National Infusion Collaborative Clinical Meeting

Fall Clinical Meeting
September 17, 2025

Meeting Logistics and Introductions

Randi Trope, DO, MBA, CMSO, FAAP
Vice-Chair for Pediatric Quality & Safety
Pediatric Medical Director of Patient Safety
Stony Brook Medicine

Dean A. Bennett RPh, CPHQ, LSSGB
Medication Safety Officer
ChristianaCare

Maha O. Kebir, PharmD, MS, BCPS, CPHQ, CPPS
Clinical Pharmacist Specialist Quality and Performance Improvement
ChristianaCare

Navigating Zoom

Q&A Box and Chat Box: For any questions or comments throughout the presentation

Raise Hand: For the open mic discussion, please press “Raise Hand” if you wish to speak

Post-Meeting Survey: Following today’s meeting, please let us know how we can improve going forward

Agenda

National Infusion Collaborative Infusion Trends

Joanne Hatfield, PharmD, BCPS
Director - Clinical Solutions
Bainbridge Health

Improving DERS Compliance using RFID Technology

Maha O. Kebir, PharmD, MS, BCPS, CPHQ, CPPS
Clinical Pharmacist Specialist Quality and Performance Improvement
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Improving DERS Compliance using Unit ID

Randi Trope, DO, MBA, CMSO, FAAP
Vice-Chair for Pediatric Quality & Safety
Pediatric Medical Director of Patient Safety
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Open Mic / Q&A

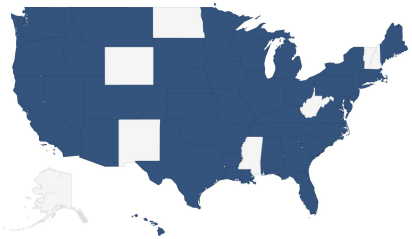
National Infusion Collaborative

Infusion Metric Trends

Joanne Hatfield, PharmD, BCPS
Director - Clinical Solutions
Bainbridge Health

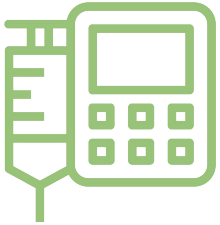
National Infusion Collaborative

6/1/25 - 8/31/25



>600
Hospitals

>92,000
Infusion Pumps



>18 million
Infusion Records

> 1 million
Alerts

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Key Performance Indicators

6/1/25 – 8/31/25	Compliance	Alert Rate	Override Rate
Pediatric Network	88.4%	8.4%	67%
Adult Network	89.7%	5.6%	70%

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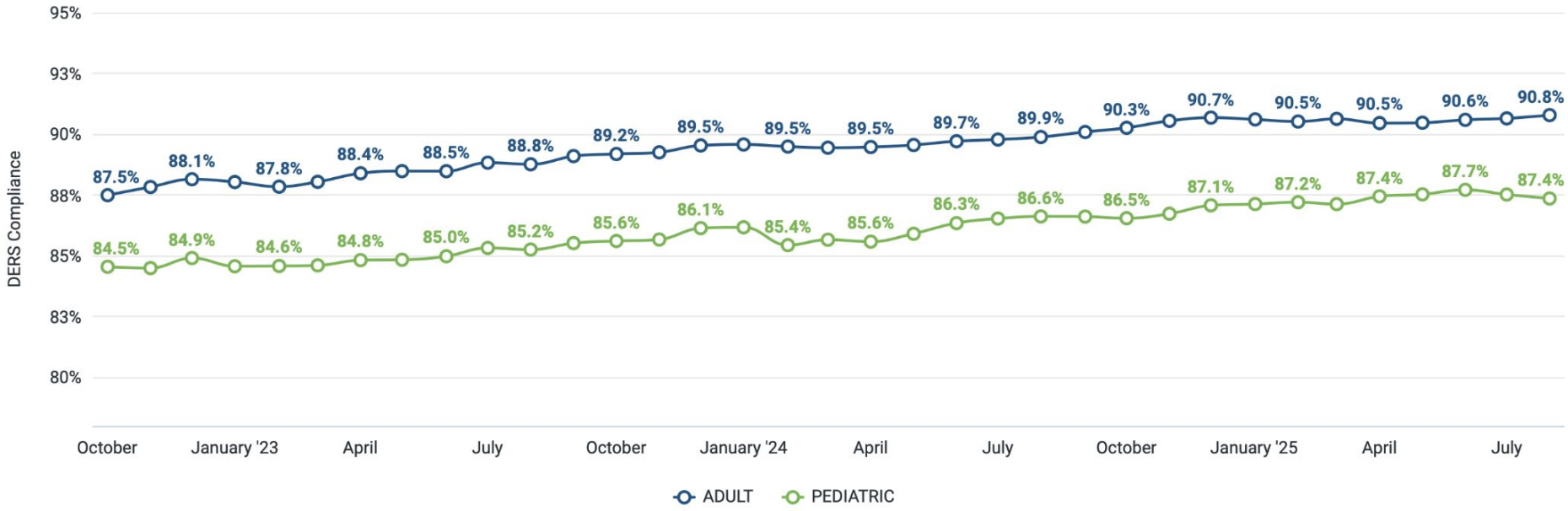
Dose Error Reduction Software (DERS) Compliance



About ChristianaCare

Serving Delaware, Maryland, Pennsylvania and New Jersey

- Newark Campus
- Wilmington Campus
- Cecil County Campus
- Middletown Campus
- Concord Health Center
- Greenville Campus
- Smyrna Campus
- West Grove Campus (coming soon)

12
ChristianaCare | GoHealth Urgent Care Centers

180+
Practices & Locations

ChristianaCare®

Statistical Data

FY23

Admissions
61,103

Radiology Procedures
549,391

Urgent Care Center Visits
209,514

Home Health Visits
208,075

Lab Tests
4,535,338

Outpatient Visits
873,875

Births
6,709

Surgical Procedures
39,425

Primary Care Physician Office Visits
294,844

Emergency Department Visits
227,145

Christiana Hospital	*97,676*
Wilmington Hospital	*61,795*
Union Hospital	*35,051*
Middletown ED	*32,623*

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PLAN

Opportunity Statement

Increase smart infusion pump compliance rate with dose error reduction systems (DERS) to 95% at the Delaware campuses by August 2024

PLAN
Team Members

- **Maha O. Kebir, PharmD, MS, BCPS, CPHQ, CPPS.** *Clinical Pharmacist Specialist Performance Improvement and Quality*
- **Dean A Bennet, RPh, CPHQ, LSSGB.** *Medication safety Officer*
- **Andrea Tully, PharmD, BCPS, BCCCP.** *Clinical Pharmacy Specialist Formulary Management & Medication Use Policy*
- **Gwen Ebbert, MSN, BA, RN, CPHQ, RN-BC, LSSBB.** *Senior Performance Improvement Program Manager, Nursing Quality & Safety*
- **Nursing Leadership and their teams at the Cancer Center**
- **Nursing Leadership and their teams at Pediatric Center**
- **Nursing Leadership and their teams at cardiac step-down inpatient unit**
- **Nursing Development and Education Committee (NDEC)**
- **Medication Safety Committee**
- **Lee Powers.** *Systems Analyst IT Administrative Applications Services*
- **Roman Steiner, PharmD, BCPS.** *Pharmacy Information Systems Coordinator*
- **Isha Patel, PharmD, MBA/HCA.** *Director of Pharmacy Operations Union Hospital*
- **Kerry D'Alessando, RN.** *Nurse Manager Union Hospital*
- **Charlotte Meyer, PharmD.** *Pharmacy Supervisor Union Hospital*

PLAN

Background/Current Knowledge

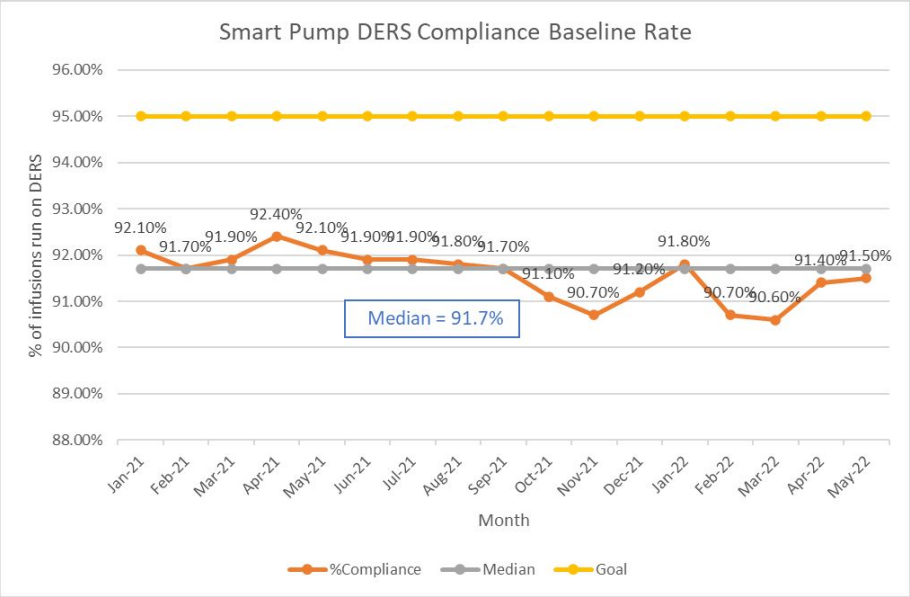
- Using smart pumps without DERS i.e., via “Basic Infusion” forgoes all the programmed safety features intended to keep medication infusions within accepted ranges and the ability to warn clinicians about potentially unsafe drug therapy.

- The Institute for Safe Medication Practices (ISMP) recommends monitoring smart infusion pump DERS compliance rates with a target goal of 95% or greater and addressing barriers leading to infusions being programmed outside DERS. [1]

- ***We aim to increase our median smart infusion pump DERS compliance rate for the Delaware campuses from 91.7% to 95% by August 2024.***

1. Institute for Safe Medication Practices, Guidelines for Optimizing Safe Implementation and Use of Smart Infusion Pumps. 2020

PLAN
Baseline Data



- Smart pump DERS Compliance =
  - (number of IV infusions programmed via DERS)/(Total number of infusions)
- Our median smart infusion pump DERS compliance was 91.7% at the Delaware Campuses

PLAN
Key Outcomes/Goals

Monitored monthly smart infusion pump DERS compliance rates as well as DERS compliance by profile and started trending this data overtime.

We wanted to measure DERS compliance **for individual units to identify areas with low and high performance thereby focusing improvement initiatives on areas of need.**

University of California, San Francisco (UCSF) pharmacy collaborated with Bainbridge to improve their DERS compliance through tracking unit level compliance data.

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PLAN
Key Outcomes/Goals

- Similar to the UCSF project, we used radio frequency identification (RFID) technology. ChristianaCare infusion pumps have RFID tags and RFID tracking information is used to manage the fleet of pumps and modules and maintain PAR levels.
- Bainbridge extrapolates RFID tracking information for a “snapshot” of compliance for pumps identified on each unit
- Data source: BD Alaris infusion pump + pump RFID records
- Paired serial numbers with RFID locations on given units with compliance of data

Name	Asset	Area	Area D	In Area For	Monitor	Serial Number	Tag
Infusion Pumps, General-Purpose (PCU) (58136)	58136	CHR|HOSP|		10/25/2023 14:55	445890		
Infusion Pumps, General-Purpose (PCU) (56599)	56599	CHR|HOSP|		10/23/2023 16:47	447130		
Infusion Pumps, General-Purpose (PCU) (55578)	55578	CHR|HOSP|		10/24/2023 15:34	443712		
Infusion Pumps, General-Purpose (PCU) (59190)	59190	CHR|HOSP|		10/24/2023 17:32	444441		
Infusion Pumps, General-Purpose (PCU) (59498)	59498	CHR|HOSP|		10/24/2023 8:51	434854		
Infusion Pumps, General-Purpose (PCU) (59520)	59520	CHR|HOSP|		10/24/2023 14:12	436775		
Infusion Pumps, General-Purpose (PCU) (67554)	67554	CHR|HOSP|		10/14/2023 11:36	445034		
Infusion Pumps, General-Purpose (PCU) (58123)	58123	CHR|HOSP|		10/25/2023 12:43	280771		
Infusion Pumps, General-Purpose (PCU) (56539)	56539	CHR|HOSP|		10/24/2023 15:49	280885		

Nursing Units Locations

Associated Pump Serial and Tag Numbers

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DO
Action Plan: Solutions Implemented

- Pediatric profile DERS compliance dropped from 91% in March 2023 to 63% in June 2023.
- Reason: Using the Syringe module for the Pediatric Profile when the current process is to use the Syringe module only for Neonates as the Pediatric Profile is not set up to use the Syringe module.
- Clarified the workflow and provided education to Pediatric Center which was disseminated end of July 2023.
- Changed NICU pump profile to Neonate to be inclusive of other areas.

Alaris syringe pump module:

- Used for neonates and small infants that are ≤6kg
- This module allows for intermittent small volume medications to be administered and ensures the entire volume is infused
- Used with microbore tubing
- Requires at least a 1mL flush to clear tubing once infusion is complete
- Drug library profile → *'Neonate'*

Alaris Pump Infusion Set – Vented Syringe Adapter

- Used for infants and children >6kg
- Programmed via the IV module
- Drug library profile → *'Pediatric'*

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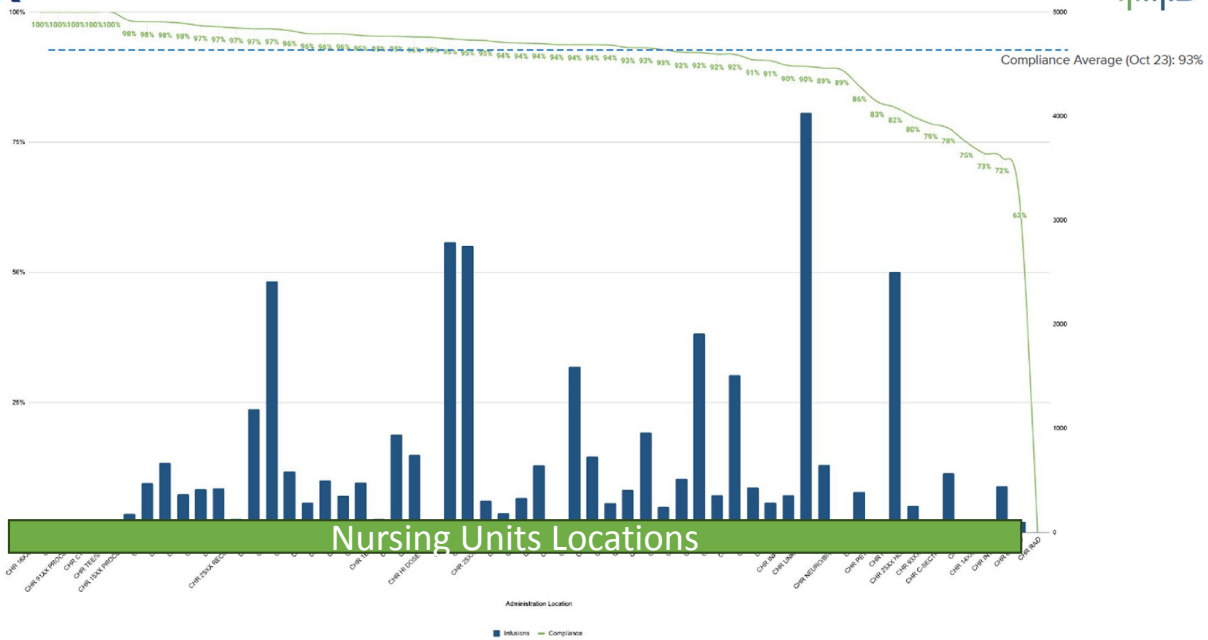
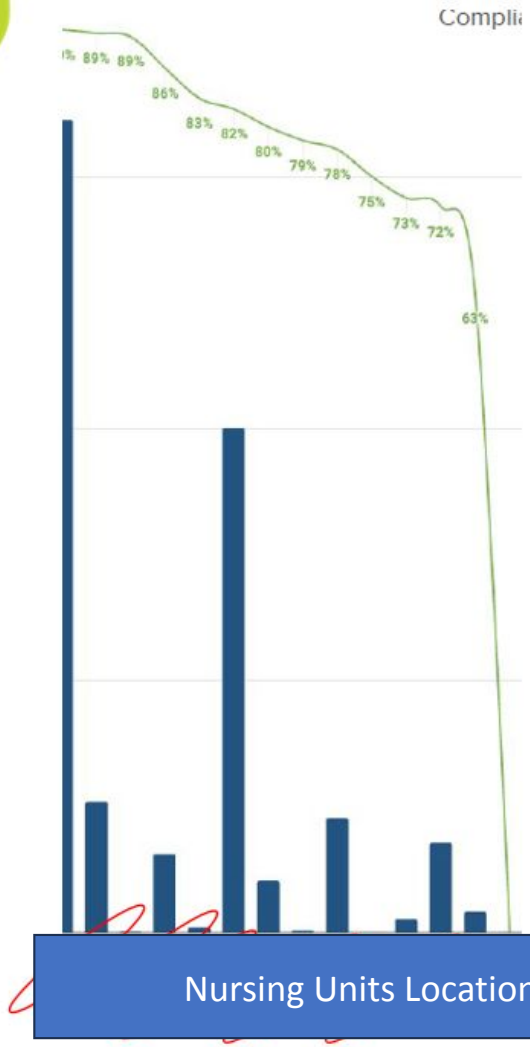
DO
Action Plan: Solutions Implemented

DERS Compliance Rates at the Unit Level Newark Campus October 25th 2023

CHR





DO
Action Plan: Solutions Implemented

- DERS Compliance was low (89%-82%) in our Cancer Center, cardiac step-down unit, medical surgical unit, C-section OR
- Unit DERS compliance data was shared with the Medication Safety Committee and nursing leadership in December 2023.
- The team started scheduled monthly meetings with our cancer center nursing leadership in January 2024 and met with, cardiac step-down unit nursing leadership to identify barriers to DERS use.

DO
Action Plan: Solutions Implemented

Improved Functionality

- Retiring of the GYN-ONC pump profile in March 2024
- A crosswalk of the CCHO and GYN-ONC profiles was performed, and changes were made to the CCHO profile to accommodate GYN-ONC patient needs.
- Addition of the following medications to the CCHO profile which were identified as missing from the library: Immune globulin 30 g / 300 mL, tociluzimab, and isatuximab

Expert Consultation

- Coordinated on-site visit to our cancer center by vendor clinical specialist in February 2024.

Education

- Provided education for how to program an infusion with a custom concentration entry in the pump.

Improved Reporting

- Current reporting form was retired and replaced with reporting through our R2L system accessed from the patient's chart in the electronic health record (EHR).

DO
Action Plan: Solutions Implemented

Data Transparency

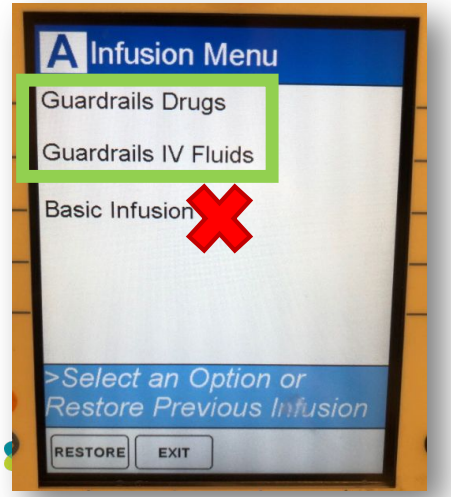
- Presented DERS compliance data and examples of actual IV infusion medication errors prevented by DERS to the Nursing Development and Education Committee (NDEC) meeting.
- Monthly DERS compliance of the outpatient oncology profile was shared with the cancer center nursing leadership to assess compliance rates in response to implemented interventions.

Education

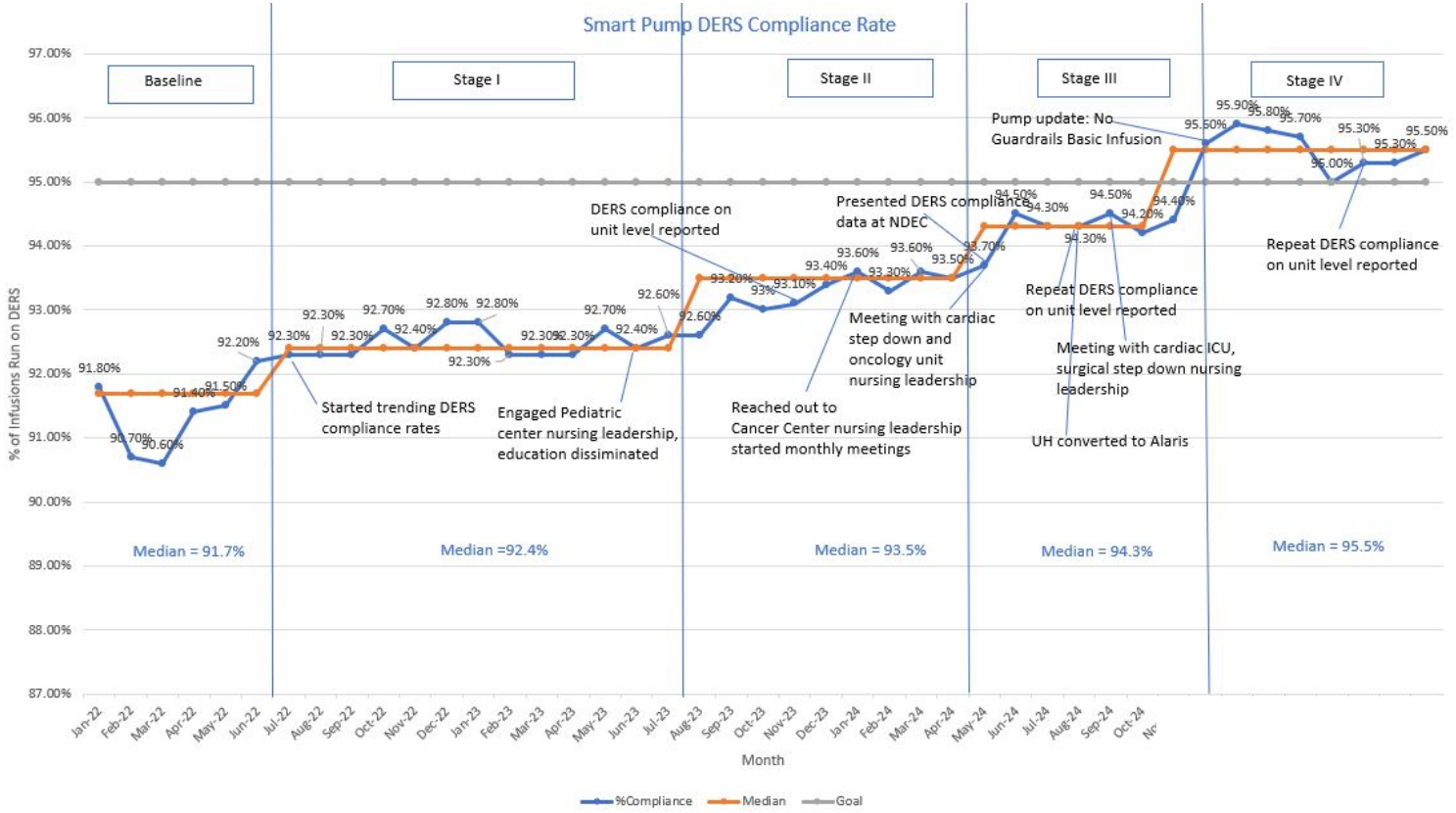
- Developed nursing education highlighting the value of DERS compliance and how to report pump related concerns.

Improved Functionality

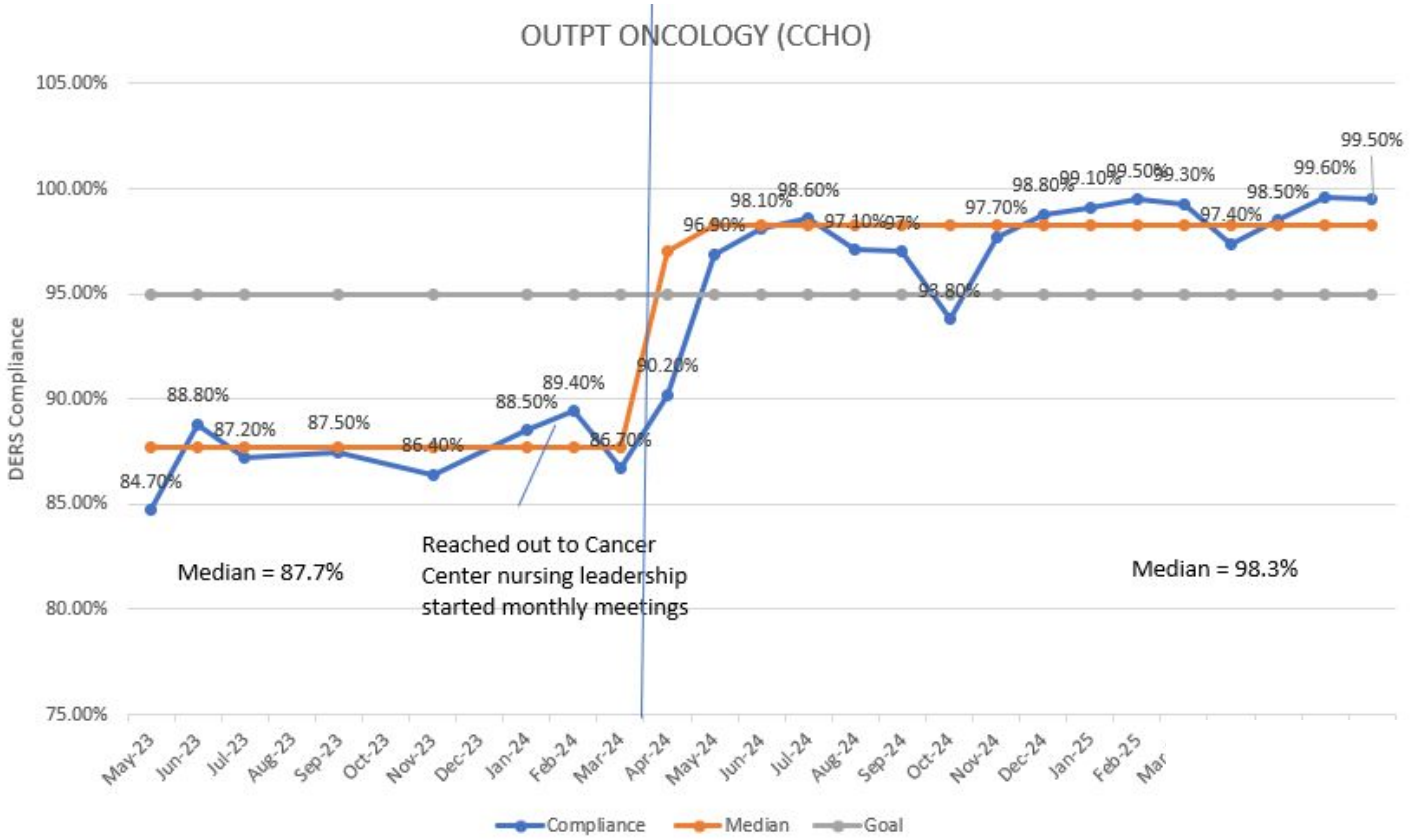
- Added clinical advisory for dexamethasone & ondansetron to clarify that for combination products, program pump using dose of first drug listed.



CHECK
Analysis



CHECK
Analysis



CHECK Results

Improved Smart Infusion DERS Compliance Rate

Median smart infusion pump DERS compliance rate **increased** from baseline value of **91.7%** in June 2022 to **95.6%** in July 2025, which translates to an additional **56,000 infusions** run on DERS annually at our Delaware campuses.

Improved Patient Safety

56,000 additional infusions run on DERS over the past year potentially averted ~**3919** IV infusion therapy administration errors (reported error rate associated with intravenous drug administration is approximately 9–18%).[1,2]

Increasing median DERS compliance for Outpatient Oncology profile which is mostly composed of high-alert antineoplastic medications from **87.7% to 98.3%** is an important patient safety improvement.

Cost Savings

1. Errors and Discrepancies in the Administration of Intravenous Infusions: A Mixed Methods Multihospital Observational Study. Lyons I, Furniss D, Blandford A, et al. BMJ Quality & Safety. 2018;27(11):892-901. doi:10.1136/bmjqs-2017-007476.
2. Clinical Practice Guideline: Safe Medication Use in the ICU. Kane-Gill SL, Dasta JF, Buckley MS, et al. Critical Care Medicine. 2017;45(9):e877-e915. doi:10.1097/CCM.0000000000002533.
3. A Multi-Hospital Before-After Observational Study Using a Point-Prevalence Approach With an Infusion Safety Intervention Bundle to Reduce Intravenous Medication Administration Errors.

Schnock KO, Dykes PC, Albert J, et al. Drug Safety. 2018;41(6):591-602. doi:10.1007/s40264-018-0637-3.

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ACT
Path Forward/Next Steps

Continued Monitoring

Repeat analysis of unit DERS compliance was done in August 2024 and May 2025.

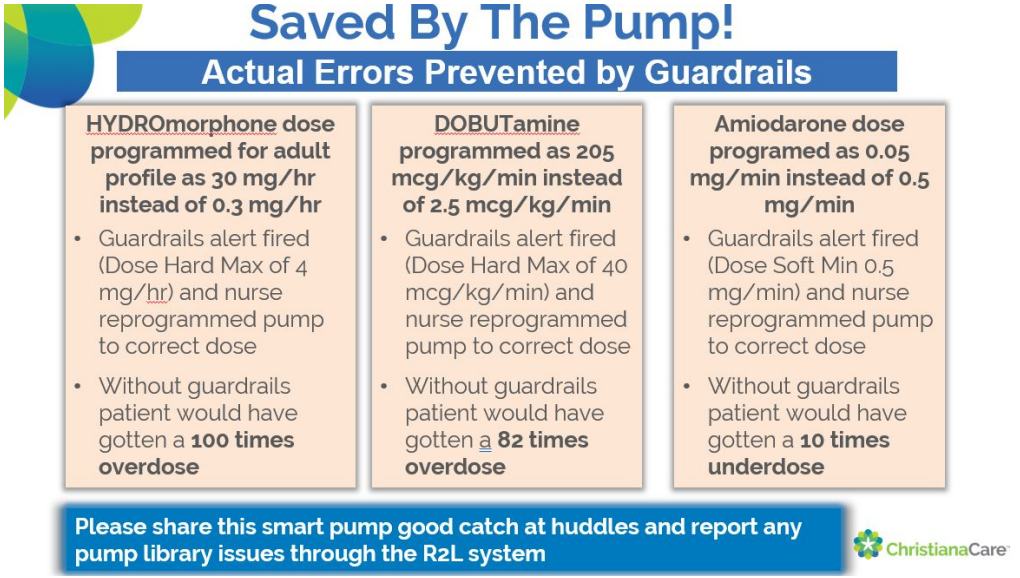
Monitor monthly reporting of pump related issues through the R2L reporting system.

Looked at alerts followed by a Basic Infusion mode and identified this commonly occurs with high dose heparin infusions and caffeine citrate (neonate profile)

ACT
Path Forward/Next Steps

Continued Data Transparency

- Continue quarterly meeting with cancer center nursing leadership to ensure sustained improvement in DERS compliance and follow up meetings with nursing leadership of with results of August 2024 and May 2025 unit-based DERS compliance.
- Introduction of "Saved by the Pump"* at monthly NDEC meetings



*Saved by the Pump" was presented during May 2024 MSOS meeting by Cleveland Clinic's Medication Safety Officer-Pediatrics

ACT
Lessons Learned

Nursing

- **Nursing engagement is essential** in ensuring the translation of data into concrete actions to improve patient safety.

RFID

- Pairing **RFID tracking** data with pump data provided a snapshot of DERS compliance at the unit level. However, not all pumps were paired to known locations and since this was a snapshot one can't rule out the possibility of outlier days.

Interop

- Future **smart pump-EHR interoperability** will enable the ordered infusion parameters to pre-populate the smart pump screen leading to improved DERS compliance, documentation of infusion data and overall provide an additional level of safety


Stony Brook Children's

Stony Brook Children's Hospital

Randi Trope DO, MBA, CSMO, FAAP
Vice-Chair, Pediatric Quality & Safety
Pediatric Medical Director of Patient Safety
Pediatric Critical Care Medicine

- Located in Eastern Long Island, Suffolk County
- Suffolk County only children's hospital
- 106 beds within a larger adult hospital (620 beds)
- Level I Pediatric Trauma Center
- Level 4 Regional Perinatal Center/Level 3 NICU
- Kidney transplants. No (pediatric) ECMO, no Cardiac Surgery
- CRRT/Carpedium/Dialysis
- Duchenne Muscular Dystrophy Center

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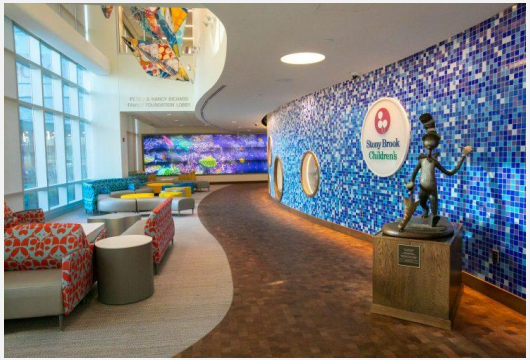


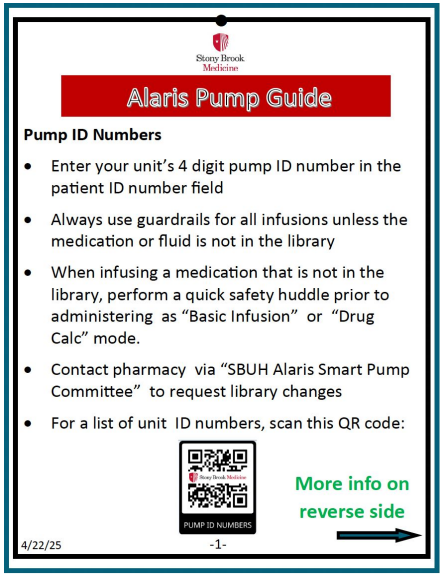
Technology

EHR: Cerner
Infusion Pumps: Alaris

Improving DERS Compliance

Making Change Happen:

- Drive change by tracking compliance by unit
- Assigned each unit a specific ID
  - Card attached to pump with QR Code
  - Also how to update library (also a large challenge!)
- ID entered into the pump utilizing the patient ID field
  - Monthly dashboard
  - Limitations
  - ID may not be changed
  - Knowledge that can be entered any time


Stony Brook Medicine

Alaris Pump Guide

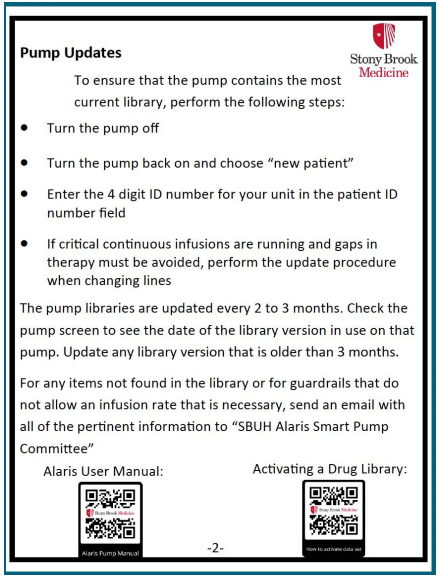
Pump ID Numbers

- Enter your unit's 4 digit pump ID number in the patient ID number field
- Always use guardrails for all infusions unless the medication or fluid is not in the library
- When infusing a medication that is not in the library, perform a quick safety huddle prior to administering as "Basic Infusion" or "Drug Calc" mode.
- Contact pharmacy via "SBUH Alaris Smart Pump Committee" to request library changes
- For a list of unit ID numbers, scan this QR code:

PUMP ID NUMBERS

More info on reverse side

4/22/25 -1-


Pump Updates

Stony Brook Medicine

To ensure that the pump contains the most current library, perform the following steps:

- Turn the pump off
- Turn the pump back on and choose "new patient"
- Enter the 4 digit ID number for your unit in the patient ID number field
- If critical continuous infusions are running and gaps in therapy must be avoided, perform the update procedure when changing lines

The pump libraries are updated every 2 to 3 months. Check the pump screen to see the date of the library version in use on that pump. Update any library version that is older than 3 months.

For any items not found in the library or for guardrails that do not allow an infusion rate that is necessary, send an email with all of the pertinent information to "SBUH Alaris Smart Pump Committee"

Alaris User Manual: Alaris Pump Manual

Activating a Drug Library: How to activate data set

-2-

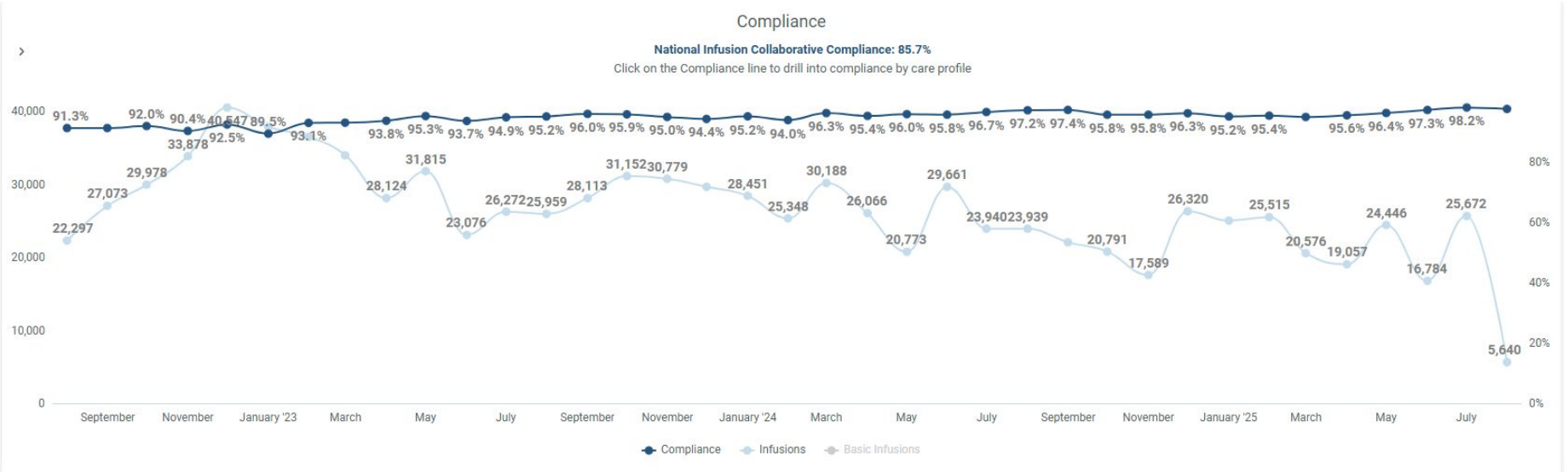
Stony Brook Children's

Improving DERS Compliance (con't)

Driving Factors (con't)

- Boots to ground!
  - Stop using adult library in big kids!
- What is missing? What else do you want?
  - RedCap Entry with QR code
- Spread the word!
  - Unit based meetings/Nurse manager level meetings
  - Physicians too! Huddles for alerts
  - Resident physicians were particularly eager to learn

Data-Pediatric



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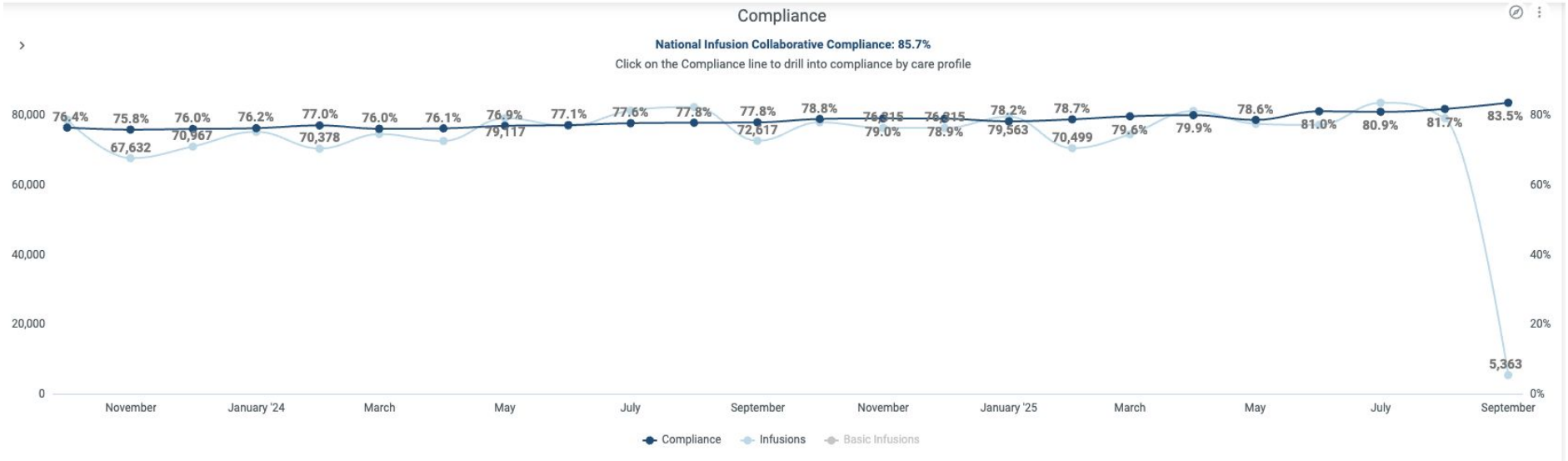
Data-Adult



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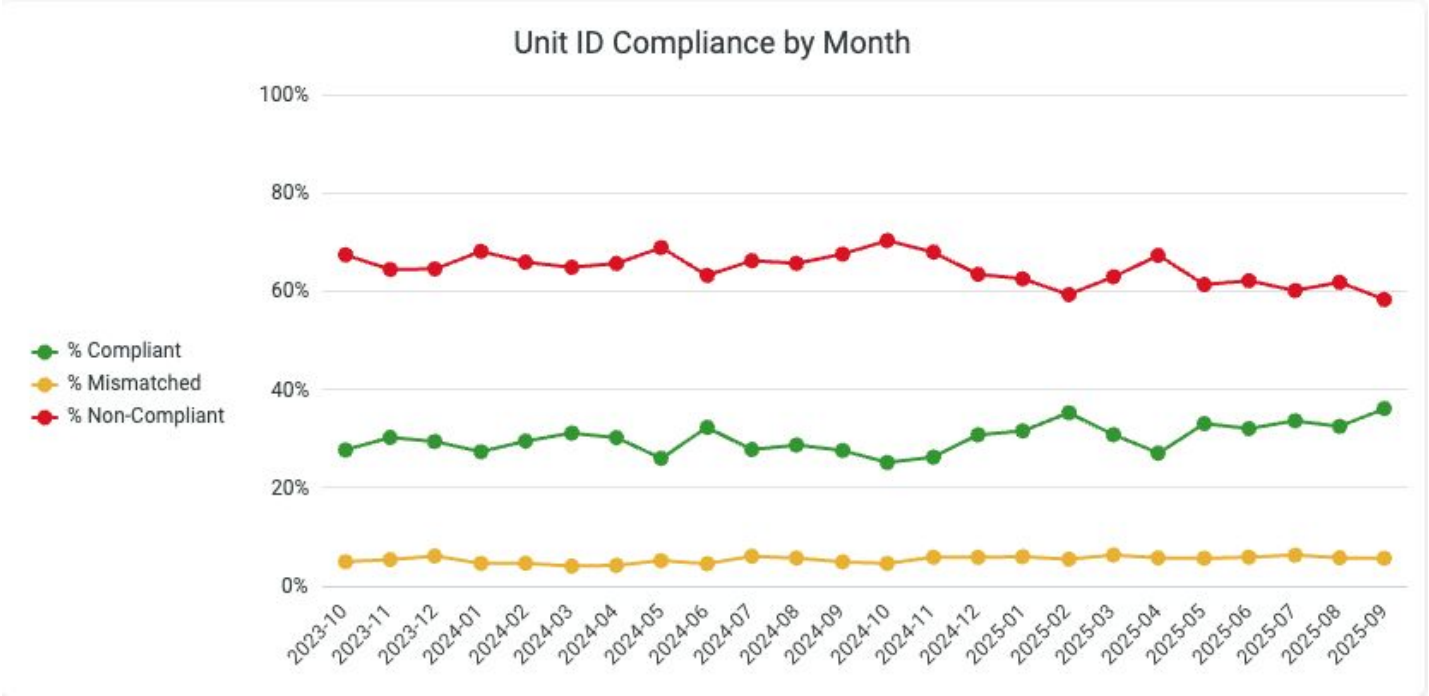
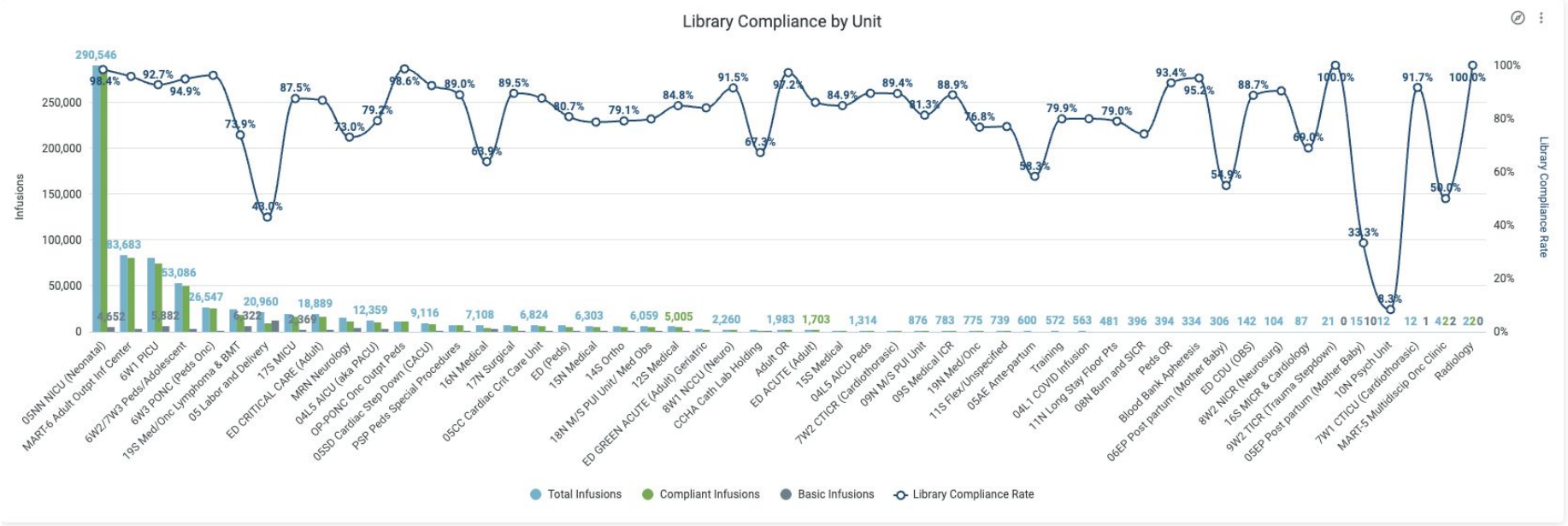
Data-Utilization of Patient ID



Data-By Unit



Stony Brook Children's

Questions?

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Joanne Hatfield
joannehatfield@bainbridgehealth.com

Navigating Zoom

Q&A Box and Chat Box: For any questions or comments throughout the presentation

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Post-Meeting Survey: Following today's meeting, please let us know how we can improve going forward

Bainbridge Health | NATIONAL INFUSION COLLABORATIVE

ASHP Midyear 2025

National Infusion Collaborative & Bainbridge Health Network Event

Where: TopGolf Las Vegas

When: Sunday, December 7, 2025 - 6 PM - 8 PM (local time)

Registration Link