Medication Safety During the COVID-19 Pandemic: What Have We Learned in the United States?

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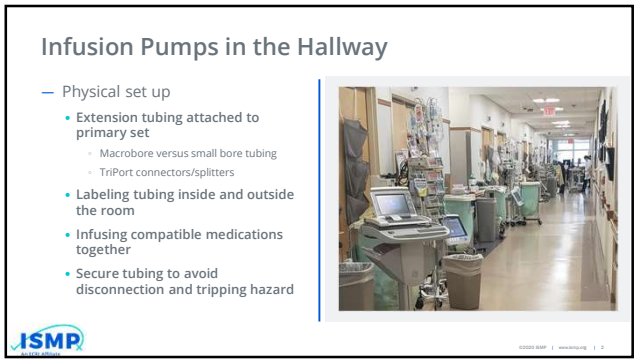

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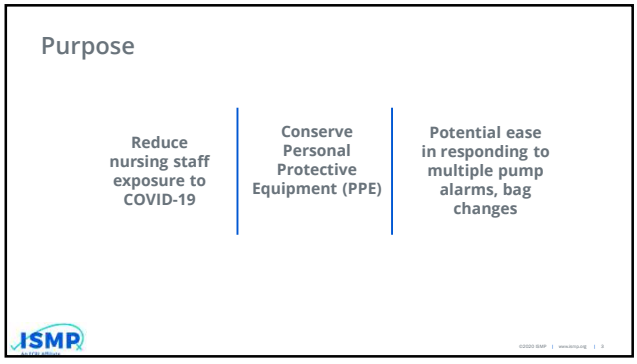

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Risks and Challenges

- Shortage of extensions sets
- Occlusion alarms
  - **May be delayed at low flow rates (e.g., below 5 mL/hour)**
  - **More frequent alarms at high flow rates (e.g., 300 mL/hour)**
- Flow rate accuracy (under infusion) due to downstream resistance with some pumps
- Increased priming volume necessary with multiple extension sets
  - **Much/all of the volume of secondary infusions may remain in the tubing**
  - **Need to know total tubing volume**
  - **Carrier fluid lines and flushing procedures**

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Risks and Challenges

- Impact on barcode scanning
  - **Scanning of proxy patient ID band placed on the hallway pump**
  - **Labeling pumps with patient name and date of birth**
- Independent double check considerations
  - **Tracing of infusion lines**
  - **Dual signature in HER**
- Negative pressure rooms
- Availability of power outlets in hallway
- Placing pumps in the hallway should be limited to single patient/room

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Planning for anticipated shortage of pumps/ infusion administration sets

- Develop list of medications that require use of smart infusion pumps
  - **See ISMP list of High-Alert Medications for drugs most likely to cause harm with accidental over or underdose**
    - Consider vasopressors, opioids, insulin, IV sedation/anesthetics, neuromuscular blockers, antithrombotics, "Highly Concentrated" potassium chloride injection (potassium riders), etc.
- Use syringe pumps if available
  - **Nursing familiarity, syringe brand, volume, priming, etc.**
- Use any pumps, even without a drug library
- Use pumps from other manufacturers
- Special considerations
  - **Some pumps may be located "off the beaten track" (radiology, procedural areas, perioperative areas, etc.)**

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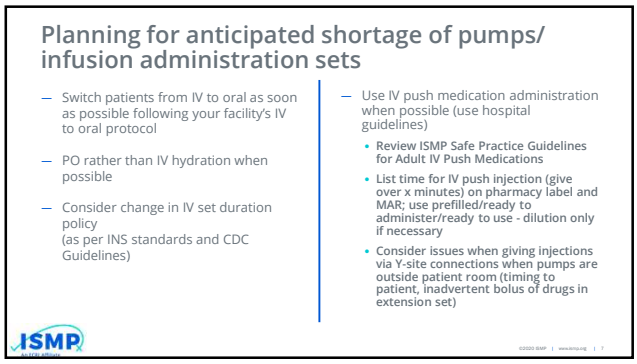

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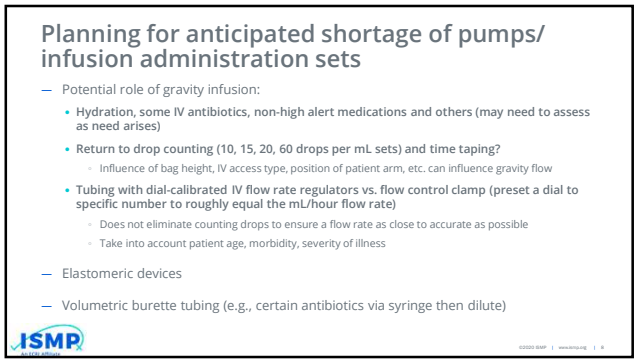

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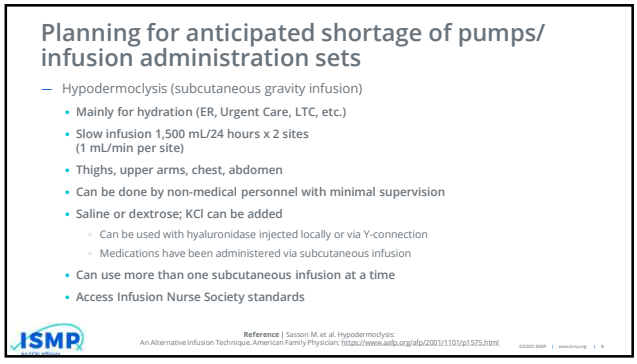

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Patient taking hydroxychloroquine right after discontinuing azithromycin develops QTc prolongation and cardiac arrest

Special Edition Newsletter: April 9, 2020
https://ismp.org/acute-care/special-edition-medication-safety-alert-april-9-2020/covid-19

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Problem

- On admission to the hospital, this patient's ECG showed a QTc interval of 460 ms. A borderline QTc for women is between 451-470 ms, and an abnormally long QTc is above 470 ms.
- The day oral hydroxychloroquine was started, the patient's ECG showed a QTc of 490 ms. Three days later, the patient's QTc was 515 ms.
- On the fifth and last day of taking hydroxychloroquine, the patient experienced ventricular fibrillation and coded.

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Safe Practice Recommendations

- This adverse event reinforces ECG monitoring of all patients who receive these medications in combination (or close together).
- Azithromycin has a half-life up to 72 hours, hydroxychloroquine up to 40 days, and chloroquine up to 5 days.
- Discontinuing one drug and starting another too soon may result in a similar adverse event.

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Independent double check

Special Edition Newsletter: May 14, 2020
https://ismp.org/acute-care/special-edition-medication-safety-alert-may-14-2020-covid-19

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Problem

- Need to conserve personal protective equipment (PPE) had led to consideration of suspending or modifying independent double checks at the bedside prior to administration of high-alert medications to COVID-19 patients.
- Abandoning independent double checks and making changes to the requirements to document in electronic health records (EHRs) compromises patient safety and can lead to unsafe practice habits in the future.

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Safe Practice Recommendations

- Consider placing fewer independent double checks strategically at the most vulnerable points of the medication use process.
- Also, video conferencing technologies can be utilized to allow independent double checks to be conducted virtually especially in the pharmacy.
- This technology can reduce the number of people in the cleanroom, it will also reduce the need for PPE.

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Failure to engage barcode medication administration (BCMA)

Special Edition Newsletter: May 14, 2020
https://ismp.org/acute-care/special-edition-medication-safety-alert-may-14-2020-covid-19

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Problem

- A hospital noticed that several COVID-19-related errors were undetected before reaching patients due to a failure to engage BCMA at the bedside.
- These errors were associated with COVID-19-induced staffing changes, which resulted in redeploying operating room (OR) nurses, who were not familiar with BCMA, to other patient care units.
- One error involved a redeployed OR nurse who administered an albuterol inhaler instead of the intended **BREO ELLIPTA**(fluticasone furoate and vilanterol) inhaler after failing to use the unfamiliar BCMA technology.

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Safe Practice Recommendations

- The hospital learned that redeployed nurses require orientation to the patient population, technologies, processes, and medications typically used on the newly assigned unit.

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Medication Safety During the COVID-19 Pandemic: What Have We Learned in the United States?

Leadership support is vital

Special Edition Newsletter: May 1, 2020
https://ismp.org/acute-care/special-edition-medication-safety-alert-may-1-2020/covid-19

19

Problem

- As caregivers work in under-resourced environments and deal with the ever-increasing threat of risk of infection during this stressful, unpredictable COVID-19 crisis, they look to leadership for support for their well-being, health, and safety.



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Safe Practice Recommendations

- **Creating** a safe haven
- **Creating** an environment of trust and fairness to restore fair and just compassion
- **Balancing** critical information with positive updates to help employees establish a positive mindset
- **Communicating** transparently
- **Being** a visible leader
- **Providing** opportunities for connectedness
- **Encouraging** employee self-care

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Medication Safety During the COVID-19 Pandemic: What Have We Learned in the United States?

Revisiting the need for MDI common canister protocols

Special Edition Newsletter: March 26, 2020
https://ismp.org/acute-care/medication-safety-alert-march-26-2020/covid-19

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Problem

- Patients infected with the coronavirus (COVID-19 virus) often require inhaled bronchodilator medications (e.g., albuterol, levalbuterol).
- Because nebulizer therapy with bronchodilators for presumptive or confirmed COVID-19 patients may not be safe due to the generation of aerosols, which increases the risk that respiratory droplets will remain in the air and spread the virus, delivery of these drugs via metered-dose inhalers (MDIs) is preferred.
- As a result, use of these inhalers has skyrocketed during the pandemic and there is concern about inhaler drug shortages.

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Safe Practice Recommendations

- If a decision is made to move forward with a common MDI canister protocol, we encourage organizations to carefully analyze the process being considered to prevent inadvertent sources of transmission and to emphasize in the protocol the importance of hand hygiene and dual canister disinfection.
- Organizations should consider excluding patients with presumptive and confirmed COVID-19 infection, or at least segregating common canisters used by presumptive and confirmed COVID-19 patients from those used for the general patient population.
- ISMP continues to encourage manufacturers to provide smaller "institutional" containers of MDIs to prevent unnecessary waste and lower the cost.

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Medication Safety During the COVID-19 Pandemic: What Have We Learned in the United States?

Pharmacist Order Verification Tips

Special Edition Newsletter: April 3, 2020
https://ismp.org/acute-care/special-edition-medication-safety-alert-april-3-2020-covid-19

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Problem

- When verifying medication orders, hospitals have suggested that pharmacists can help in the efforts to reduce the frequency of staff entering patient rooms and/or limit the time spent in the room, thus conserving personal protective equipment (PPE) and reducing staff exposure.
- By considering these strategies during order verification, pharmacists can also conserve medications, compounding materials, and administration sets that may be in short supply.

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Safe Practice Recommendations

- Consider recommending alternate methods of infusion
- Switch patients from IV to oral
- Use IV push medication administration
- Coordinate and limit medication administration times
- Review appropriate use of metered-dose inhalers (MDIs) or nebulizer therapy
- Use alternatives for medications in short supply
- Review COVID-19 treatment closely

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ISMP
Institute for Safe Medication Practices
An ECRI Affiliate

Remdesivir drug labeling confusion

Special Edition Newsletter: May 14, 2020
https://ismp.org/acute-care/special-edition-medication-safety-alert-may-14-2020-covid-19

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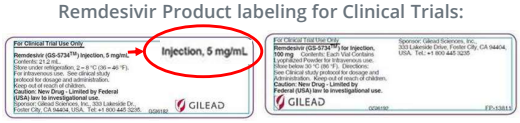
Remdesivir Product labeling for EUA:

Liquid	Lyophilized
	
Both the carton and label say: 100 mg/20 mL (5 mg/mL) and "must be diluted prior to use" Requires refrigerated storage	Both the carton and label say: 100 mg/vial and "must be reconstituted and diluted prior to use" Requires storage below 30 °C (86 °F)

Remdesivir Product labeling for Clinical Trials:



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Error

The technician inadvertently used 2 vials to prepare each subsequent remdesivir dose, exactly as he had just done minutes before when preparing several loading doses.

A pharmacist failed to catch the error during the checking process (there was no barcode available to scan on the vials), and the erroneous 200 mg doses (which were labeled as 100 mg doses) were administered to multiple patients that day.

ISMP

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Problem

- ISMP received a report last week about a hospital compounding issue due in part to label confusion with the investigational drug remdesivir.
- Some facilities have received this drug, manufactured by Gilead Sciences, under a compassionate use program during a period of expanded access and through an emergency use authorization (EUA) program issued by the US Food and Drug Administration (FDA).

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Safe Practice Recommendations

- To prevent errors, consider adding a printed barcode label to each remdesivir container so barcode scanning can be used for product and dose verification.
- Pharmacies may also want to consider affixing an auxiliary label to remdesivir injectable solution vials to note the total amount of drug (100 mg) contained within if it is not clear.
- Also provide prescribers, pharmacy staff, and nurses with a Fact Sheet[1] and/or Pharmacy Guide[2] on remdesivir provided by the manufacturer.

1. https://www.gilead.com/-/media/files/pdfs/remdesivir/eua-fact-sheet-for-hcps_01may2020.pdf
2. https://prodremds03.azurewebsites.net/us/downloads/remdesivir_pharmacy_guide.pdf

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Importing drugs from other countries during COVID-19

- Propofol 2% (Fresenius Propoven) when only 1% has been available in US

Fresenius Propoven 2% (propofol 20 mg per mL) Emulsion	Diprivan Injectable Emulsion, USP 10 mg per mL
	

- Distribution of neuromuscular blockers (vecuronium and rocuronium) without normal wording on vial caps

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