



ZERO
PREVENTABLE HARM
FROM MEDICATIONS

Medication Safety Issues During COVID-19

CACCN

November 30, 2020

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CEO





Learning Objectives

Participants will:

- Understand the role and key activities of the Institute for Safe Medication Practices Canada (ISMP Canada);
- Describe how medication errors are a significant risk to patients and 3 reasons why;
- Identify the emerging factors that can contribute to pandemic-related medication safety issues/errors;
- Understand how to take action to proactively prevent these errors; and,
- Integrate information and strategies into practice.



ISMP Canada is an independent not-for-profit organization dedicated to reducing preventable harm from medications

Our Vision: Zero preventable harm from medications

Our Mission: to identify risks in medication use systems, recommend optimal system safeguards, and advocate for safe medication practices





Canadian Medication Incident Reporting and Prevention System (CMIRPS)

ISMP Canada, a key partner in the
CMIRPS program together with
Health Canada,

Canadian Institute for Health
Information,

Canadian Patient Safety Institute,

and Patients for Patient Safety
Canada

CMIRPS SCDPIM
Canadian Medication Incident Reporting and Prevention System
Système canadien de déclaration et de prévention des incidents médicamenteux

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Canadian Medication Incident Reporting and Prevention System

Roles of the CMIRPS Collaborating Organizations

What is CMIRPS and How Does it work?

Benefits of CMIRPS

The Canadian Medication Incident Reporting and Prevention System

The Canadian Medication Incident Reporting and Prevention System (CMIRPS) is a collaborative pan-Canadian program of Health Canada, the Canadian Institute for Health Information (CIHI), the Institute for Safe Medication Practices Canada (ISMP Canada) and the Canadian Patient Safety Institute (CPSI). The goal of CMIRPS is to reduce and prevent harmful medication incidents in Canada.

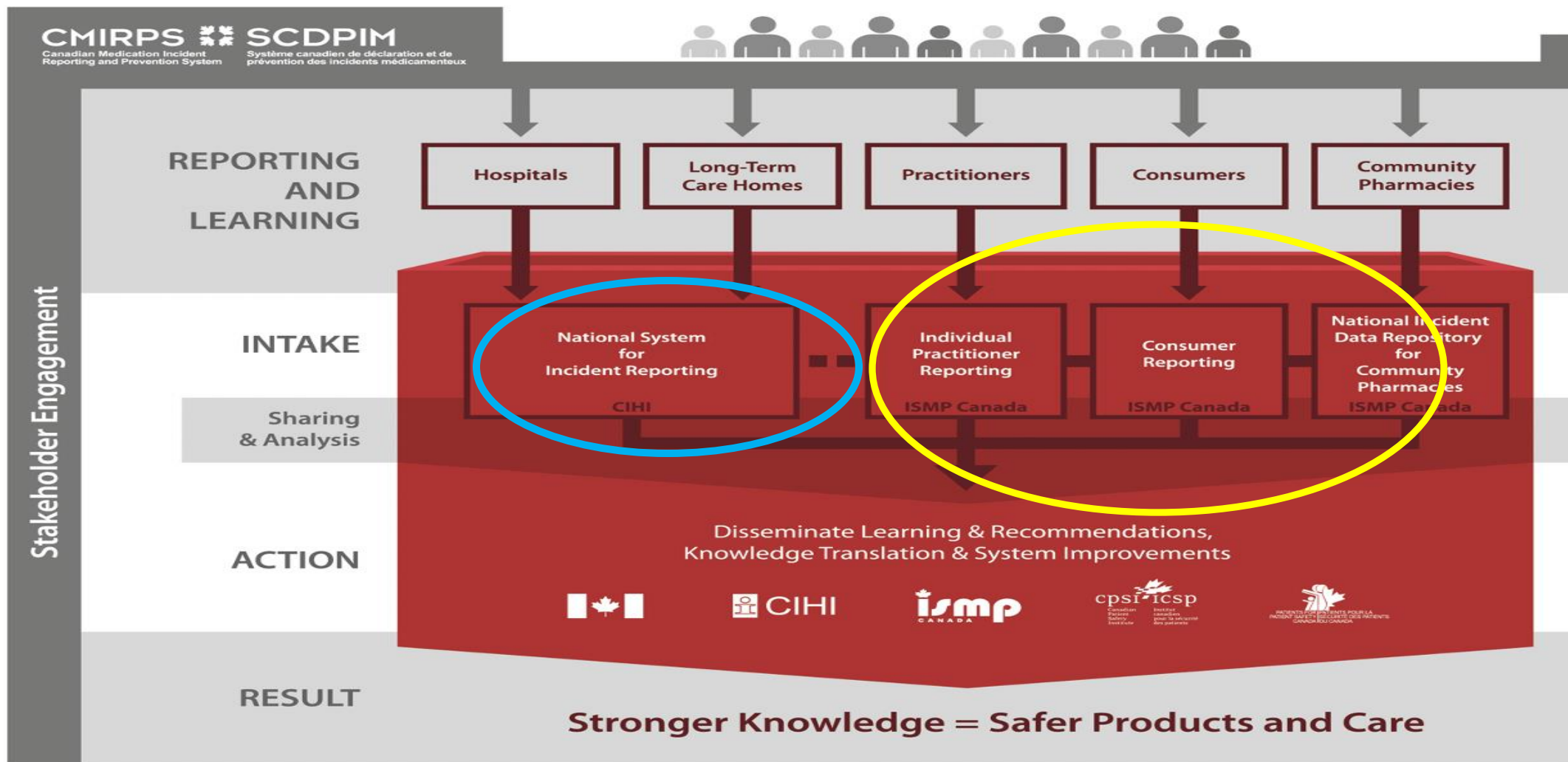
- Roles of the CMIRPS Collaborating Organizations
- What is CMIRPS and How Does it Work?
- Benefits of CMIRPS

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Contact Us: info@cmirps-scdpim.ca

ISMP Canada receives funding from Health Canada to support our role in CMIRPS

Medication Error Reporting Programs





We encourage you to report medication incidents

Practitioner Reporting



www.ismp-canada.org/err_report.htm

Consumer Reporting



www.safemedicationuse.ca/



Foundational Principles – Errors in healthcare

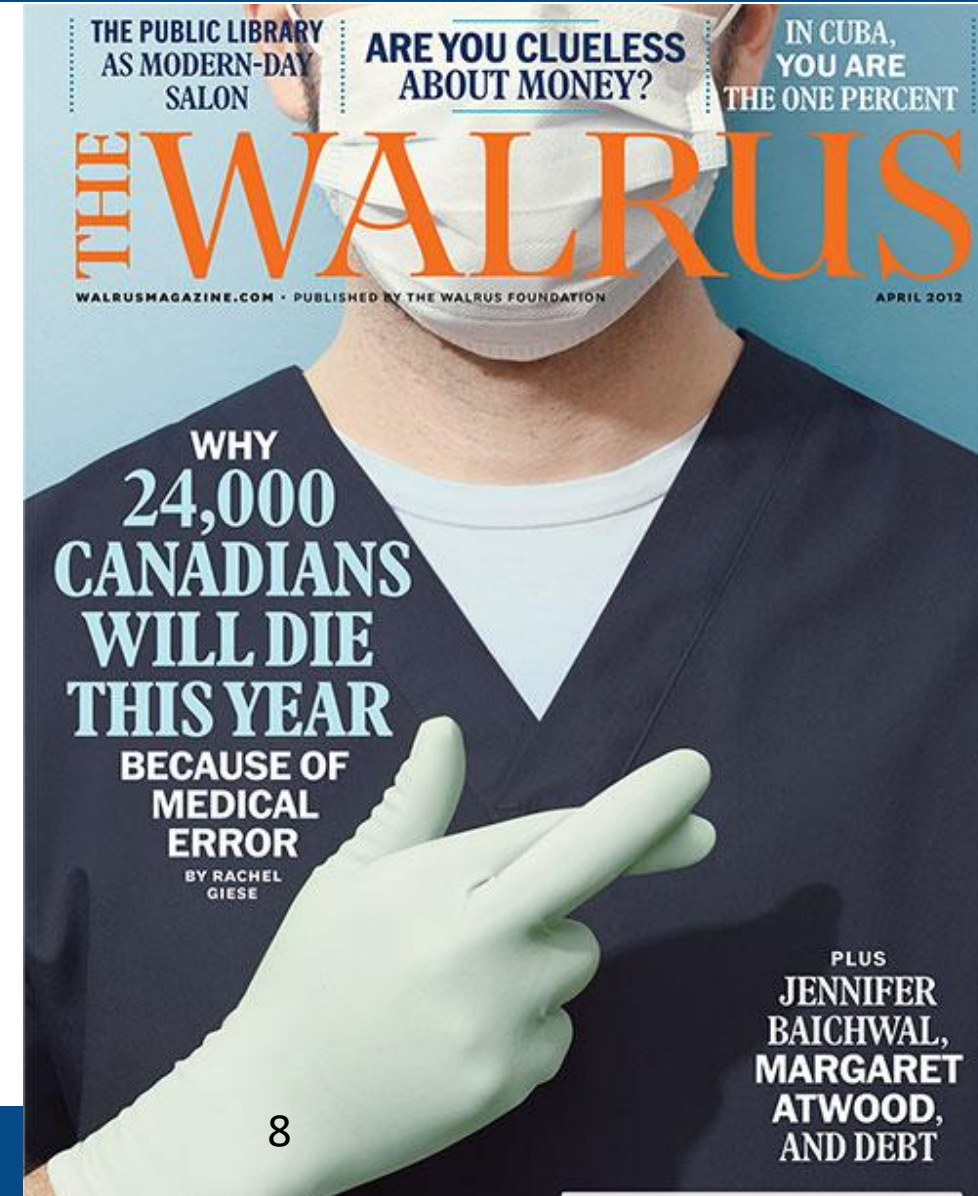
- Errors occur at all levels of healthcare.
- Anyone, even the most experienced and dedicated professionals, can be involved in a medication error.
- Errors result from a sequence of events and tend to fall in recurrent patterns regardless of the personnel involved.



The Landmark Canadian Study: Baker-Norton 2004

- 3745 charts reviewed from 5 provinces
- 360 adverse events identified in 255 patients
- **24% of adverse events were related to medication or fluid administration**
- **37% of adverse events were determined to be preventable**
 - Extrapolation:
 - This study identified that 7.5% (~ 187,500) patients in Canadian hospitals experienced adverse events as a result of their care.
 - The deaths, as a result of medical errors, of as many as 9,250 to 23,750 people in Canadian hospitals were preventable.

April 2012 feature article: <https://thewalrus.ca/the-errors-of-their-ways/>





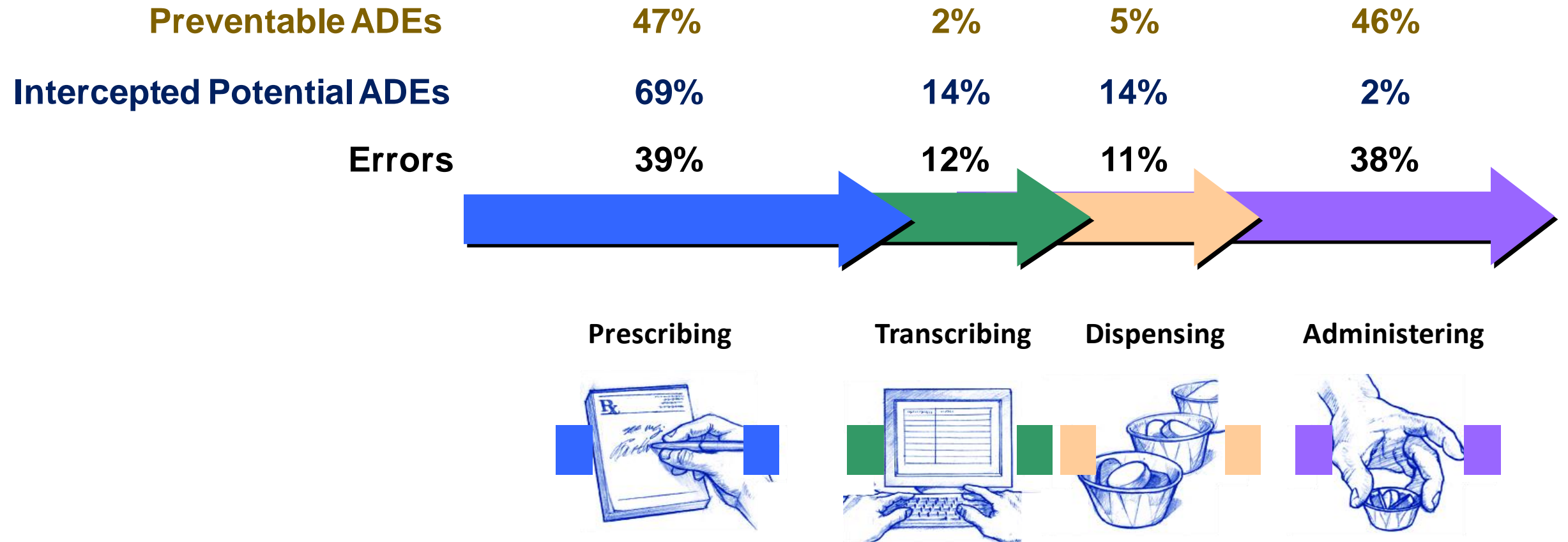
In which stage of the medication use process do you think medication errors occur most often?

1. Prescribing?
2. Order processing?
3. Dispensing?
4. Administration?



Errors During Stages in the Medication Use Process

(2 US hospitals, 1993)

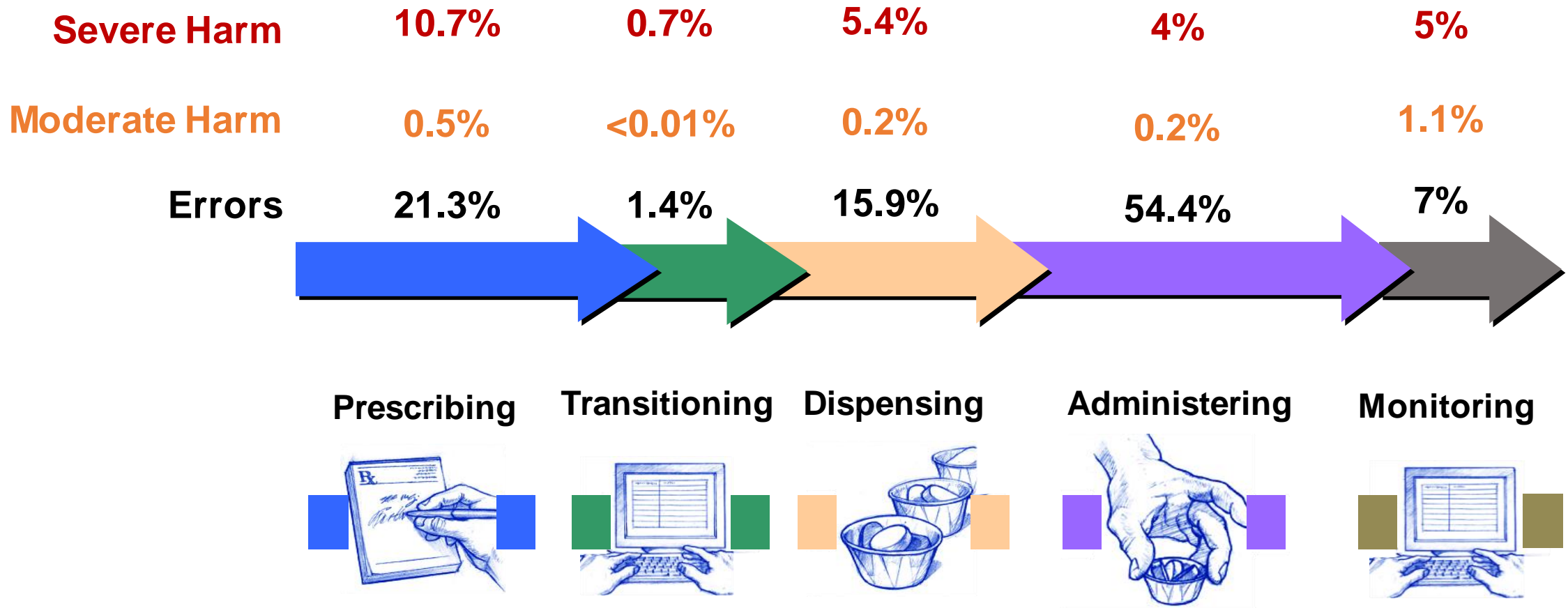


JAMA. 1995;274:35-43.



Errors During Stages in the Medication Use Process

(All care settings, England 2017-2018)



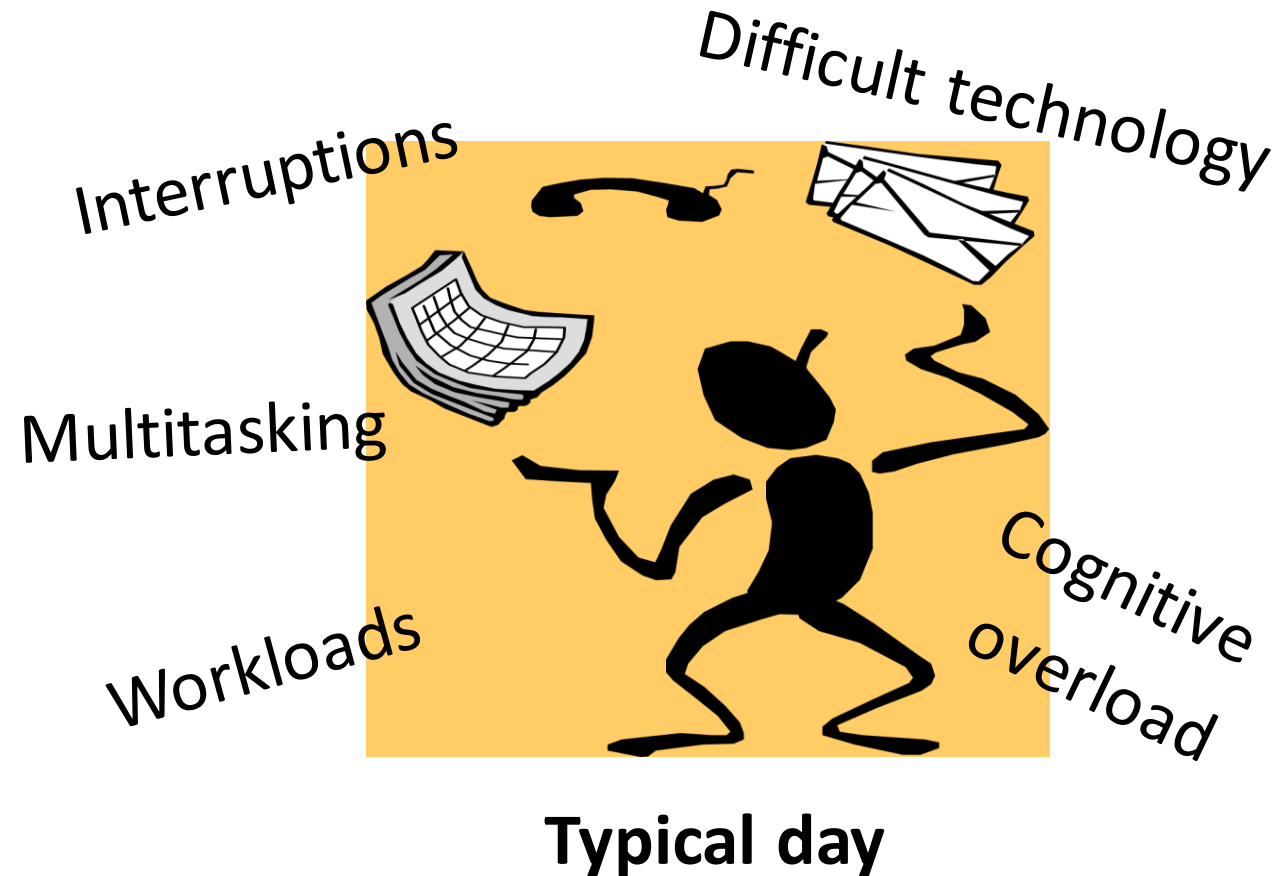
The Pharmaceutical Journal. 2019 (Feb);302(7922).



Why do errors happen?



- Expect healthcare professional to function perfectly...but imperfect system



A close-up photograph of a patient's hand resting on a light blue surface, likely a hospital bed. A clear plastic IV line is connected to the back of the hand. The background is blurred, showing other parts of the patient and medical equipment. A semi-transparent white circle is overlaid on the right side of the image, containing the text.

Risks - IV Medications

Risks – IV Medications

ISMP Canada Multi-incident
Analysis
Safety Bulletin
Volume 20, Issue 7
July, 2020

Reported medication incidents from 2015 to 2018
(n = 1583) involving IV medications – frequency of
reports by **type of incident/problem (top four)**

- Dose omission
- Incorrect dose
- Incorrect drug
- Incorrect route



Risks – IV Medications

ISMP Canada Multi-incident
Analysis
Safety Bulletin
Volume 20, Issue 7
July, 2020

Table 1. Top 10 medications most frequently reported to be involved in IV medication incidents

Medication Name (Common Name)	Frequency
piperacillin/tazobactam	9.7%
vancomycin	8.8%
cefazolin	7.4%
morphine	6.8%
heparin	6.8%
ceftriaxone	5.5%
hydromorphone	5.2%
furosemide	3.9%
pantoprazole	3.2%
metronidazole	2.5%

Figure 1. Top 5 medications most frequently reported to be involved in IV medication incidents causing harm



- Morphine
- Heparin
- Hydromorphone
- Piperacillin/tazobactam
- Vancomycin

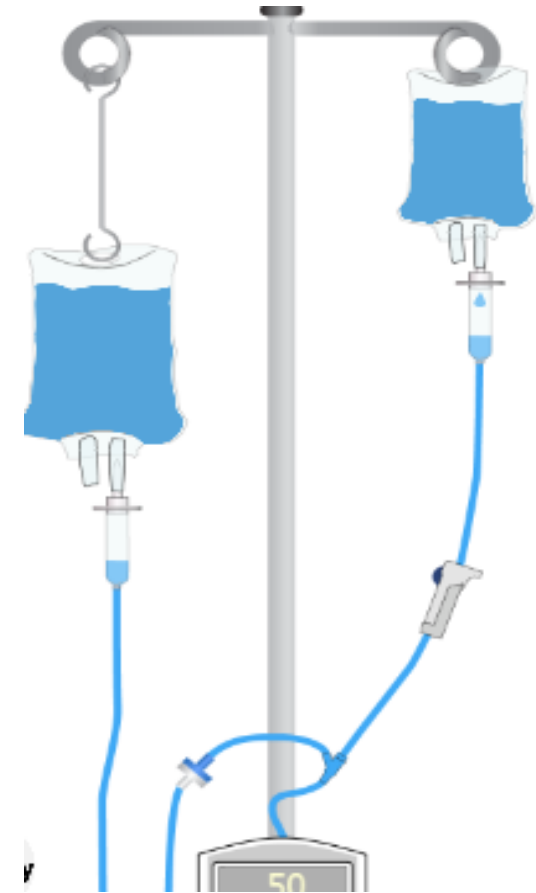


IV Pump Errors

Errors in **setting up and programming dose and/or rate** of administration of medications (including high alert meds)

Errors related to **setting up and using various types of tubing and filters**, including secondary intermittent IV infusions

- ISMP Canada Analysis
- Ontario Health Technology Assessment Series (Multiple Intravenous Infusions); Vol. 14: No. 5, pp. 1–163, May 2014





IV Pump Errors

Errors in **overdosing or underdosing** related to high concentration medications diluted in a low volume (usually 100 mL or less) administered intermittently

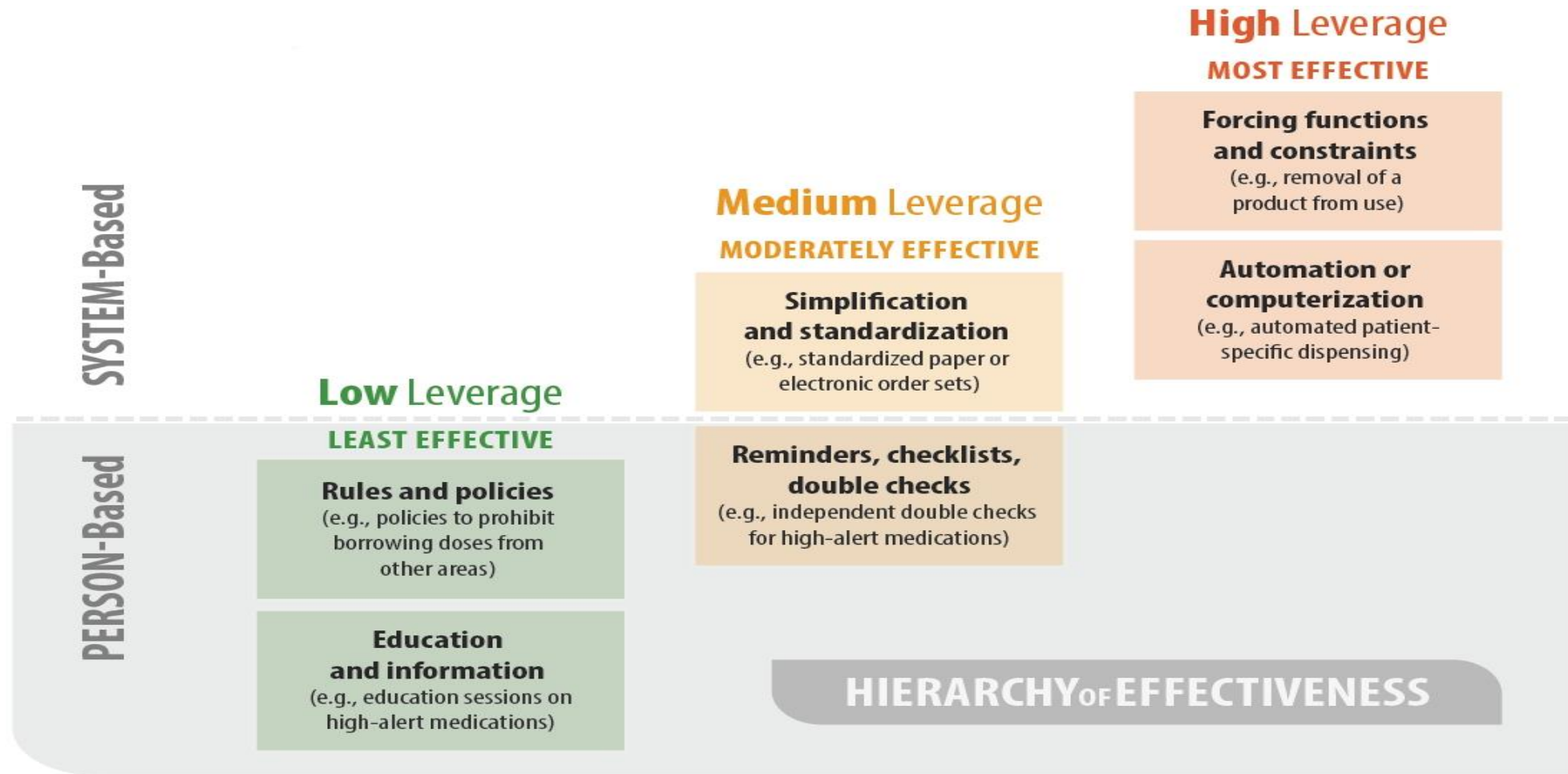
Errors when **dead volume in tubing not considered** for administering IV syringe doses, titrating IV medications, or monitoring/taking action when an adverse reaction occurs

- ISMP Canada Analysis
- Ontario Health Technology Assessment Series (Multiple Intravenous Infusions); Vol. 14: No. 5, pp. 1–163, May 2014





Taking effective action to improve patient safety



Designing Effective Recommendations. Ontario Critical Incident Learning Bulletin, 2013. Available from: https://www.ismp-canada.org/download/ocil/ISMPCONCIL2013-4_EffectiveRecommendations.pdf.



COVID-19 Med Safety Issues

Learning from Practitioner
Reports and Other Sources





Critical Care

Report

- IV push of hydromorphone
- Blood pressure

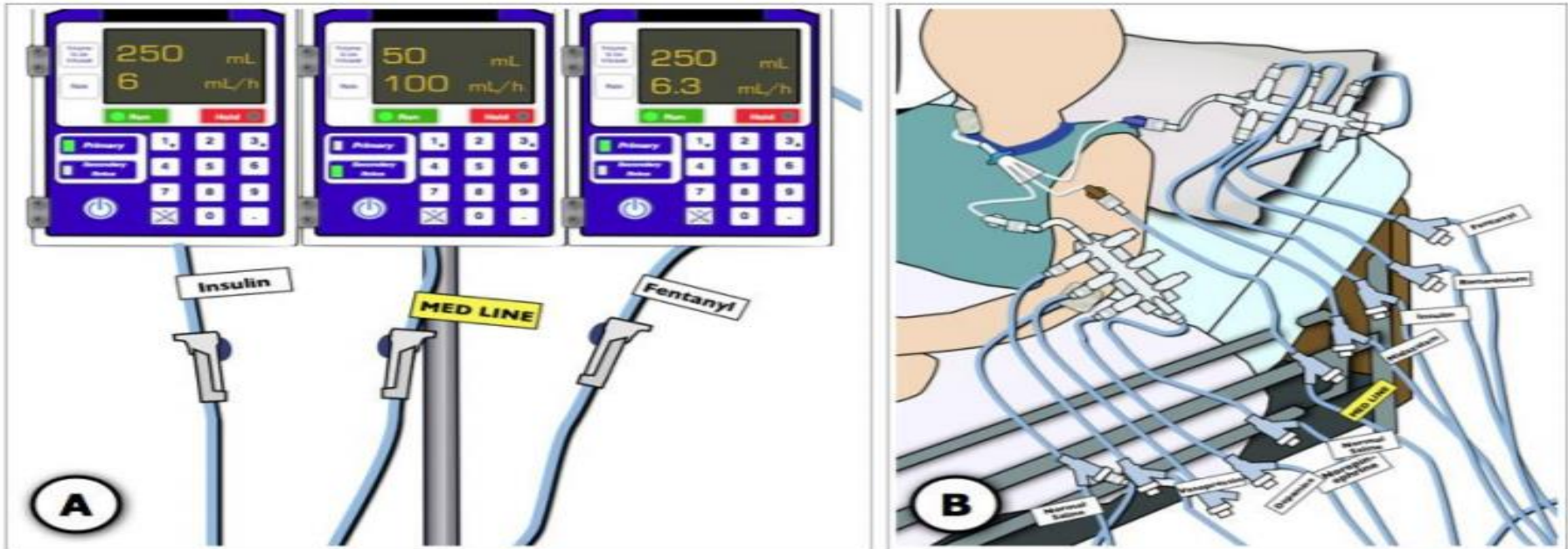


- Pushed into a line dedicated for norepinephrine
- IV pumps located outside patient room





Preventing Errors - Multiple IV Lines



Pinkney S et al. Multiple Intravenous Infusions Phase 2b: Laboratory Study. 2014. Available from:
<https://www.hqontario.ca/Portals/0/Documents/evidence/reports/full-report-phase2b-mivi-140505-en.pdf>



Risks – Extended Tubing



Risks associated with moving IV pumps into hallway to reduce PPE use during COVID-19

- Incorrect patient (action - additional pt band taped to inside of glass door for scanning)
- Incorrect medication (action - all meds scanned in addition to patient band with 2 nurse independent check when initiating or adjusting high alert meds)

Shah AG et al. Crit Care Explor. 2020 Jul 30;2(8):e0168.

[Relocating IV Pumps for Critically Ill Isolated Coronavirus Disease 2019 Patients From Bedside to Outside the Patient Room \(nih.gov\)](https://www.nih.gov)



Risks – Extended Tubing

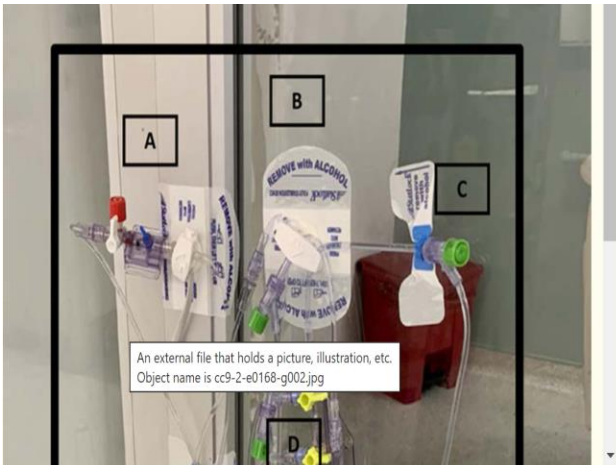


Figure 2.

Manifold secured externally by foley anchor. A, Arterial line; B, Foley anchor; C, Stat-lock; D, Manifold with needleless ports with infusions; and E, Infection control caps.

[Open in a separate window.](#)

- Requires increase volume of drug or carrier fluid which may delay med delivery and patient response
- Possible increased waste of medications during a time of potential shortages
- IV line resistance and impact on rate accuracy
- “Alert fatigue” when infusing at high rates
- Possible delayed alarms when infusing at very low rates
- Possible increased risk of infections (tubing hanging down or inadvertently on floor)
- Risk of tripping staff

Shah AG et al. Crit Care Explor. 2020 Jul 30;2(8):e0168.



Risks – Extended Tubing

Recent reports from ECRI (US based patient safety organization) and ISMP (US)

- Decision to use extended IV sets for hallway infusion need to be carefully considered at each facility due to risks
- Either microbore or macrobore extension sets (in series and access ports protected with caps)
- ECRI tested major large-volume infusion pumps with 20 feet microbore tubing with acceptable pump performance with rates between 5 to 300 mL/hr

ECRI Report, 04/01/2020 (see also free online video)

[ECRI_COVID-19_Alert_S0392.pdf](#)
[COVID-19](#)

ISMP Report, 04/03/2020

[Clinical Experiences Keeping Infusion Pumps Outside the Room for Patients](#) | [Institute For Safe Medication Practices \(ismp.org\)](#)

Make it easier to do the right thing with IVs in clinical practice



Ensure independent double checks are at key and high risk points of selection and administration (automate where possible)



Minimize variability by standardizing concentrations and dose strengths to the minimum needed to provide safe care (try to obtain prepared solutions from manufacturers and/or onsite pharmacy)



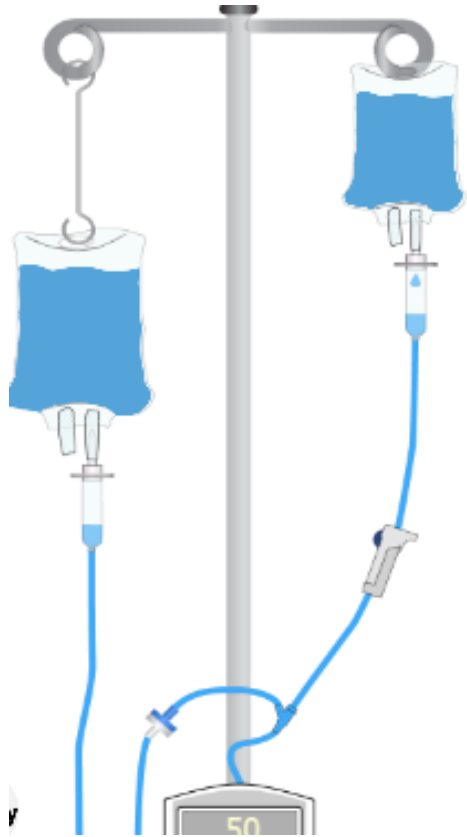
Label admixed bags with critical and useful information – in order of workflow/programming – no extra info and test with end users!



Differentiate IV and epidural infusions...do not use multi-channel pumps for simultaneous administration of IV and epidural infusions



Immediately stop and discard all discontinued infusions



Make it easier to do the right thing with IVs in clinical practice

- Continue to leverage technology through dose error reduction software (DERS)
- Identify and implement evidence-informed drug libraries – build consensus with clinicians to limit options to the lowest number needed for safe care – incorporate hard dosing limits, warnings, and TALLman lettering
- As capability and capacity develop – spread the use of barcoding and implement interoperability between electronic health record and IV pumps
- Mind the drip!



Critical Care – Drug shortages



Institute for Safe Medication Practices Canada
REPORT MEDICATION INCIDENTS
Online: www.ismp-canada.org/err_index.htm
Phone: 1-866-544-7672

A KEY PARTNER IN

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ISMP Canada Safety Bulletin

Volume 20 • Issue 5 • May 29, 2020

Propofol 2% (20 mg/mL): Safety Considerations for Introducing a Novel Product into Hospitals

Some Canadian hospitals will need to begin using an imported double-strength (2% or 20 mg/mL) propofol 100 mL product because there is a shortage of the 1% (10 mg/mL) propofol 50 mL and 100 mL products. To mitigate the risks associated with introducing this novel

Drug shortages are one of the critical issues arising from the COVID-19 pandemic. The increased worldwide demand for high-alert drugs used in the care of intubated and mechanically ventilated patients has heightened the risk of a shortage of these

ALERT!

A 2-fold overdose of propofol can result in hemodynamic instability, cardiovascular collapse, and death.

Potential shortage of Propofol **1%**
(50mL and 100 mL)

Import of new concentration -
Propofol **2% (100 mL)**

Key risk – healthcare providers in
Canada have never had access to
Propofol 2% before



Critical Care – New Concentration Propofol



Figure 1. Propofol 2% 100 mL product imported from Europe under a Health Canada Interim Order (photograph courtesy of Fresenius Kabi Canada). ISMP Canada Safety Bulletin, May 2020

Safety Considerations

(examples only, see **Bulletin for complete list**)

- ✓ Develop an interprofessional team to assess the risks and develop local strategies to address them
- ✓ Designate where the new concentration will be used and how (consider pt transfers)
- ✓ Consider and implement changes to electronic procurement and dispensing systems (such as alerts)
- ✓ Update order sets, protocols and policies



Critical Care – New Concentration Propofol

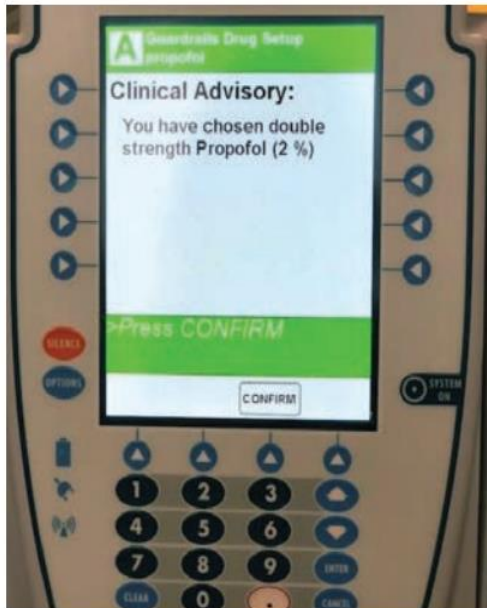


Figure 2.
Example of
a clinical
advisory alert
for infusion
pump library
(courtesy of
Sinai Health).

ISMP Canada Safety Bulletin, May 2020

Safety Considerations

(examples only, see Bulletin for complete list)

- ✓ Update all pump libraries, including optimization of the drug error reduction software and alerts
- ✓ Consider adding an auxiliary warning label to the 2% product

CAUTION:
DOUBLE-STRENGTH PROPOFOL
For ICU use ONLY

- ✓ Develop an education and communication plan, including unit-based safety huddles



Learning from Consumer Reports Related to COVID-19



Hand Sanitizers that Look Like Drinks





Consumer Alert



Institute for Safe Medication Practices Canada
REPORT MEDICATION INCIDENTS
Online: www.ismp-canada.org/err_index.htm
Phone: 1-866-544-7672

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ISMP Canada Safety Bulletin

Volume 20 • Issue 3 • May 1, 2020

ALERT: Hand Sanitizers That Look Like Drinks

In this time of shortages across the country, many companies have taken up the call to manufacture hand sanitizers, so there is greater access to these products. There is a risk that hand sanitizer will be swallowed by accident by an adult or child when it is provided in containers that are usually used for drinks such as soda, water, and alcoholic beverages.

INCIDENT

ISMP Canada received a recent report from a concerned consumer about a hand sanitizer (Figure 1) being sold in a grocery store. He picked up a bottle thinking it contained a drink but soon realized it was hand sanitizer. The consumer shared that the product inside the bottle was a liquid, not a gel—it looked just like water. He was concerned that the product would be mistaken for water and ingested.

in their ability to create or find appropriate packaging. For example, the manufacturer of the product in Figure 1 has reported difficulty in obtaining bottles normally used for household products. Instead, the manufacturer is distributing its hand sanitizer in 2-litre bottles (as shown) and 500-mL containers commonly used for drinks like soda and water. Others are using containers that are already available in their pre-pandemic production processes, such as wine and liquor bottles¹ (Figures 2 and 3). In some cases, the labels and branding are similar to known alcoholic beverages, possibly increasing the risk of accidental poisoning.

Another potential concern is the reduced ability for consumers to recognize that the product is not intended for drinking because of its taste. Most hand sanitizers contain alcohol that has been deliberately





Consumer Information

SafeMedicationUse.ca
SUPPORTED BY HEALTH CANADA

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Consumers Can Help Prevent
Harmful Medication Incidents

SafeMedicationUse.ca Newsletter

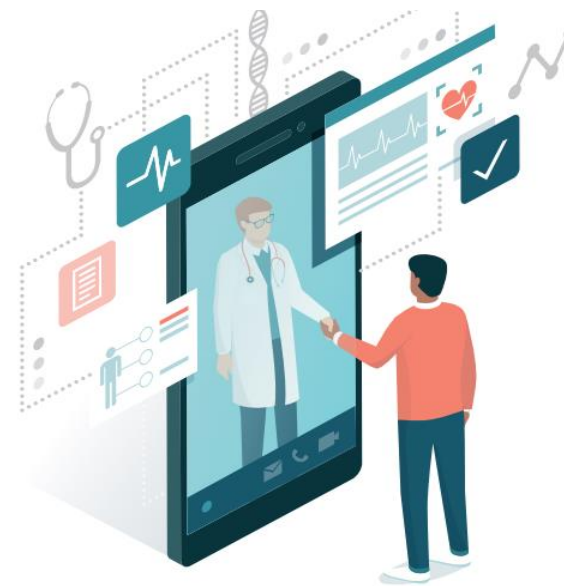
Volume 11 • Issue 4 • April 15, 2020

How to Prepare for a Virtual Meeting with Your Health Care Provider

During the COVID-19 pandemic, many health care providers have started speaking with patients by phone or video call, instead of having in-person appointments. Even hospital staff are starting to use technology to communicate with their patients. They are doing this as a way to maintain physical distancing, because the virus can easily be spread from one person to another.

If you have an appointment for a “virtual meeting” it’s important for you to be prepared. Before the meeting, collect the following information:

- Your symptoms and what you are worried about.
- Ongoing health issues, including pre-existing conditions (for example, diabetes or heart disease).
- Allergies to medications, foods, or environmental factors.





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PREVENTABLE HARM
FROM MEDICATIONS

Thank you!

Carolyn.hoffman@ismpcanada.ca

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