkaloids (vinBLAStine, vinorelbine, vinCRIStine, and vinCRIStine liposomal) can cause fatal neurological effects if given via the intrathecal route instead of intravenously.
- VinCRIStine is particularly problematic, and the most frequently reported with accidental intrathecal administration.
- Often ordered in conjunction with medications that are administered intrathecally (e.g., methotrexate, cytarabine, and/or hydrocortisone).
- When vinca alkaloids are injected intrathecally, destruction of the central nervous system occurs, radiating out from the injection site.

Best Practice 1 (vinca alkaloids in minibag)

- In over 135 reports, there have been no cases of accidental administration of a vinca alkaloid by the intrathecal route when dispensed in a minibag.
- This best practice is supported by The Joint Commission, the American Society of Clinical Oncology (ASCO), the Oncology Nursing Society (ONS), the National Comprehensive Cancer Network, and the World Health Organization.

March 14, 2019 ■ Volume 24 Issue 5

ISMP 25 ADVANCING MEDICATION SAFETY

Acute Care ISMP Medication Safety Alert!®

Educating the Healthcare Community About Safe Medication Practices

ISMP calls on FDA— No more syringes for vinca alkaloids!

Since January 2019, ISMP has learned about 4 children who received vinCRIStine erroneously by the intrathecal route of administration, each suffering a very painful death. Three of the children were from Guyana, and one was from Norway. The child from Norway had a brain tumor and was just 6 years old when vinCRIStine was injected into the spinal fluid via an intravenous catheter instead of methotrexate

Internationally, the World Health Organization (WHO) has promoted dilution of vinca alkaloids in minibags since 2007, and in Norway, where one of the latest events happened, this practice had been widely implemented for children during treatment of leukemia, but not consistently for treatment of other cancers using vinca alkaloids. According to Andrew Seger, a pharmacist from Boston's Brigham and Women's Hospital who tracks vinCRIStine errors from around the world, 5 years ago the total number of fatalities and neurological devastation from intrathecal vinca alkaloid administration worldwide was 120 (44 in the US and Canada)—all involving vinca alkaloids in syringes (www.ismp.org/node/624). Today, the total is 135, and as far as we know, **none** of these cases involved vinca alkaloids prepared in minibags.

Most practitioners in the US dilute vinCRIStine (and other vinca alkaloids) in a minibag prior to administration. According to a 2017 ISMP survey of US hospitals, 86% of 338 hospital respondents have fully adopted this practice. This represents a steady increase in compliance since 2014, when only half of respondents reported this practice. Also, in our recent 2018 ***ISMP Medication Safety Self Assessment® for High-Alert Medications***, 81% of almost 500 hospital respondents reported full adoption of this practice. Although the latest tragic events have occurred internationally, the error could still happen in the US given that 19% of our 2018 assessment respondents reported that they still use syringes to administer vinca alkaloids. Furthermore, even though the US official prescribing information includes directions to dilute the drug in a flexible plastic container to reduce the risk of wrong route errors, the labeling still *allows* for administration of vinca alkaloids via a syringe and even provides explicit directions for this alternative yet unsafe method of administration.

ISMP calls upon the US Food and Drug Administration (FDA) to lead the way internationally by requiring the removal of administration by syringe from the prescribing information

continued on page 2—No more syringes! >

SAFETY briefs

Neuromuscular blocker storage. We recently learned of a close call in which vancomycin was prescribed, but a vial of vecuronium was used to prepare a dose in the pharmacy. The error was identified during a quality control check of the prepared intravenous (IV) admixture. Investi-

Figure 1. Unsafe storage of vecuronium and vancomycin next to each other. Also, warnings on the vecuronium container are worn and hard to read.

and a new lidded container was ordered. In areas where they are needed, neuromuscular blockers should be segregated and sequestered from other medications, such as placing them in a lidded bin or rapid sequence intubation (RSI) kit. Also, the barcode on drugs used for IV admixture should be scanned using IV workflow technology to ensure correct product selection.

In Figure 1, also notice the curled warning labels on the vecuronium storage bin. Warning labels that are affixed to heavily used storage containers can easily become worn, loosened, and soiled, making them difficult to read. This defeats the purpose of a warning label—to effectively communicate a hazard and incite safe action (see our article on warnings at: www.ismp.org/node/1483). If warning labels are used, inspect them regularly and replace them as soon as signs of wear are recognized. We

continued on page 2—SAFETY briefs >

Educating the Healthcare Community About Safe Medication Practices

ISMP calls on FDA—
No more syringes for vinca alkaloids!

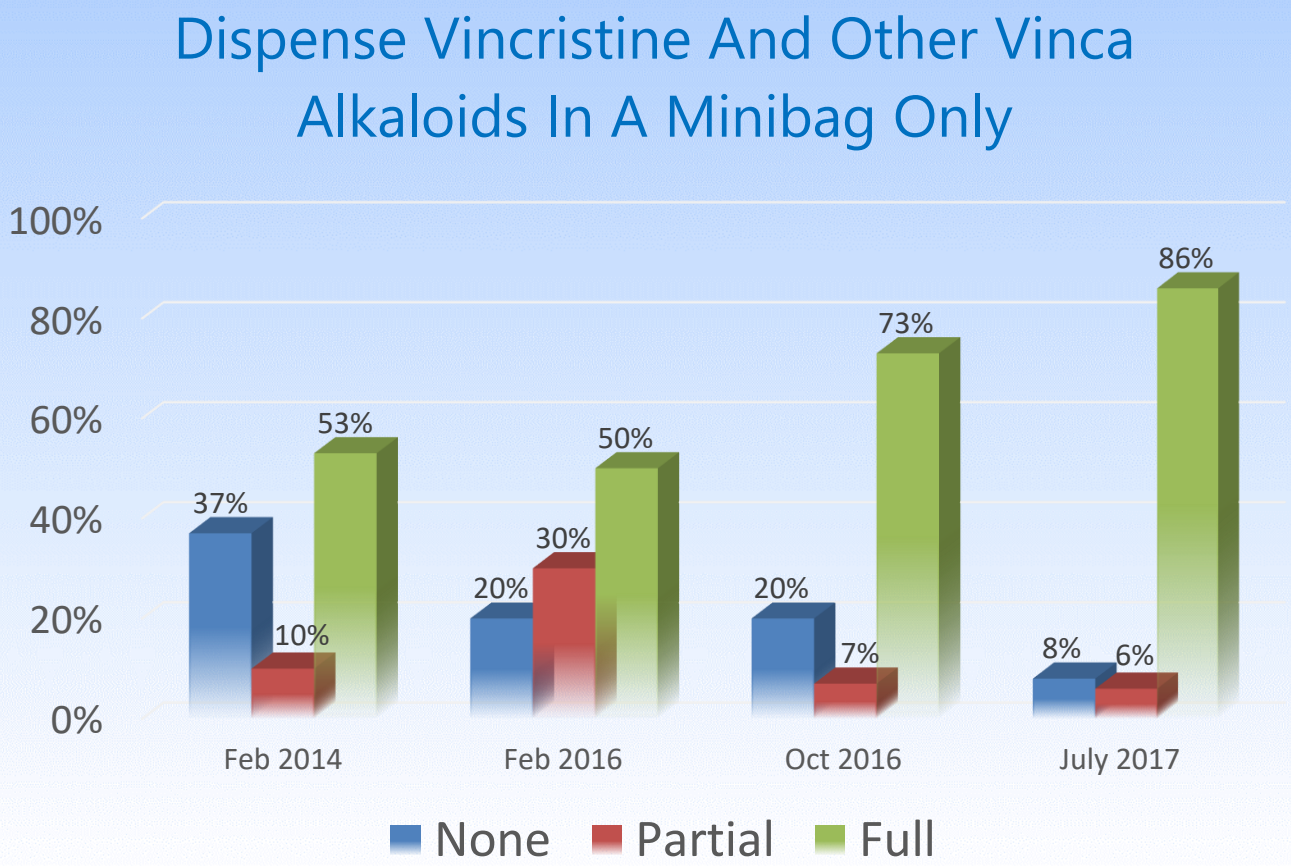
Since January 2019, ISMP has learned about 4 childr

GUYANA

TRUSTED 2:07 / 28.01.2019 GUYANA CHRONICLE

GPHC conducting 'thorough' investigation into children's deaths

Best Practice 1



February 2014 - 483
February 2016 - 392
October 2016 - 232
July 2017 - 338

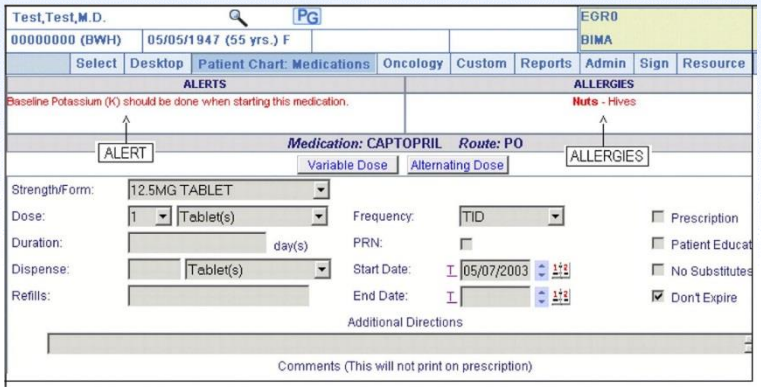
2019 Survey Results

Vin**CRIS**tine in a minibag for adult patients	Vin**CRIS**tine in a minibag for pediatric patients	Other vinca alkaloids in a minibag and not a syringe
• None 4.5% • Partial 4.9% • Full 60.7% • Not applicable 30%	• None 4.9% • Partial 3.4% • Full 34.5% • Not applicable 57.3%	• None 6.4% • Partial 5.6% • Full 59.4% • Not applicable 28.6%

Best Practice 2a

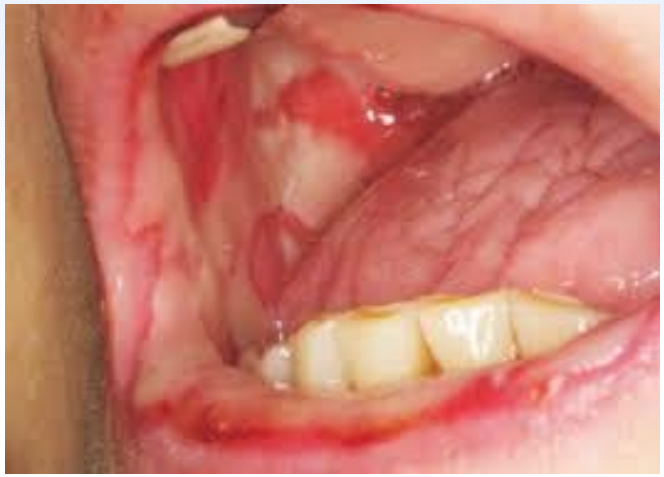
- Use a weekly dosage regimen default for oral methotrexate. If overridden to daily, require a hard stop verification of an appropriate oncologic indication.

!! METHOtrexate should usually be administered once weekly (unless indication is cancer chemotherapy). You are signing an order with a frequency OTHER THAN weekly. Please make sure this frequency is appropriate. (Alert # 1775)



Best Practice 2a: Oral methotrexate

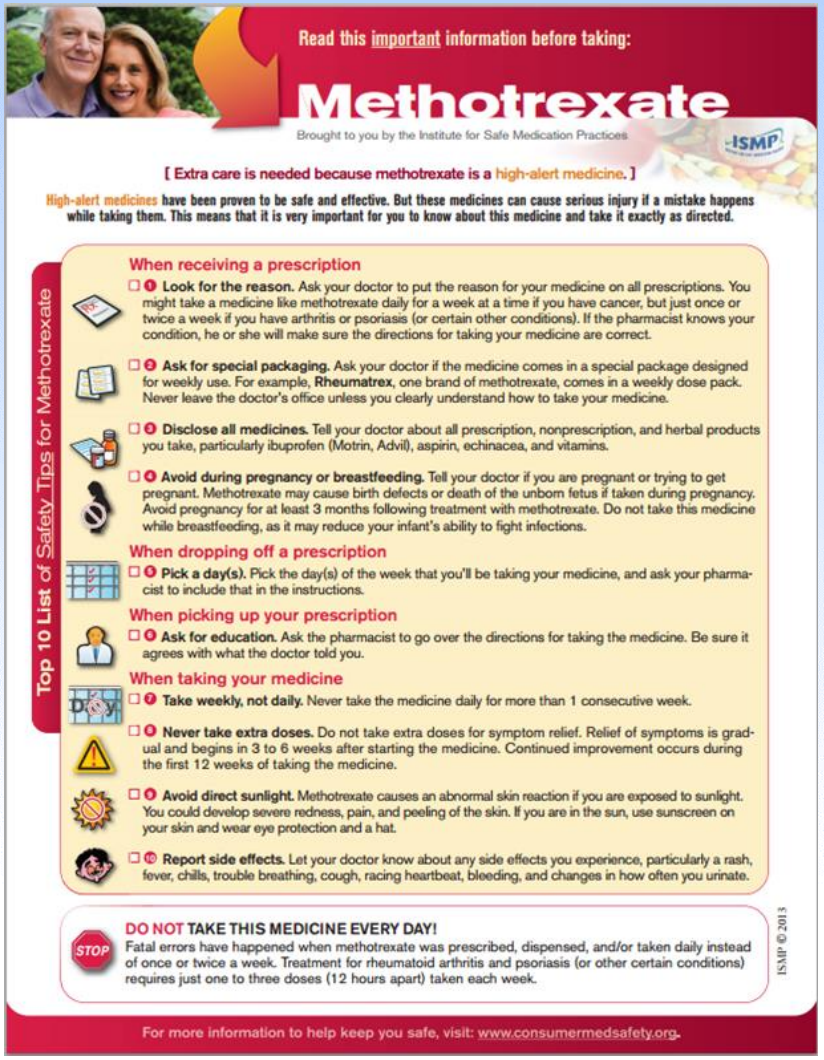
- Since 1996, fatalities have been reported involving accidental daily dosing of oral methotrexate intended for weekly administration in immune-related disorders such as rheumatoid arthritis, psoriasis.
- Prescribers or pharmacists used to daily administration for many other medications, erroneously type daily instead of weekly.



Best practice 2a: Oral methotrexate

- Use a weekly dosage regimen default for oral methotrexate in electronic systems (BP 2)
- Require a hard stop verification of an appropriate oncologic indication for all daily oral methotrexate orders (BP 2)
- Provide specific patient and/or family education for all oral methotrexate discharge prescriptions (BP 2)

Best Practice 2b



Read this important information before taking:

Methotrexate

Brought to you by the Institute for Safe Medication Practices

[Extra care is needed because methotrexate is a high-alert medicine.]

High-alert medicines have been proven to be safe and effective. But these medicines can cause serious injury if a mistake happens while taking them. This means that it is very important for you to know about this medicine and take it exactly as directed.

Top 10 List of Safety Tips for Methotrexate

When receiving a prescription

- **Look for the reason.** Ask your doctor to put the reason for your medicine on all prescriptions. You might take a medicine like methotrexate daily for a week at a time if you have cancer, but just once or twice a week if you have arthritis or psoriasis (or certain other conditions). If the pharmacist knows your condition, he or she will make sure the directions for taking your medicine are correct.
- **Ask for special packaging.** Ask your doctor if the medicine comes in a special package designed for weekly use. For example, **Rheumatrex**, one brand of methotrexate, comes in a weekly dose pack. Never leave the doctor's office unless you clearly understand how to take your medicine.
- **Disclose all medicines.** Tell your doctor about all prescription, nonprescription, and herbal products you take, particularly ibuprofen (Motrin, Advil), aspirin, echinacea, and vitamins.
- **Avoid during pregnancy or breastfeeding.** Tell your doctor if you are pregnant or trying to get pregnant. Methotrexate may cause birth defects or death of the unborn fetus if taken during pregnancy. Avoid pregnancy for at least 3 months following treatment with methotrexate. Do not take this medicine while breastfeeding, as it may reduce your infant's ability to fight infections.

When dropping off a prescription

- **Pick a day(s).** Pick the day(s) of the week that you'll be taking your medicine, and ask your pharmacist to include that in the instructions.

When picking up your prescription

- **Ask for education.** Ask the pharmacist to go over the directions for taking the medicine. Be sure it agrees with what the doctor told you.

When taking your medicine

- **Take weekly, not daily.** Never take the medicine daily for more than 1 consecutive week.
- **Never take extra doses.** Do not take extra doses for symptom relief. Relief of symptoms is gradual and begins in 3 to 6 weeks after starting the medicine. Continued improvement occurs during the first 12 weeks of taking the medicine.
- **Avoid direct sunlight.** Methotrexate causes an abnormal skin reaction if you are exposed to sunlight. You could develop severe redness, pain, and peeling of the skin. If you are in the sun, use sunscreen on your skin and wear eye protection and a hat.
- **Report side effects.** Let your doctor know about any side effects you experience, particularly a rash, fever, chills, trouble breathing, cough, racing heartbeat, bleeding, and changes in how often you urinate.

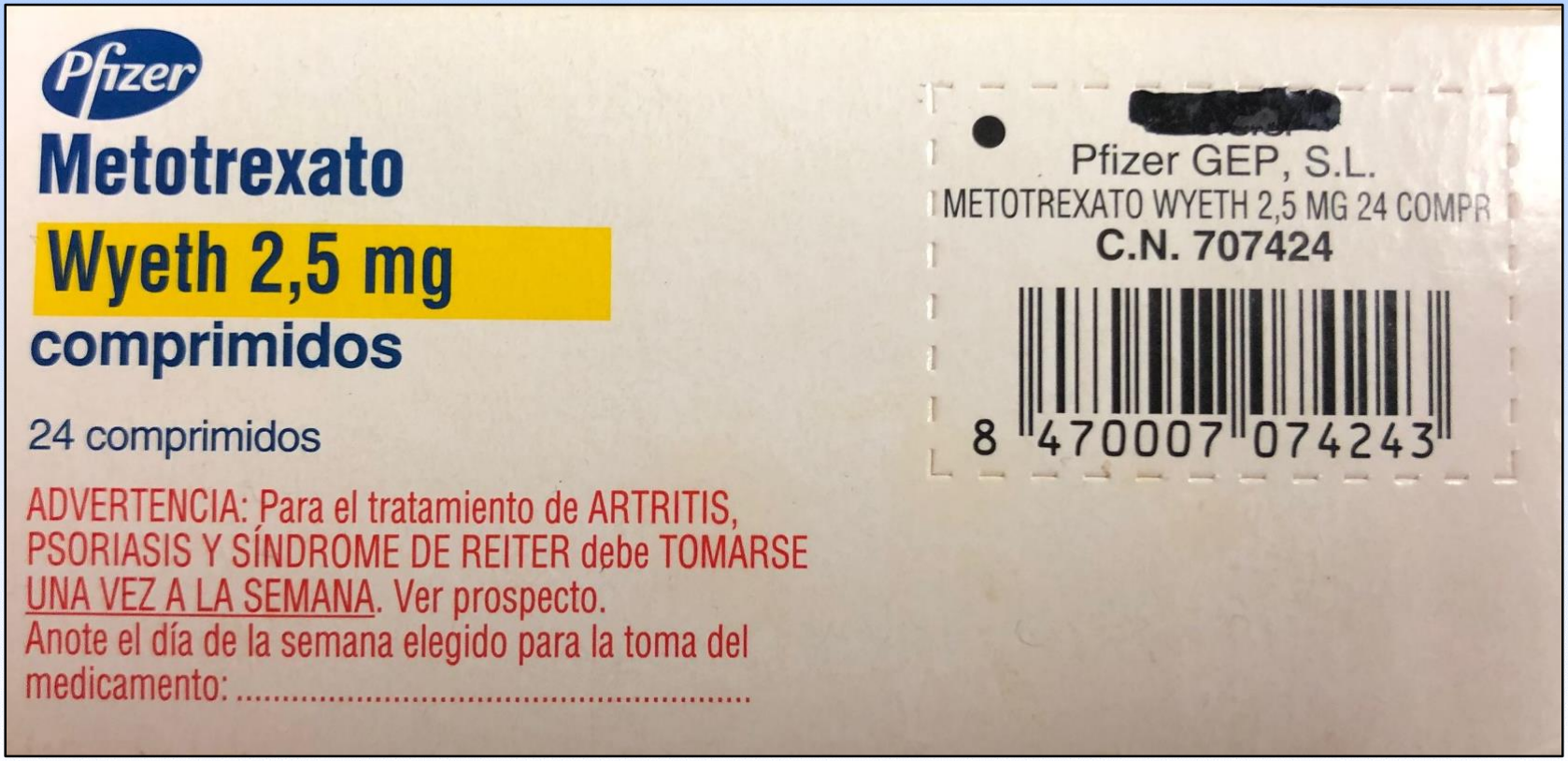
STOP

DO NOT TAKE THIS MEDICINE EVERY DAY!

Fatal errors have happened when methotrexate was prescribed, dispensed, and/or taken daily instead of once or twice a week. Treatment for rheumatoid arthritis and psoriasis (or other certain conditions) requires just one to three doses (12 hours apart) taken each week.

For more information to help keep you safe, visit: www.consumermedsafety.org.

- Provide patient education by a pharmacist for all weekly oral methotrexate discharge orders.
  - Goal: Prevent errors involving daily dosing of oral methotrexate for non-oncology indications by patients after discharge.


Pfizer
Metotrexato
Wyeth 2,5 mg
comprimidos
24 comprimidos
ADVERTENCIA: Para el tratamiento de ARTRITIS, PSORIASIS Y SÍNDROME DE REITER debe TOMARSE UNA VEZ A LA SEMANA. Ver prospecto.
Anote el día de la semana elegido para la toma del medicamento: .....
Pfizer GEP, S.L.
METOTREXATO WYETH 2,5 MG 24 COMPR
C.N. 707424
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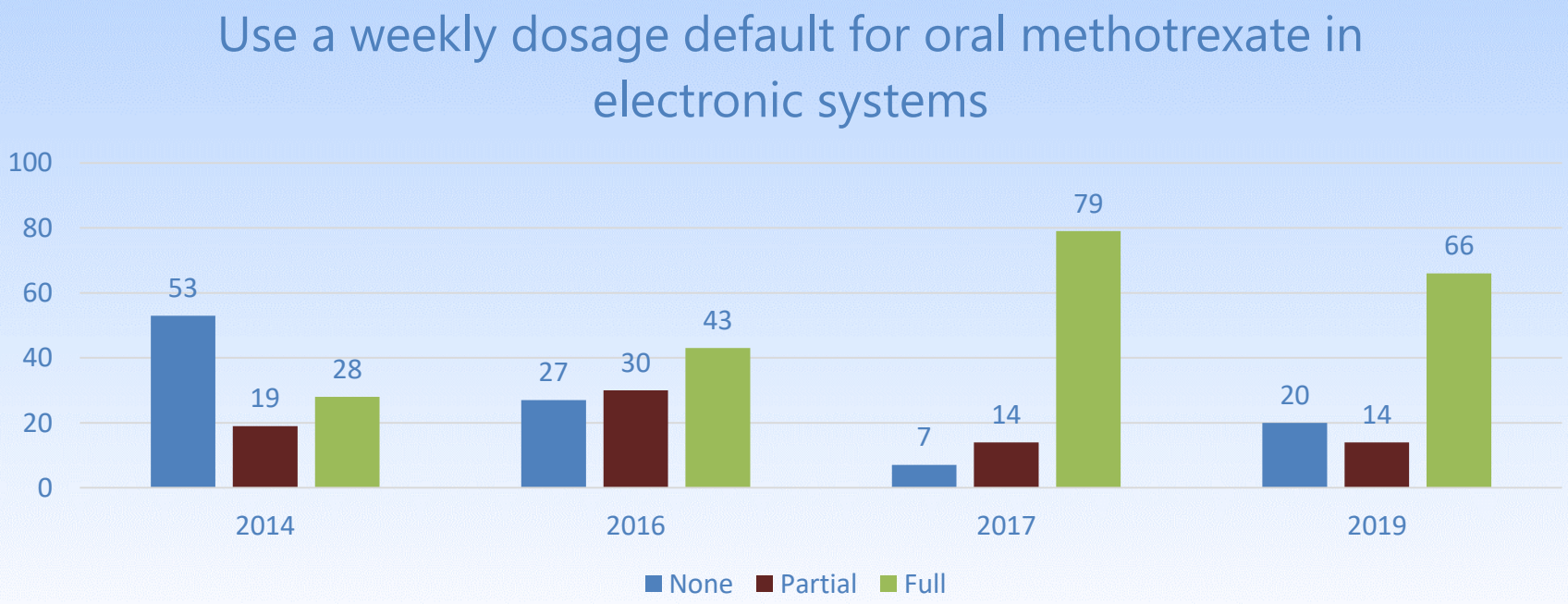
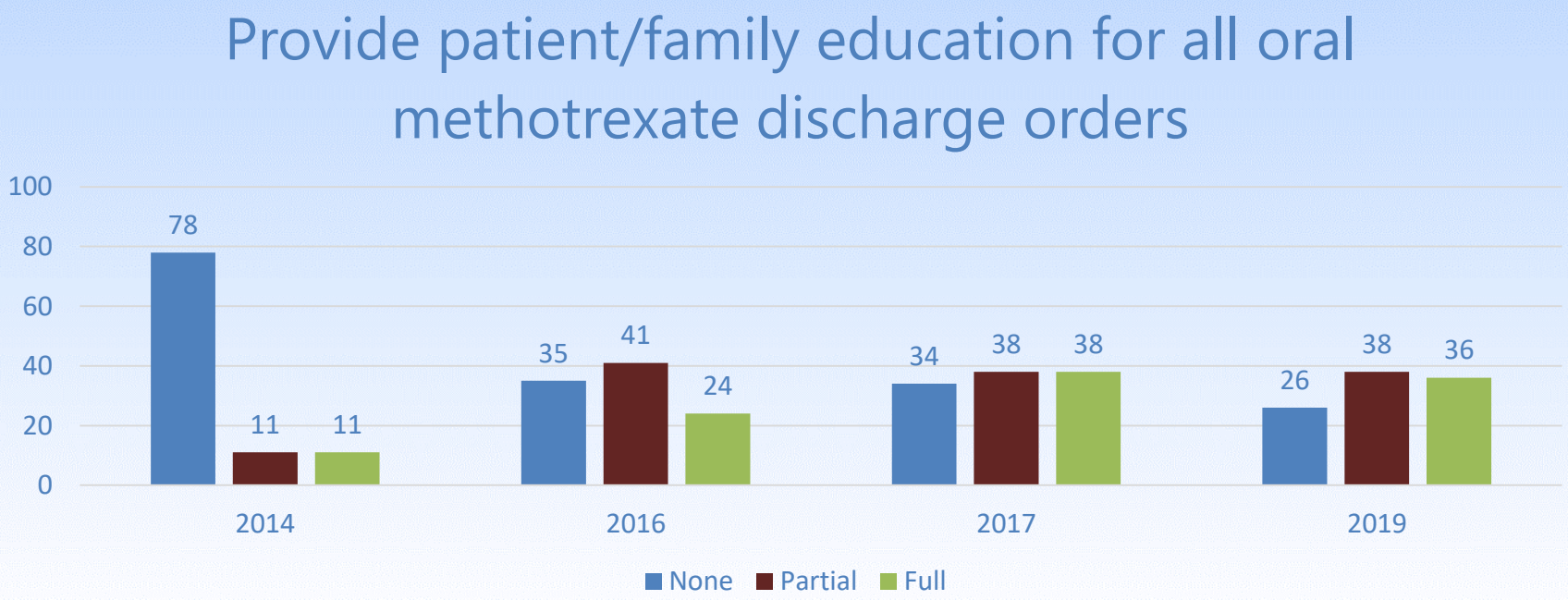
Area of Focus: Methotrexate



Area of Focus: Methotrexate



Best Practice 3

- Measure and express patient weights in metric units only. Ensure that scales used for weighing patients are set and measure only in metric units.

Best Practice 3
Metric weights

- Weigh patients as soon as possible upon admission or outpatient encounter. Avoid use of stated, estimated, or historical weight.
- Measure and document patient weights in metric units only.

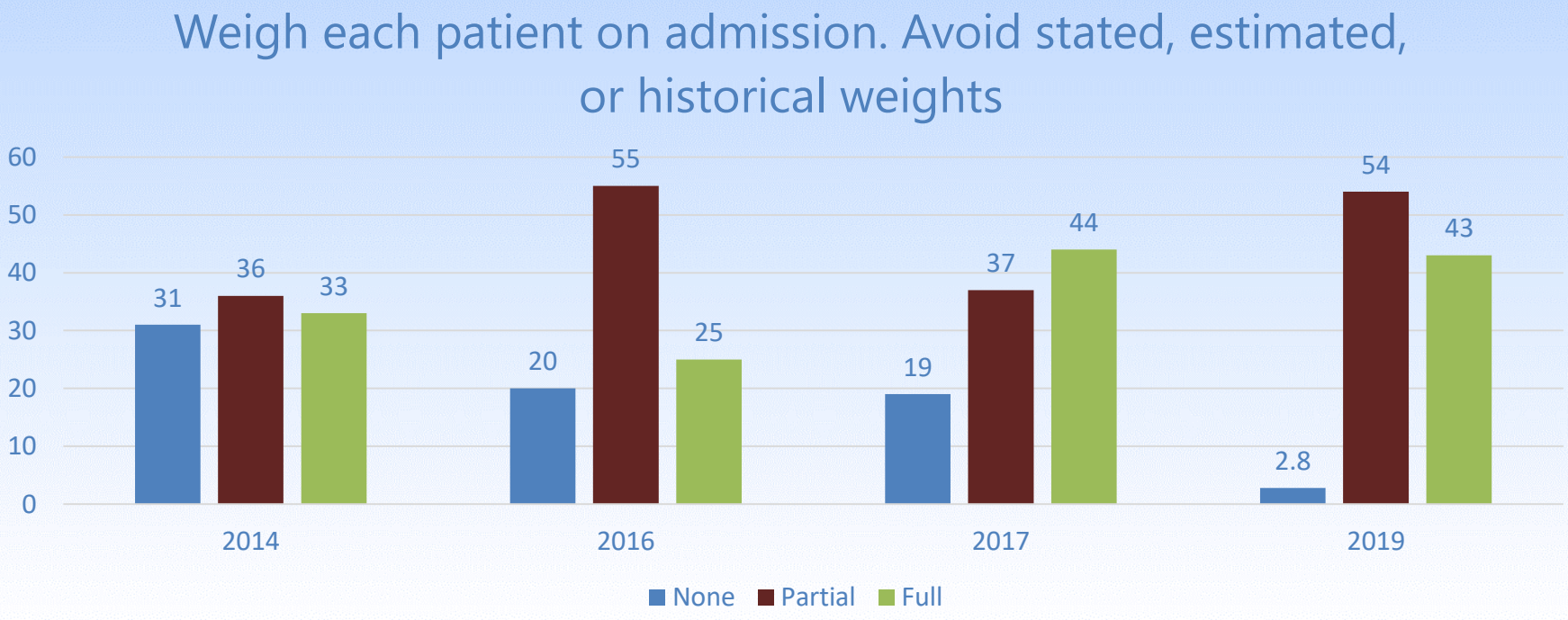
Best Practice 3
Metric weights

- As much as possible, the patient's actual weight is obtained upon each admission or appropriate encounter.
- Stated, estimated, or historical weights can cause inaccurate dosing (both under- and overdosing).
- Conversion errors are common.
- Official product labeling for medications provides weight-based dosing using only the metric system (e.g., mg/kg).

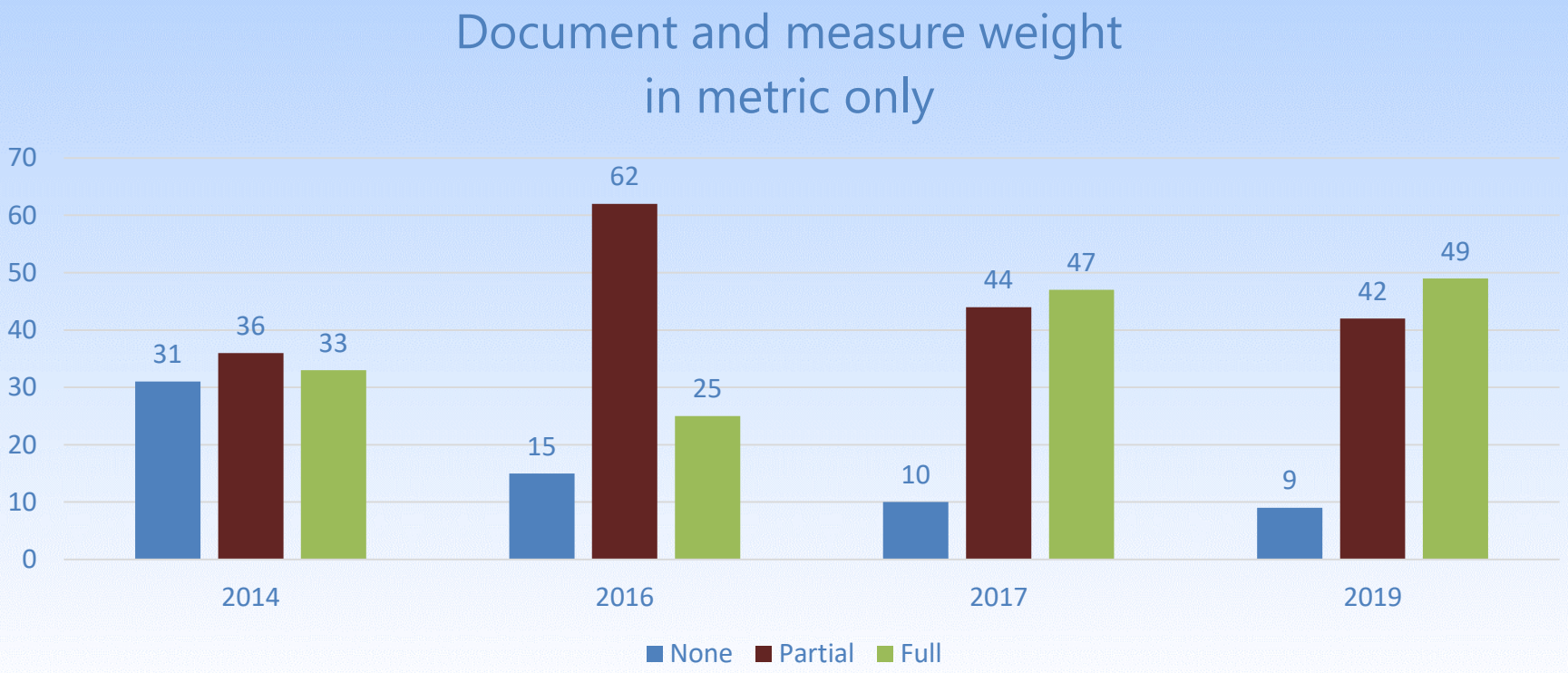
Best Practice 3
Metric weights

- If purchasing or replacing scales, buy new scales that measure in, or can be locked to measure in, metric units only.
- Have conversion charts that convert from kilograms (or grams for pediatrics) to pounds available near all scales, so that patients/guardians can be told the weight in pounds, if requested.
- Ensure computer screens, device screens (e.g., infusion pumps), printouts, and preprinted order forms list or prompt for the patient's weight in metric units.
- Document the patient's weight in metric units only in all electronic and written formats.

Area of Focus: Weight



Area of Focus: Weight



Best Practice 4
Oral/ENFit syringe

- Ensure that all oral liquid medications that are not commercially available in unit dose packaging are dispensed by the pharmacy in an oral or ENFit syringe.

OK

Oral/ENFit Syringe

Not OK

May be OK

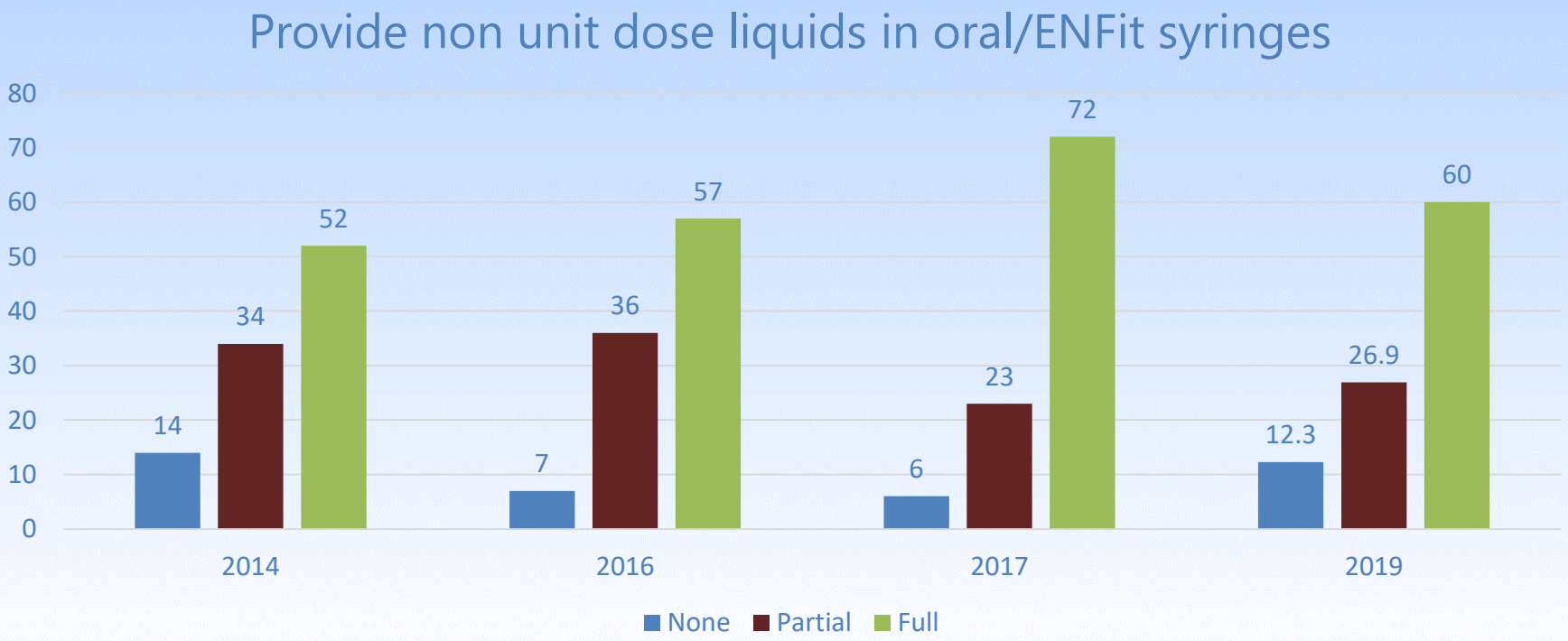
Best Practice 4
Oral/ENFit syringes

- Do not stock bulk oral solutions of medications on patient care units.
- Use only oral syringes that are distinctly marked “Oral Use Only.”
- Ensure that the oral syringes used do not connect to any type of parenteral tubing used within the organization.
- When ENFit syringes used for oral liquids, highlight on the label, or affix an auxiliary label, “For Oral Use Only” on the syringe or highlight the statement if it is on the label.

2020-2021 Changes

- Best Practice #4
- Current: Ensure that all oral liquid medications that are not commercially available in unit dose packaging are dispensed by the pharmacy in an oral or ENFit syringe.
- Change: Ensure that all oral liquid medications that are not commercially available in unit dose packaging are dispensed by the pharmacy in an oral syringe **or an enteral syringe that meets the International Organization for Standardization (ISO) 80369 such as ENFit.**

Oral/ENFit syringes



Best Practice 5

- Purchase oral liquid dosing devices (oral syringes/ cups/droppers) that only display the metric scale.
- In addition, if patients are taking an oral liquid medication after discharge, supply them with (or provide a prescription for) oral syringes, to enable them to measure oral liquid volumes in milliliters (mL).

Drug Facts

Active ingredient (in each 5 mL) — **Purpose**

Dextromethorphan polistirex equivalent to 30 mg dextromethorphan hydrobromide ..... Cough suppressant

Uses temporarily relieves

- cough due to minor throat and bronchial irritation as may occur with the common cold or inhaled irritants
- the impulse to cough to help you get to sleep

Warnings

Do not use if you are now taking a prescription monoamine oxidase inhibitor (MAOI) (certain drugs for depression, psychiatric or emotional conditions, or Parkinson's disease), or for 2 weeks after stopping the MAOI drug. If you do not know if your prescription drug contains an MAOI, ask a doctor or pharmacist before taking this product.

Ask a doctor before use if you have

- chronic cough that lasts as occurs with smoking, asthma or emphysema
- cough that occurs with too much phlegm (mucus)

Stop use and ask a doctor if cough lasts more than 7 days, cough comes back, or occurs with fever, rash or headache that lasts. These could be signs of a serious condition.

If pregnant or breast-feeding, ask a health professional before use.
Keep out of reach of children. In case of overdose, get medical help or contact a Poison Control Center right away.

Directions ■ **shake bottle well before use**

- measure only with dosing cup provided. Do not use dosing cup with other products.
- dose as follows or as directed by a doctor
- mL = milliliter

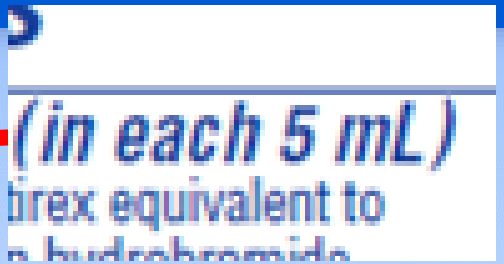
adults and children 12 years of age and over	10 mL every 12 hours, not to exceed 20 mL in 24 hours
children 6 to under 12 years of age	5 mL every 12 hours, not to exceed 10 mL in 24 hours
children 4 to under 6 years of age	2.5 mL every 12 hours, not to exceed 5 mL in 24 hours
children under 4 years of age	do not use

Other information

- store at 20-25°C (68-77°F)
- each 5 mL contains: **sodium 7 mg**
- dosing cup provided

Inactive ingredients citric acid, edetate disodium, ethylcellulose, FD&C Yellow No. 6, flavor, high fructose corn syrup, methylparaben, polyethylene glycol 3350, polysorbate 80, propylene glycol, propylparaben, purified water, sucrose, tragacanth, vegetable oil, xanthan gum

Questions? 1-888-963-3382
You may also report side effects to this phone number.



An OTC drug that lists mL only

Directions ■ **shake bottle well before use**

- measure only with dosing cup provided. Do not use dosing cup with other products.
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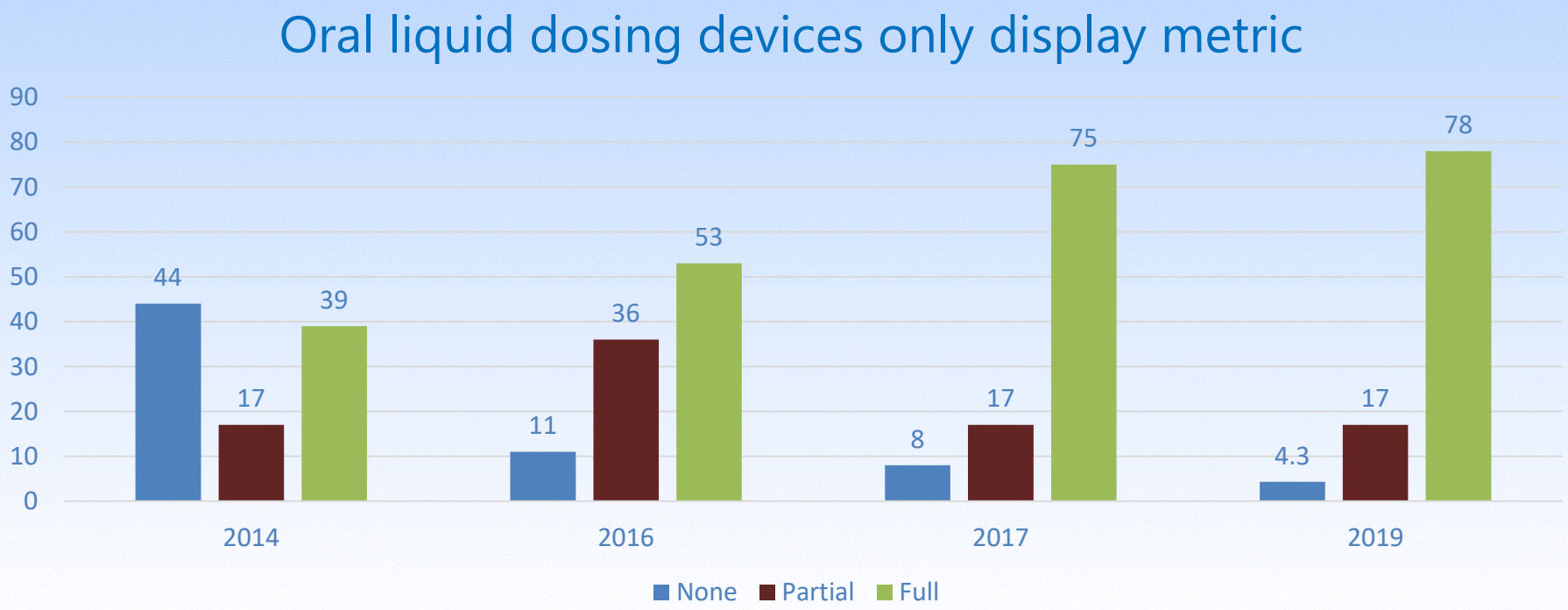
children under 4 years of age	do not use

Best Practice #5
2020-2021 Changes

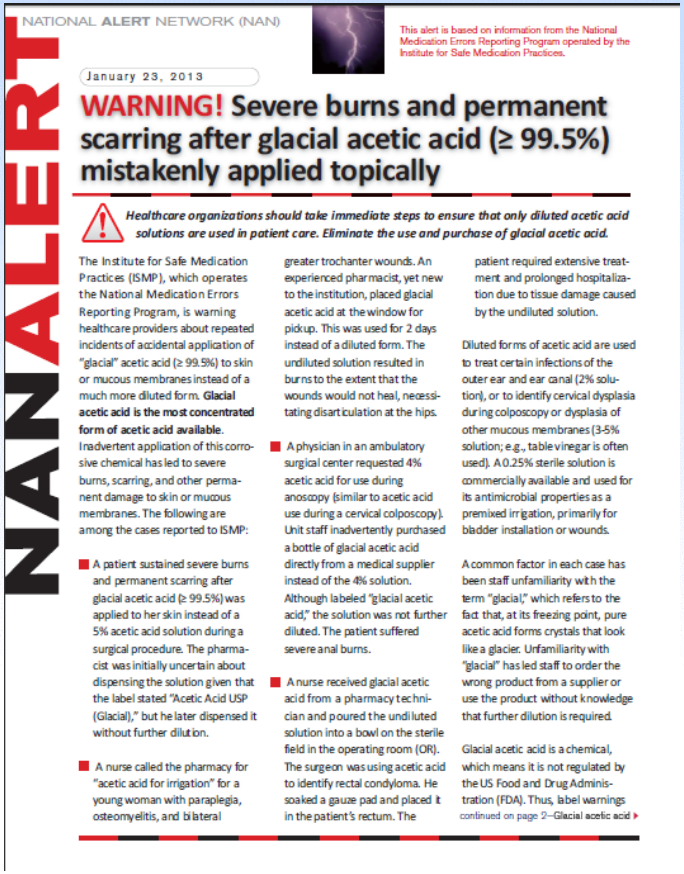
- Change: Purchase oral liquid dosing devices (oral syringes/cups/droppers) that only display the metric scale. In addition, if patients are taking an oral liquid medication after discharge, **educate patients to request appropriate oral dosing devices** to measure oral liquid volumes in milliliters (mL) **only.**

Oral Liquid Dosing Devices



Best Practices 6

- Remove glacial acetic acid to prevent accidental topical application



NATIONAL ALERT NETWORK (NAN)

NANALERT

This alert is based on information from the National Medication Errors Reporting Program operated by the Institute for Safe Medication Practices.

January 23, 2013

WARNING! Severe burns and permanent scarring after glacial acetic acid (≥ 99.5%) mistakenly applied topically

Healthcare organizations should take immediate steps to ensure that only diluted acetic acid solutions are used in patient care. Eliminate the use and purchase of glacial acetic acid.

The Institute for Safe Medication Practices (ISMP), which operates the National Medication Errors Reporting Program, is warning healthcare providers about repeated incidents of accidental application of "glacial" acetic acid (≥ 99.5%) to skin or mucous membranes instead of a much more diluted form. **Glacial acetic acid is the most concentrated form of acetic acid available.** Inadvertent application of this corrosive chemical has led to severe burns, scarring, and other permanent damage to skin or mucous membranes. The following are among the cases reported to ISMP:

- A patient sustained severe burns and permanent scarring after glacial acetic acid (≥ 99.5%) was applied to her skin instead of a 5% acetic acid solution during a surgical procedure. The pharmacist was initially uncertain about dispensing the solution given that the label stated "Acetic Acid USP (Glacial)," but he later dispensed it without further dilution.
- A nurse called the pharmacy for "acetic acid for irrigation" for a young woman with paraplegia, osteomyelitis, and bilateral greater trochanter wounds. An experienced pharmacist, yet new to the institution, placed glacial acetic acid at the window for pickup. This was used for 2 days instead of a diluted form. The undiluted solution resulted in burns to the extent that the wounds would not heal, necessitating disarticulation at the hips.
- A physician in an ambulatory surgical center requested 4% acetic acid for use during anoscopy (similar to acetic acid use during a cervical colposcopy). Unit staff inadvertently purchased a bottle of glacial acetic acid directly from a medical supplier instead of the 4% solution. Although labeled "glacial acetic acid," the solution was not further diluted. The patient suffered severe anal burns.
- A nurse received glacial acetic acid from a pharmacy technician and poured the undiluted solution into a bowl on the sterile field in the operating room (OR). The surgeon was using acetic acid to identify rectal condyloma. He soaked a gauze pad and placed it in the patient's rectum. The patient required extensive treatment and prolonged hospitalization due to tissue damage caused by the undiluted solution.

Diluted forms of acetic acid are used to treat certain infections of the outer ear and ear canal (2% solution), or to identify cervical dysplasia during colposcopy or dysplasia of other mucous membranes (3-5% solution; e.g., table vinegar is often used). A 0.25% sterile solution is commercially available and used for its antimicrobial properties as a premixed irrigation, primarily for bladder installation or wounds.

A common factor in each case has been staff unfamiliarity with the term "glacial," which refers to the fact that, at its freezing point, pure acetic acid forms crystals that look like a glacier. Unfamiliarity with "glacial" has led staff to order the wrong product from a supplier or use the product without knowledge that further dilution is required.

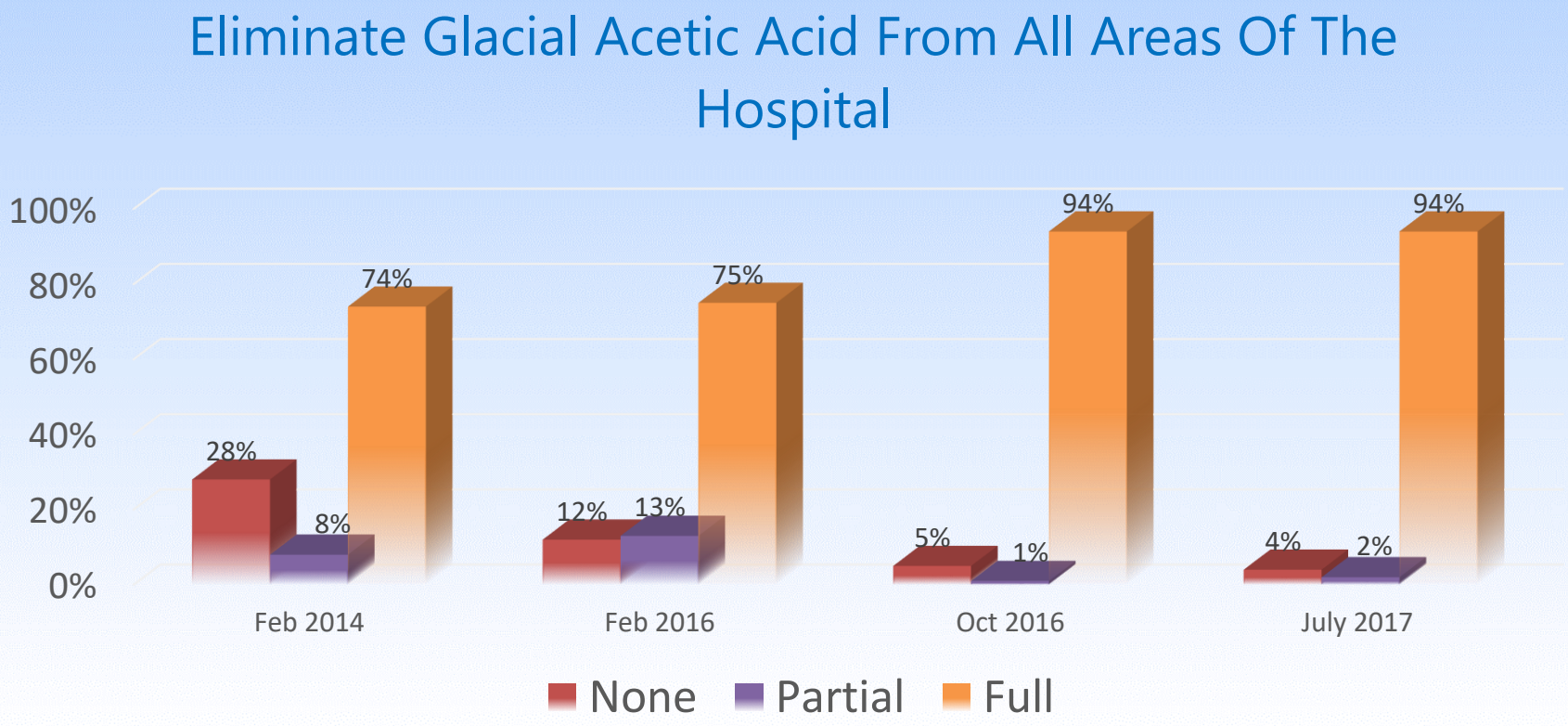
Glacial acetic acid is a chemical, which means it is not regulated by the US Food and Drug Administration (FDA). Thus, label warnings

continued on page 2--Glacial acetic acid

Best Practice 6
Remove glacial acetic acid

- Patient harm has occurred when hazardous/toxic chemicals have been misidentified as oral products, or when a very concentrated form of a chemical has been erroneously used in treating patients.
- “Glacial” acetic acid has repeatedly been confused with 3-5% used for colposcopy and other procedures, resulting in serious tissue damage, third-degree burns.
- Often this item was either accidentally purchased or used in place of a much more diluted form of acetic acid, such as vinegar or a commercially available 0.25% acetic acid solution.

Best Practice 6



2020-2021 Changes – *New classification* for Best Practice #6

- Current: Eliminate glacial acetic acid from all areas of the hospital.
- Change: moving to an ***archived*** state
- Rationale:
  - Still important as a Best Practice, but due to level of compliance we are decreasing focus
  - Will remain in the list; appear at the end
  - The Best Practice number will remain #6
  - Directs focus towards new and existing Best Practices with lower adoption rates

Best Practice 7

- Prevent inadvertent administration of neuromuscular blocking agents to patients not receiving proper ventilator assistance

January 17, 2019 ■ Volume 24 Issue 1

ISMP 25 ADVANCING MEDICATION SAFETY

Acute Care
ISMP Medication Safety Alert!®
Educating the Healthcare Community About Safe Medication Practices

Safety enhancements every hospital must consider in wake of another tragic neuromuscular blocker event

PROBLEM: National news recently exposed details about a 2017 fatal medication error that happened at a large, prestigious hospital after the Centers for Medicare & Medicaid Services (CMS) briefly placed its Medicare reimbursement status in jeopardy. The hospital's status was quickly restored following submission of a plan of correction to CMS. Upon ISMP's awareness of the event, it became imperative to share the lessons learned from the fatal event so other healthcare providers can avoid a similar tragedy.

The details of the error that follow are from a CMS report. As the story unfolds, we hope you will see that this type of error could happen anywhere given current system vulnerabilities frequently found in hospitals, particularly when using automated dispensing cabinets (ADCs). In fact, ISMP has observed many of the same system vulnerabilities in other hospitals, and they are frequently at the root of a variety of medication errors reported to the ISMP National Medication Errors Reporting Program (ISMP MERP). Make no mistake—this type of error could happen in your hospital, and it is crucial to take steps now to reduce the risk of a similarly tragic event.

continued on page 2—Neuromuscular blocker event >

Table 1. ADC safety features to reduce the risk of errors when removing medications from cabinets*

General Safety Features	Description
Optimize profiled ADCs	Optimize the use of profiled ADCs that allows drug selection after pharmacy verification of orders in inpatient and outpatient settings (e.g., emergency department [ED], pre- and post-procedural locations)
Manage override lists	Limit the variety of medications that can be removed from an ADC via override for defined urgent/emergent situations
Block staff from loading inappropriate medications	Activate ADC software that prevents clinically inappropriate medications from being loaded into specific cabinets without prior approval
Utilize warnings during medication removal	Configure interactive alerts that require users to enter or select clinically relevant information (e.g., purpose for drug removal, whether the patient is ventilated [for neuromuscular blockers]) prior to removal
Witness override medication removal	Require a second individual to verify the correct patient, medication, strength, route, and indication upon override removal of a select list of medications or from certain ADCs; document the verification process
Allow simultaneous searching by brand and generic names	Configure ADCs to search simultaneously by brand and generic names; if searches are limited to either brand or generic names, educate staff how to toggle between these two functions
Support distraction-free ADC medication removal	Avoid distractions and talking at the ADC while searching for and removing medications
Neuromuscular Blocker Safety Features	**Description**
Limit access	Strictly limit availability in ADCs to perioperative, labor and delivery, critical care, and ED settings; in these areas, store in a sealed box, rapid sequence intubation (RSI) kit, or locked-lidded ADC pockets
Affix warnings to ADC pockets	Place auxiliary labels on ADC pockets/drawers/lids that clearly state, **"WARNING: CAUSES RESPIRATORY ARREST—PATIENT MUST BE VENTILATED;"** the warning should be visible when ADC pockets/drawers/lids are open

Assistance with implementing these recommendations is welcomed by vendors.

Finalized guidelines for electronic communication

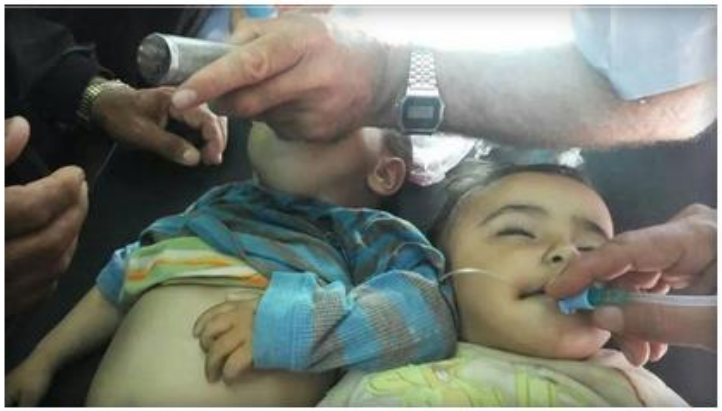
ISMP has finalized a set of *Guidelines for Safe Electronic Communication of Medication Information* (see pages 7-14), which are now posted on our website at: www.ismp.org/node/1322. We published the first draft of these guidelines in our February 20, 2003 newsletter, when implementation of electronic health records (EHRs), electronic prescribing (e-prescribing), and other health information technology (HIT)-related tools began to evolve in both inpatient and outpatient settings. These technologies are now a mainstay in healthcare, and their introduction has brought about significant changes in how medications are prescribed, dispensed, and administered. If the conventions used to communicate medication information electronically are not carefully considered, these technologies may contribute to medication errors rather than mitigate risks.

In 2015, we again examined the literature and other credible sources to identify potential confusion that is unique to electronic communication or that affects both paper and electronic records. We then updated the draft guidelines, which were published in our August 27, 2015 newsletter (www.ismp.org/node/384). We solicited and received detailed comments about the updated draft guidelines from dozens of clinicians and more than 50 large groups, including federal and state government agencies; electronic pharmacy information, health information, and prescribing system vendors; and standards-setting, professional, and international organizations. Those who submitted comments were widely supportive; however, before we could publish the finalized guidelines, changes were made in the standards associated with the e-prescribing drug name (EPN) field in e-prescribing systems, and the ISMP guidelines con-

continued on page 2— Guidelines >

AP / *September 17, 2014, 5:31 PM*

15 Syrian children die after measles vaccinations



Two Syrian children receive treatment after they were given a second round of measles vaccinations in Idlib province in this photo released Wednesday, Sept. 17, 2014, by Edlib News Network (ENN), an activist group opposed to Bashar Assad's government. EDLIB NEWS NETWORK

BEIRUT -- At least 15 children died after receiving vaccinations in rebel-held parts of northwestern Syria, while the death toll from two days of government airstrikes on a central city climbed to nearly 50, a heavy toll even by the vicious standards of the country's civil war, activists said.

The children, some just babies, all exhibited signs of "severe allergic shock" about an hour after they were given a second round of measles vaccinations in Idlib province on Tuesday, with many suffocating to death as their bodies swelled, said physician Abdullah Ajaj, who administered the vaccinations in a medical center in the town of Jarjanaz.

Most Popular

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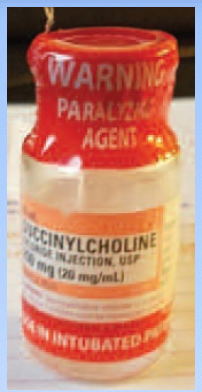
91113 *views*

05 The U.S. launches first airstrikes against ISIS in Syria.
70716 *views*

Best Practice 7
Neuromuscular blocking agents

- ISMP has received well over 100 reports concerning accidental administration of NMBs and has discussed the hazards of these agents since 1996.
- Most errors with the use of these agents have been the result of using or compounding a NMB in error instead of the intended drug.
- Inadequate labeling or unsafe storage has been the root cause of most of these errors.

Best Practice 7
Neuromuscular blocking agents



- Segregate, sequester, and differentiate all neuromuscular blocking agents (NMBs) from other medications, wherever they are stored in the organization.
  - Eliminate the storage of NMBs in areas of the hospital where they are not routinely needed.
  - In patient care areas where they are needed (e.g., intensive care unit), place NMBs in a sealed box or, preferably, in a rapid sequence intubation (RSI) kit.

Best Practice 7
Neuromuscular blocking agents

- Standardize storage throughout the organization and keep in lock-lidded pockets in automated dispensing cabinets.
- Segregate from all other medications in the pharmacy by placing them in separate lidded containers in the refrigerator or other secure, isolated storage area.
- Place auxiliary labels on all storage bins and/or ADC pockets and drawers as well as final medication containers of NMBs (e.g., syringes, IV bags) that state: **"WARNING: PARALYZING AGENT — CAUSES RESPIRATORY ARREST — PATIENT MUST BE VENTILATED"**

NDC 23360-160-08

Vecuronium Bromide for Injection

10 mg*

For IV Use Only

***1 mg/mL when reconstituted to 10 mL**

℞ only

Usual Dosage/Storage: See Package Insert.

STVEAAL 100xxxx

WARNING: Vecuronium Bromide may cause respiratory depression. Facilities for artificial respiration must be immediately available.

CHECK APPROPRIATE BOX

☐ Reconstituted with bacteriostatic Water for Injection: CONTAINS BENZYL ALCOHOL, NOT FOR USE IN NEWBORNS. Use within 5 days of:

OR

Date prepared: Time:

☐ Reconstituted with Sterile Water for Injection or compatible IV solutions (per package insert): Single use only. Discard unused portion within 24 hours of:

Date prepared: Time:

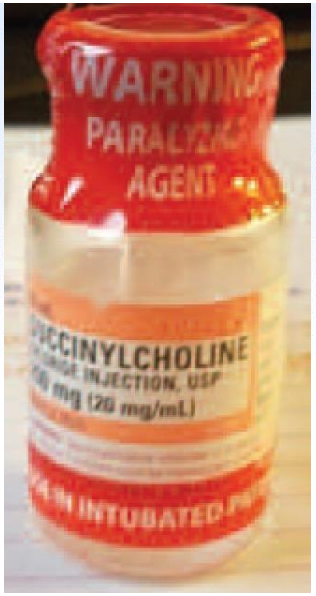
Protect from light.

Mfg for: Akorn-Strides, LLC, Lake Forest, IL 60045 **Made in India**

LOT: EXP.:

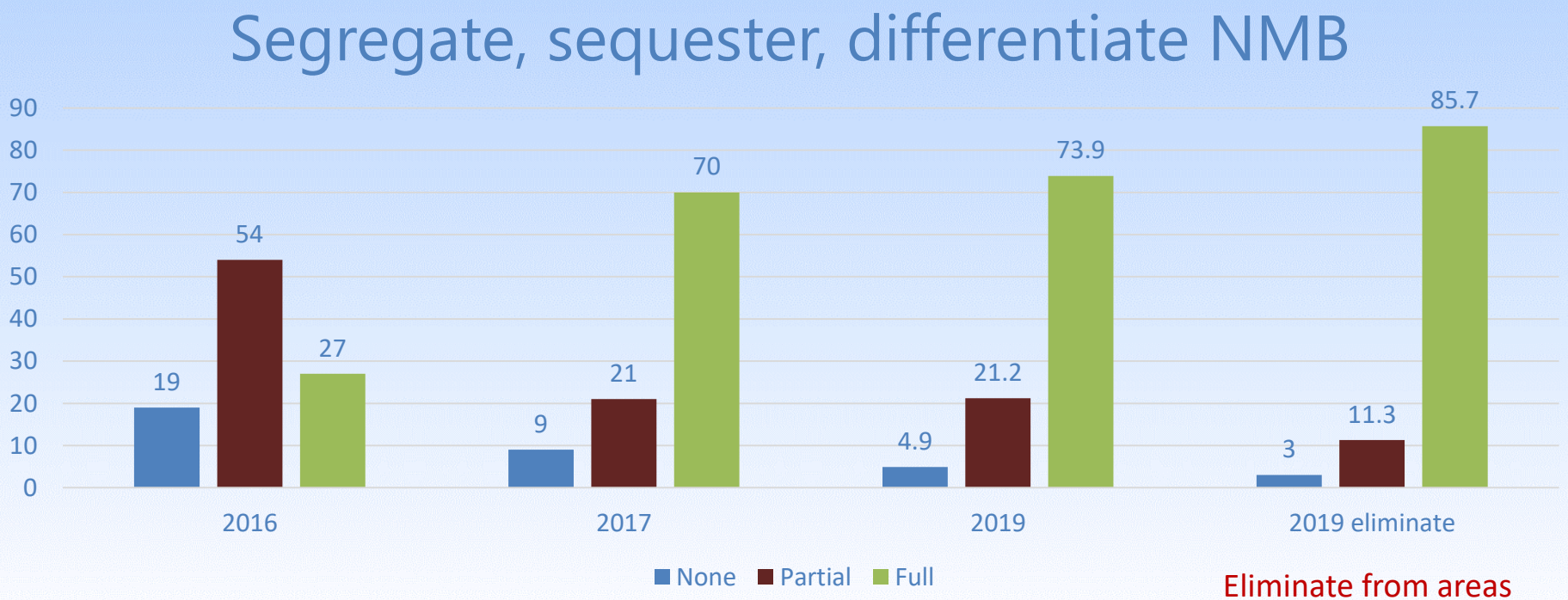
Code No.: KR/DRUGS/ KTK/28/280/95 Rev: 08/08

(01)00323360160086



WARNING:
PARALYZING AGENT - CAUSES RESPIRATORY ARREST!

Neuromuscular Blocking Agents (NMB)



Eliminate from areas where not needed

Best Practice 8

- Administer high-alert IV medication infusions via a programmable infusion pump using error reduction software

Best Practice 8
Smart pump use

- Utilize this technology to prevent infusion-related medication errors, especially when high-alert medications are administered.
- Programmable infusion pumps with dose error-reduction software (DERS) help to avert these potentially harmful errors by “remembering” the large number of “rules” and applying them during pump programming to warn about potentially unsafe drug therapy.

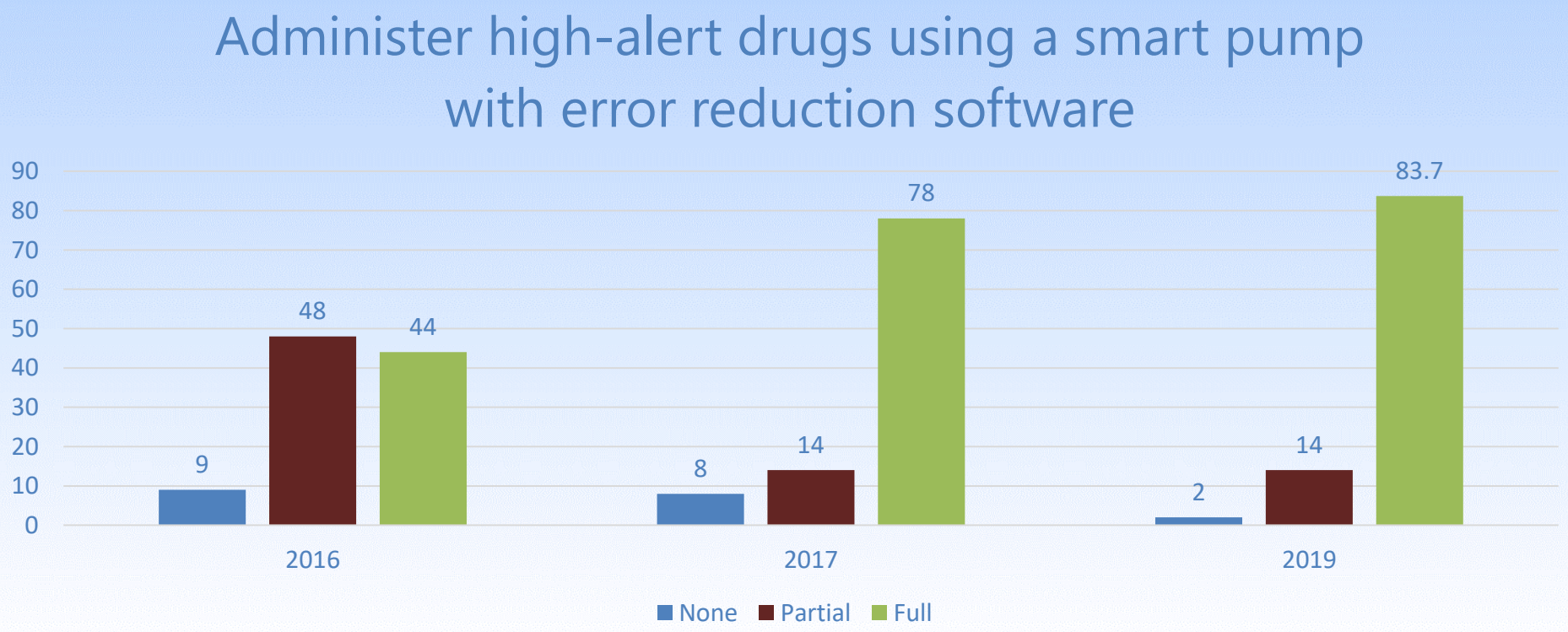
Best Practice 8
Smart pump use

- Although this technology has been available for more than 10 years, many healthcare organizations still do not utilize smart pumps in all settings or DERS is not employed.
- Many organizations now moving to interoperability with EHR, bar coding, etc.

Best Practice 8
Smart pump use

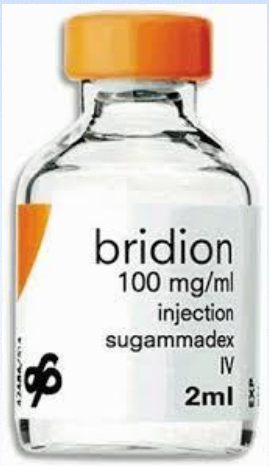
- Review new ISMP smart pump guidelines for 2020
- Ensure drug libraries are built and installed on all smart pumps and that staff are using the error reduction software.
- If smart pumps are not already in use in all areas, ensure the capital equipment budget includes the purchase of this technology as soon as possible.
- Require periodic maintenance, updating, and testing of the software and drug library for all smart pumps.
- Evaluate alerts regularly and determine if staff are responding to them appropriately

Smart Pumps


Administer high-alert drugs using a smart pump with error reduction software
90
80
70
60
50
40
30
20
10
0
9
48
44
8
14
78
2
14
83.7
2016
2017
2019
None
Partial
Full

Best Practice 9

- Identify which antidotes, reversal agents, and rescue agents should be administered immediately in emergency situations to prevent patient harm.

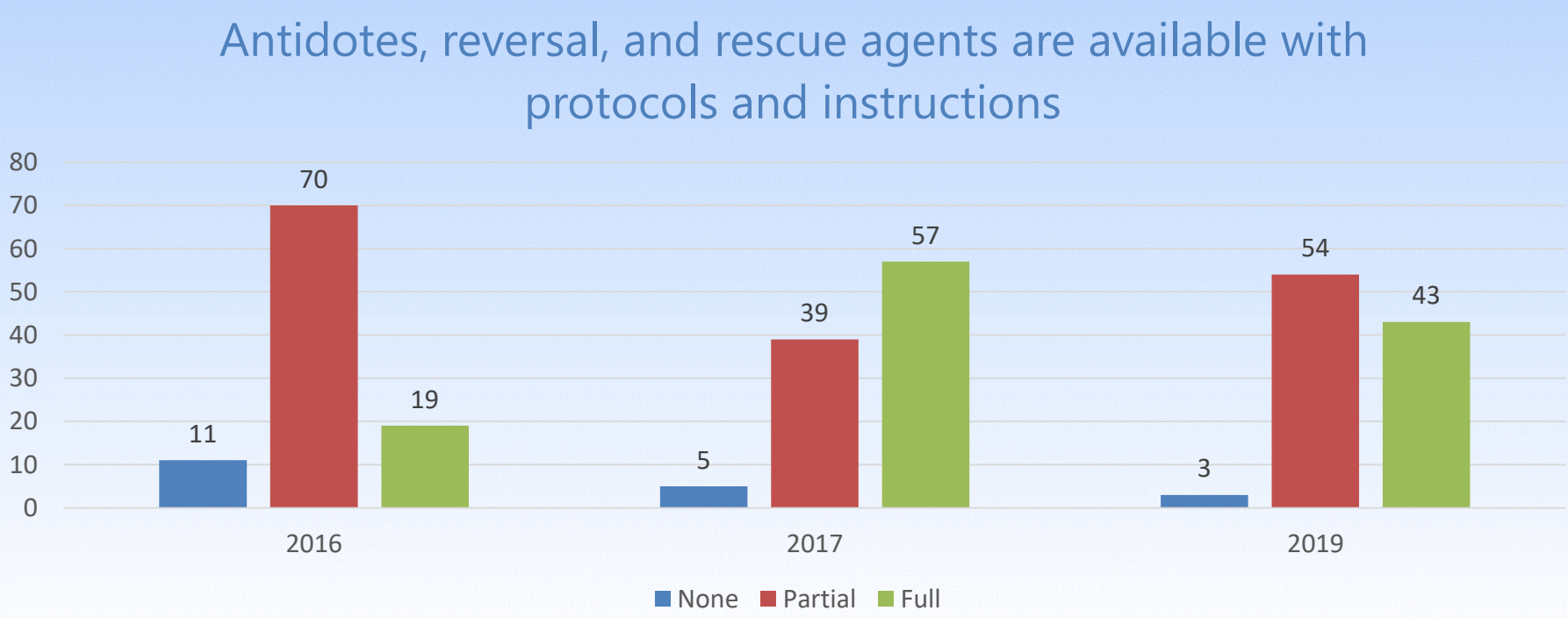


NOW APPROVED

VISTOGARD®

(uridine triacetate) oral granules

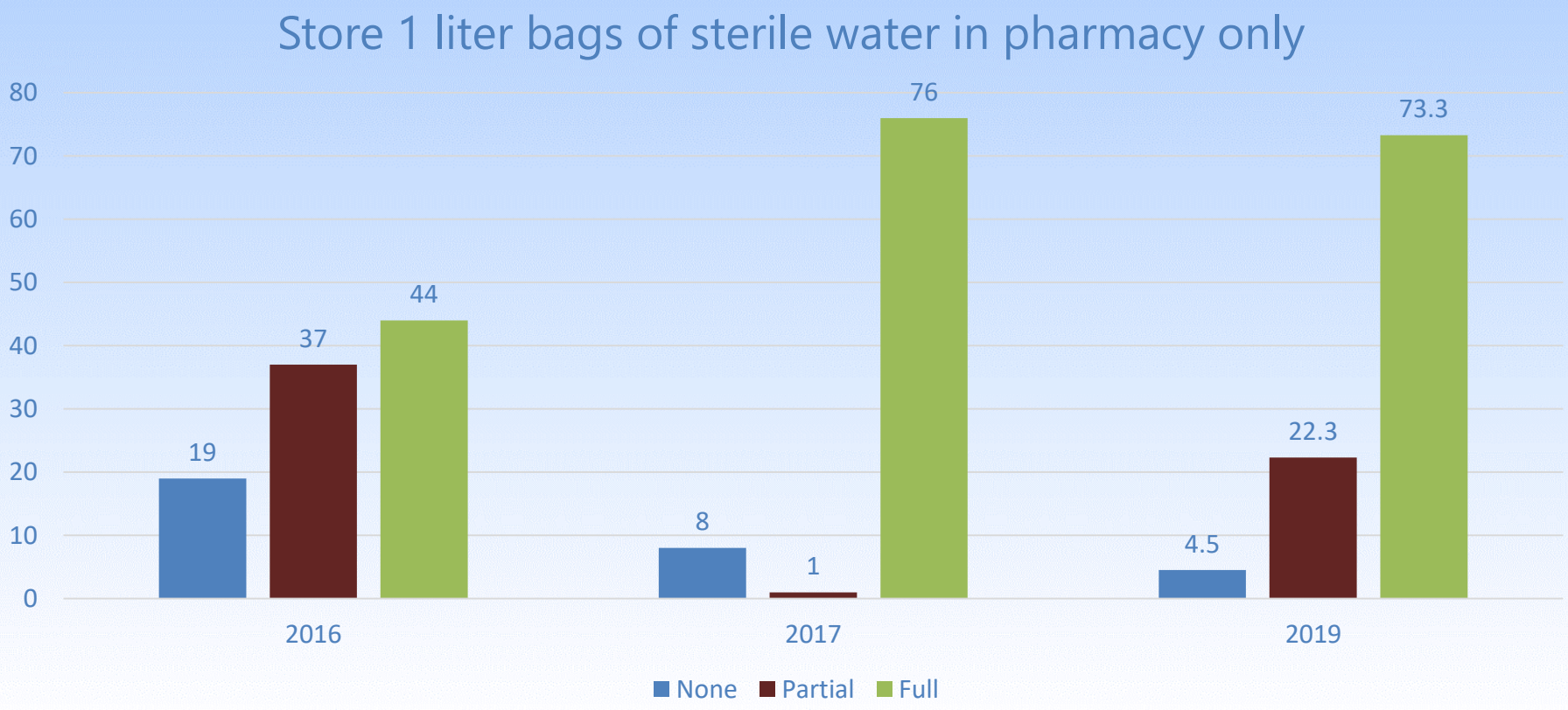
Area of Focus: Antidotes



Best Practice 10

- Eliminate all 1,000 mL bags of sterile water (labeled for "injection," "irrigation," or "inhalation") from all areas outside of the pharmacy.

Sterile Water



Best Practice 11

- Use technology to assist in the verification process (e.g., barcode scanning verification of ingredients, gravimetric verification, robotics, IV workflow software) to augment the manual processes.

- The technology is maintained, the software is updated, and that the technology is always used in a manner that maximizes its medication safety features.

Dangerous Wrong-Route Errors with Tranexamic Acid

ISMP has received multiple reports of accidental intraspinal injection of tranexamic acid.

- In the US, tranexamic acid, bupivacaine and ropivacaine have all been confused
- Though labels may look different, vials are often stored upright and only the blue cap is visible
- **Barcoding is usually not implemented in the departments where these drugs are most often used!!!!!**

Best Practice 12*

- **Eliminate the prescribing of fentaNYL patches for acute pain and in opioid-naïve patients**
  - Ensure the organization has a process in place to routinely document the patient's opioid status (naïve vs. tolerant) and type of pain (acute vs. chronic) in the health record or prescriber orders.
  - Ensure there is an implemented process to prevent or verify orders for fenta**NYL** patches in patients who are opioid-naïve or with acute pain.
    - Examples include: use of hard stops, alerts, automatic interchange, and pharmacy interventions with prescribers.

* Now part of Best Practice 15

Best Practice 13

- **Eliminate injectable promethazine from the hospital.**
  - Remove injectable promethazine from all areas of the hospital including the pharmacy.
  - Classify injectable promethazine as a non-stocked, non-formulary drug.
  - Implement a medical staff-approved automatic therapeutic substitution policy to convert all injectable promethazine orders to another antiemetic.
  - Remove injectable promethazine from all computerized medication order screens and order sets and protocols.

Introduced for 2018-2019: Promethazine

- Eliminate injectable promethazine from the hospital
  - None 40.3%
  - Partial 28.4%
  - Full 31.3%
- In process; use has been widespread, so taking time; working through Pharmacy and Therapeutics; limit to short infusion/intramuscular; many restrictions; challenges with shortages; others non-stocked item or removed; provider push back

Best Practice 14

- Seek out and use information about medication safety risks and errors that have occurred in other organizations besides your own, and take action to prevent similar errors.

New Best Practice #15

- Verify and document a patient's opioid status (naïve versus tolerant) and type of pain (acute versus chronic) before prescribing and dispensing extended-release and long-acting opioids.

New Best Practice #15

- Current Best Practice #12 (fenta**NYL** patches) has been repositioned and made part of this ***new*** Best Practice.
    - None 14.4%
    - Partial 33.3%
    - Full 52.2%

New Best Practice #16

- 16a: Limit the variety of medications that can be removed from an automated dispensing cabinet (ADC) using the override function.
- 16b: Require a medication order (e.g., electronic, written, telephone, verbal) prior to removing any medication from an ADC, including those removed using the override function.
- 16c: Monitor automated dispensing cabinet overrides to verify appropriateness, transcription of orders, and documentation of administration.
- 16d: The list of medications available using the override function is periodically reviewed for appropriateness.

New Best Practice #16

- Restrict medications available using override to those that would be needed emergently (as defined by the organization) such as antidotes, rescue and reversal agents, life-sustaining drugs, and comfort measure medications such as those used to manage acute pain or intractable nausea and vomiting.

Thank YOU!

- Our readers and reporters
- Our newsletter reviewers
- Those who take our surveys
- Everyone who shared today
- All who are passionate about medication safety!