Implementation of IV Pump Integration into Hazardous Drug Administration

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ANIA 2019

BACKGROUND

Huntsman Cancer Hospital is a NCI-designated comprehensive cancer center at the University of Utah Health that administers chemotherapy in outpatient and inpatient settings. In 2016, this project was initiated to incorporate IV pump integration with chemotherapy administration. The project faced many challenges including:

- Varied nursing workflows
- Incongruence between nursing and pharmacy workflow
- Limitations with EMR

The wide variation in nursing practices was identified as a patient safety risk. Although all processes were safe, the variation in practice created opportunities for error and did not support a unified effort. A plan was identified to standardize administration, preparation, and handling of chemotherapy and other hazardous drugs across the health care organization. Standardization of practice would facilitate implementation of IV pump integration and USP 800 compliance.

INTERVENTIONS

An interdisciplinary committee that included nursing, pharmacy, quality, information technology (IT), nursing informatics, clinical staff education, IT Training and leadership was formed to discuss current practice and required practice changes. They were also tasked to create the new standards and policies needed. Interventions implemented by the committee include the following:

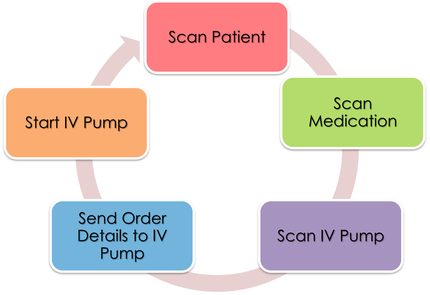
- Format existing chemotherapy orders
- Upgrade Alaris IV pump software
- Develop new preparation, administration, and handling practices
- Update electronic medical record (EPIC) and pumps with outlined parameters to make IV pump integration possible
- Standardize inpatient and outpatient nursing workflows into one practice
- Modify preparation and delivery of drugs for ease of pump integration
- Implement a comprehensive education plan that included online training modules, a quiz, and hand-on competency verification
- Develop new standards and policies to match all practice changes

** Clinical trial drugs were excluded from the IV pump integration.

ACKNOWLEDGEMENTS

All HCH Chemo Standardization Committee members, Pharmacy, Information Technology, IT Training, Nursing Informatics, Nursing Quality, HCH Clinical Staff Education, and HCH Nursing Leadership.

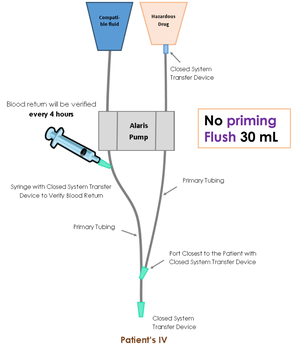
WORKFLOW IMPROVEMENTS



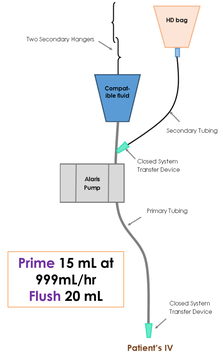
Dual RN Verification:

- ✓ Perform patient identification
- ✓ Verify consent and brisk blood return
- ✓ Patient confirmation of name and date of birth on the bag label
- ✓ Verify drug name, dosage, volume and duration on the MAR
- ✓ Review and complete Chemotherapy Administration Checklist in the MAR
- ✓ Verify correct tubing and compatible fluid is being used
- ✓ Verify order details on the pump with the order in Epic
- ✓ Ensure tubing is unclamped
- ✓ Confirm the infusion is dripping

Continuous Infusion Set Up



Intermittent Infusion Set Up

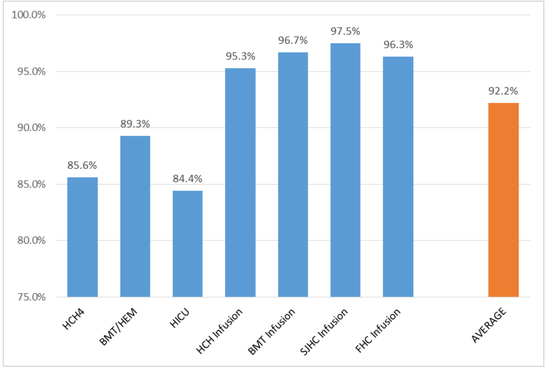


EVALUATION

To ensure compliance with IV pump integration:

- An automated report was created in Epic for managers to review each nurse's use of the system.
- Nurses are encouraged to use the internal report system to report issues with pump integration.
- Nursing Informatics and IT follow up on issues identified by compliance report and by end users.
- IT Pharmacy updates the IV pump drug library monthly with the newly FDA-approved drugs.

IV Pump Integration Compliance Percentage



DISCUSSION

Following the successful implementation of chemotherapy IV pump integration, ongoing efforts by the committee to develop policy, address educational needs, and resolve equipment, process, or user errors that occur are still in progress. Integration of titratable drugs with IV pump integration and Epic is still challenging because the pump does not auto titrate those drugs. Overall, the implementation chemotherapy IV pump integration with Epic has decreased the risk of errors with hazardous drug administration, and it increased accuracy in documentation by automatically populating the start and stop times, rate, and volume of the drug administered.