
Where is Your Limit?

A Review of Infusion Pump Library Hard Limit Practices

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Introduction



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Navigating Zoom

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

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

Who We Are



Background

Founded by pharmacy and medication safety teams at a Philadelphia-based health system

Scope of Work

Make it easy and sustainable to consistently unlock value from infusion pump data

Value Areas

- Safety/Compliance
- Drug Utilization
- Network Benchmarking & Knowledge Sharing

National Infusion Collaborative



1+ Billion
Infusion Records

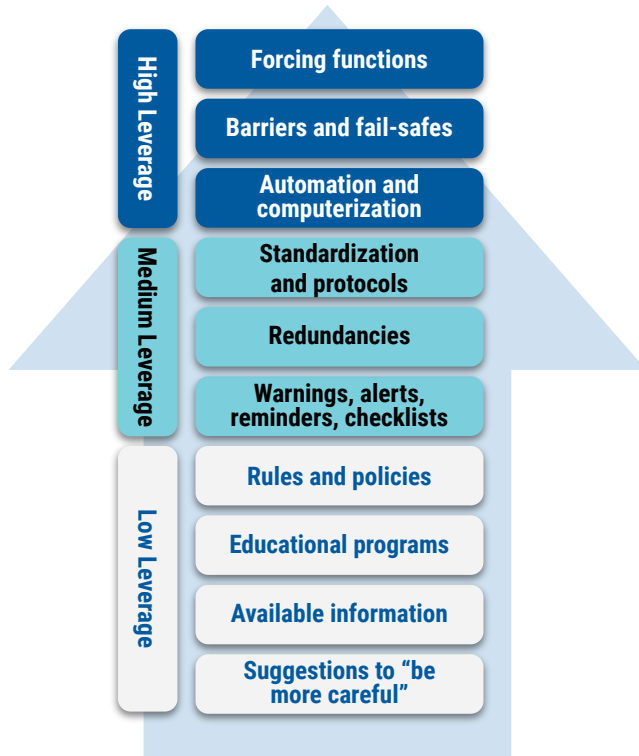


158 Million
Infusions Analyzed



>53,000
Pumps in Network

Background



- **Hard limits** can completely stop the progression of an action that has potential to cause patient harm*
- It is recommended that soft and **hard limits** be implemented in smart infusion pump drug libraries[†]
- It may be difficult to determine **hard limits** for continuous dose medications
 - Wide therapeutic dose range
 - No well defined max doses

* Institute for Safe Medication Practices (ISMP). A hard look at hard stops and workarounds in the acute care setting. ISMP Medication Safety Alert! Acute Care. 2023;28(13):1-4.

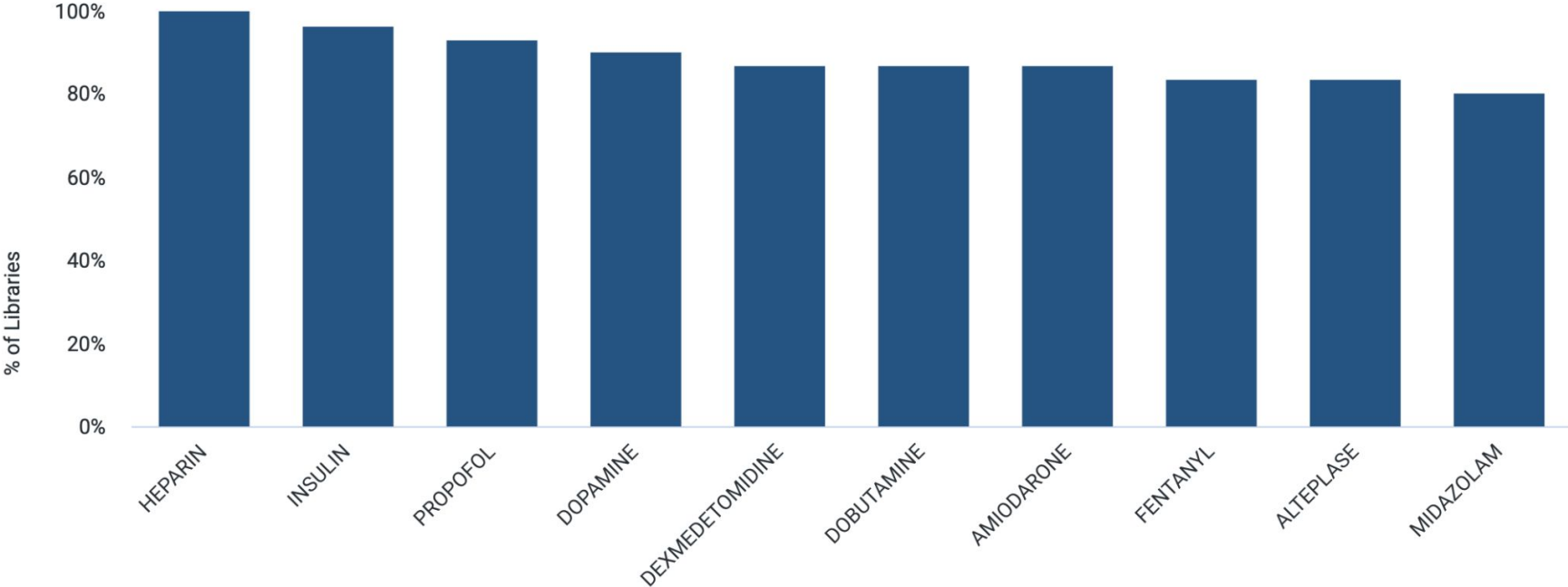
† Institute for Safe Medication Practices (ISMP). Guidelines for optimizing safe implementation and use of smart infusion pumps. ISMP; 2020.

^ Institute for Safe Medication Practices (ISMP). Implement strategies to prevent persistent medication errors and hazards. ISMP Medication Safety Alert! Acute Care. 2023;28(6):1-4.

Library Data



Medications with highest adoption of continuous dose upper hard limits



Hard Limit Alerts By Volume



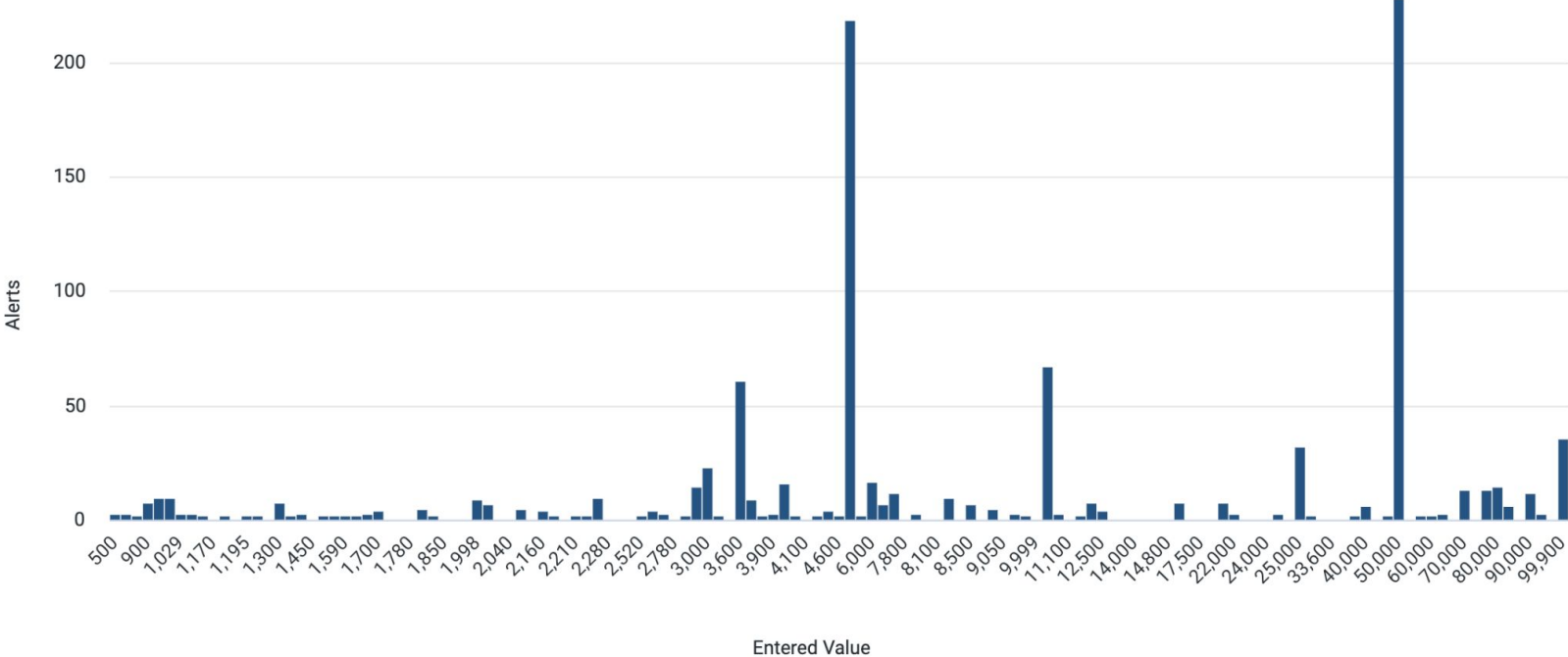
Medications with highest number of continuous dose upper hard limit alerts

	Medication Name	Alerts	▼	% of Hospital Systems
1	OXYTOCIN	5,455		71%
2	PROPOFOL	3,843		88%
3	DEXMEDETOMIDINE	2,092		83%
4	HEPARIN	2,003		83%
5	FENTANYL	1,194		71%
6	INSULIN	888		92%
7	AMIODARONE	855		63%
8	FUROSEMIDE	826		58%
9	NOREPINEPHRINE	824		50%
10	VASOPRESSIN	810		50%

Heparin (Adults, Unit/hour)



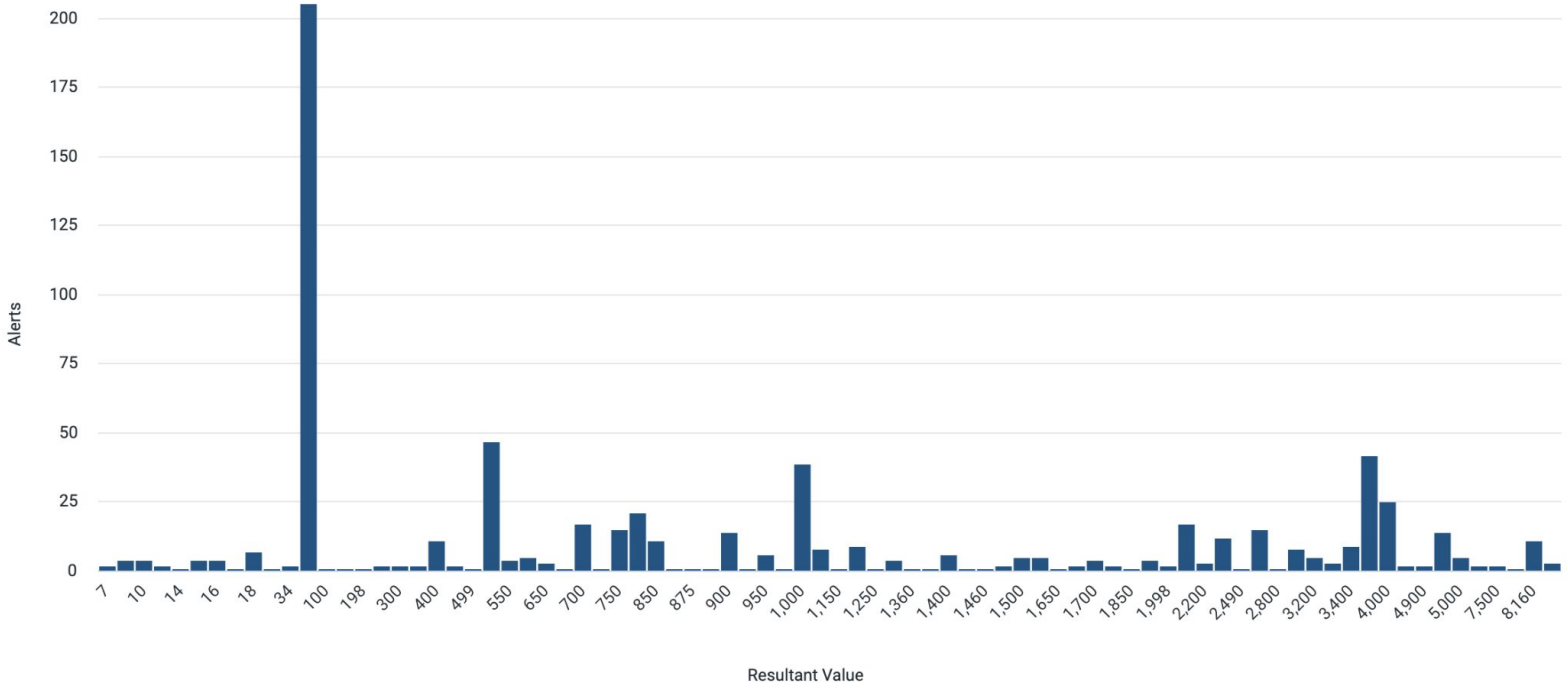
Programmed values that fired an alert for continuous dose upper hard limit



Heparin (Adults, Unit/hour)



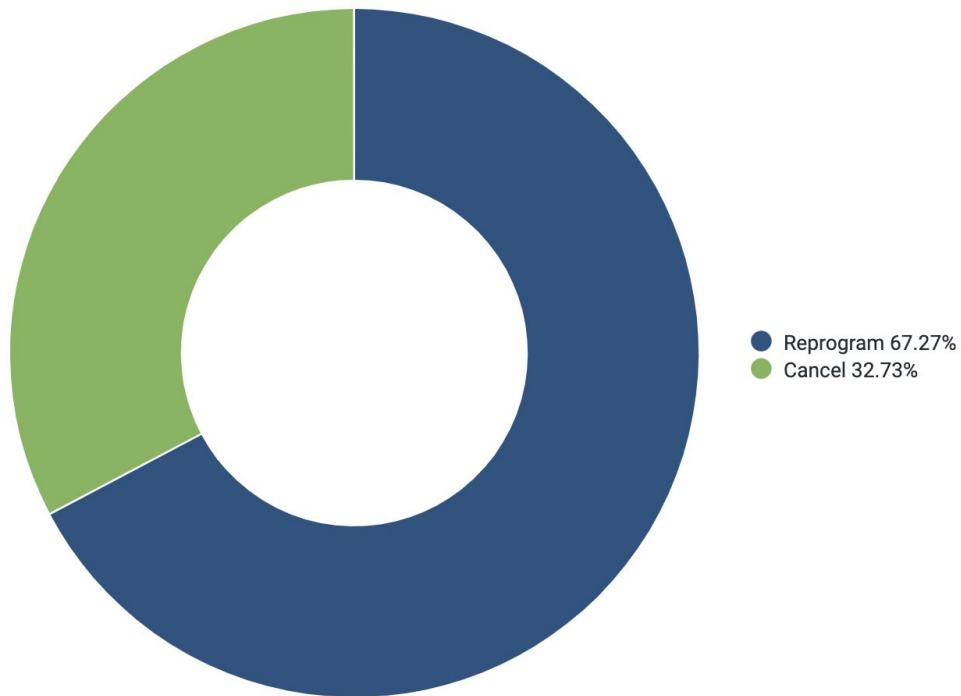
Re-programmed value after the continuous dose upper hard limit alert fired



Heparin (Adults, Unit/hour)



Alert Response



Heparin (Adults, Unit/hour)



Doses Administered

33

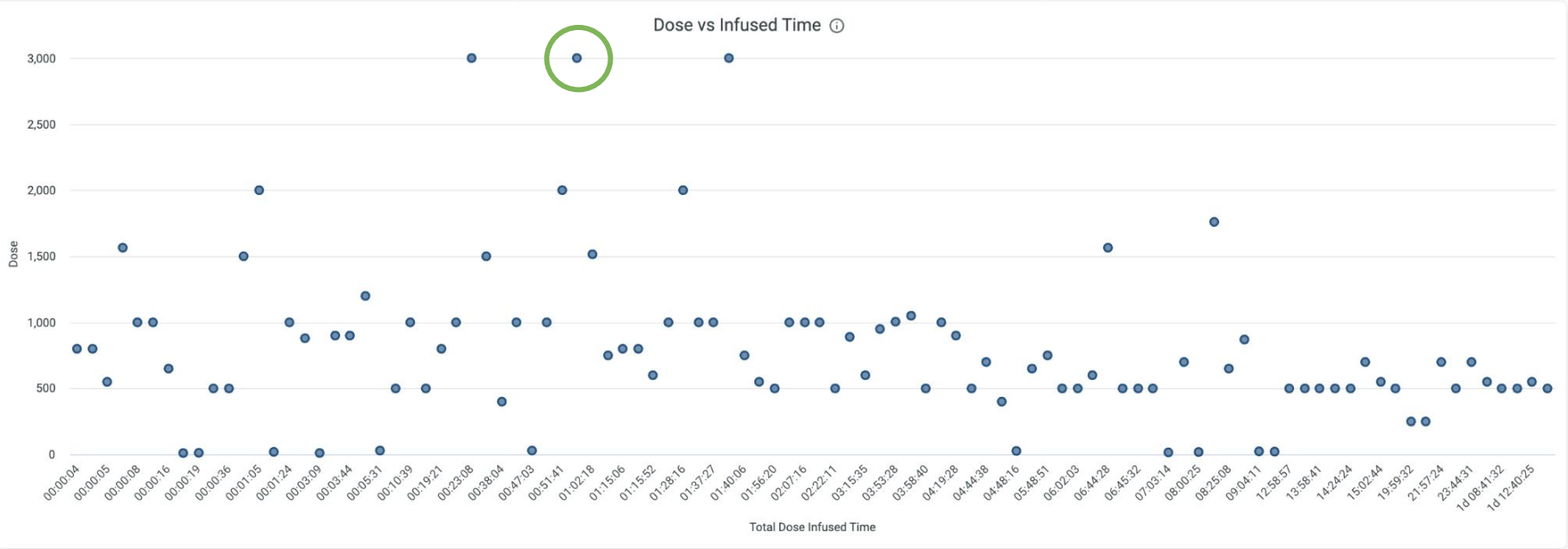
Pumps Reported

66

Infusions

226

Pump Starts

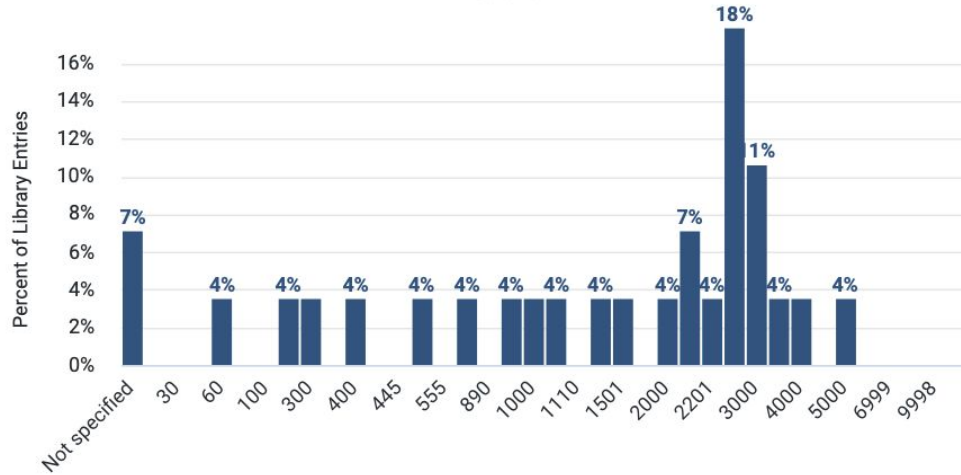


Heparin (Adults, Unit/hour)

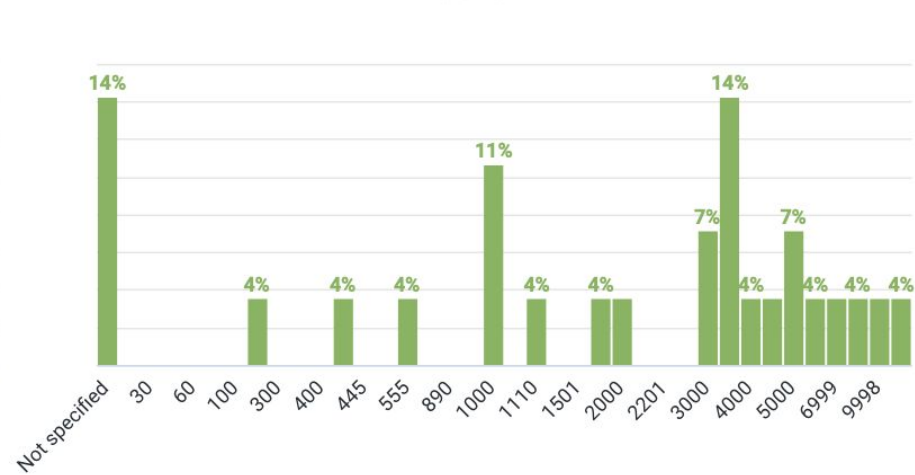


Bainbridge Health Network Adult Continuous Dose Library Limits

Soft max



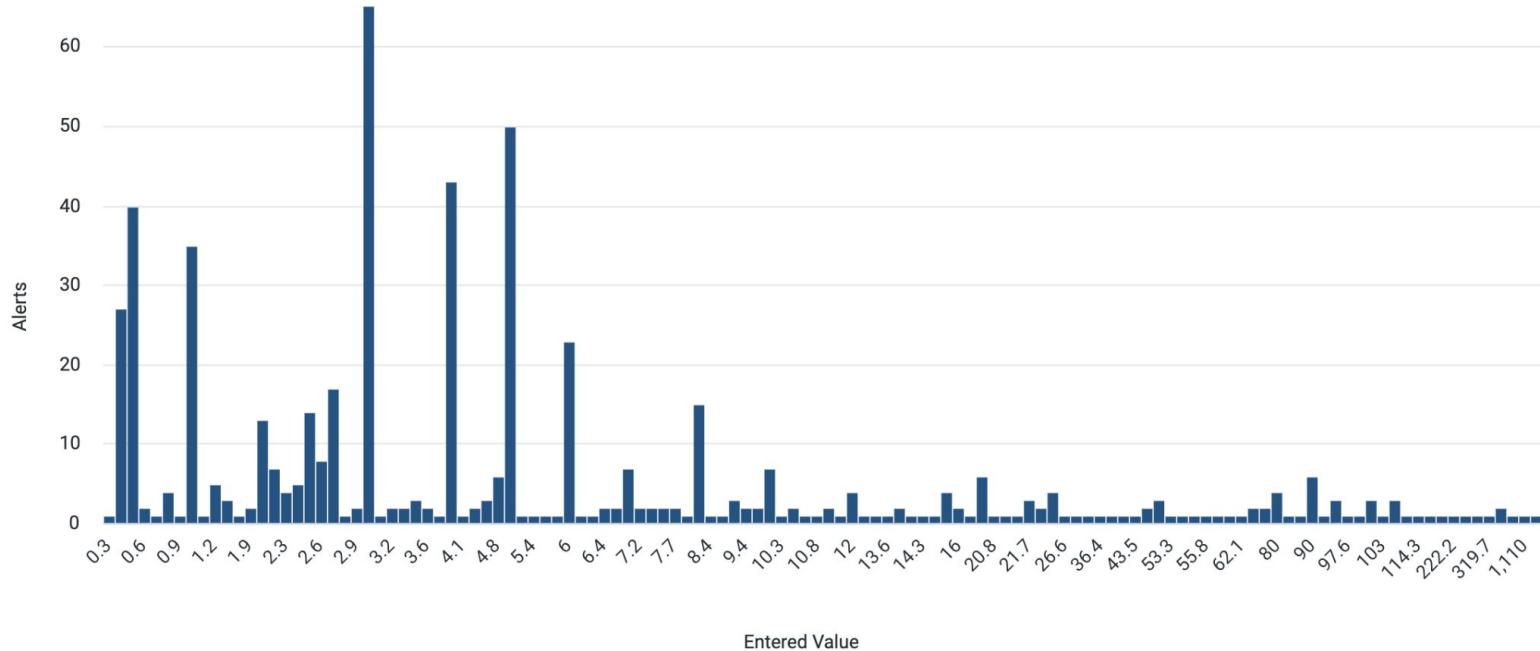
Hard max



Dexmedetomidine (Pediatrics, mcg/kg/hour)



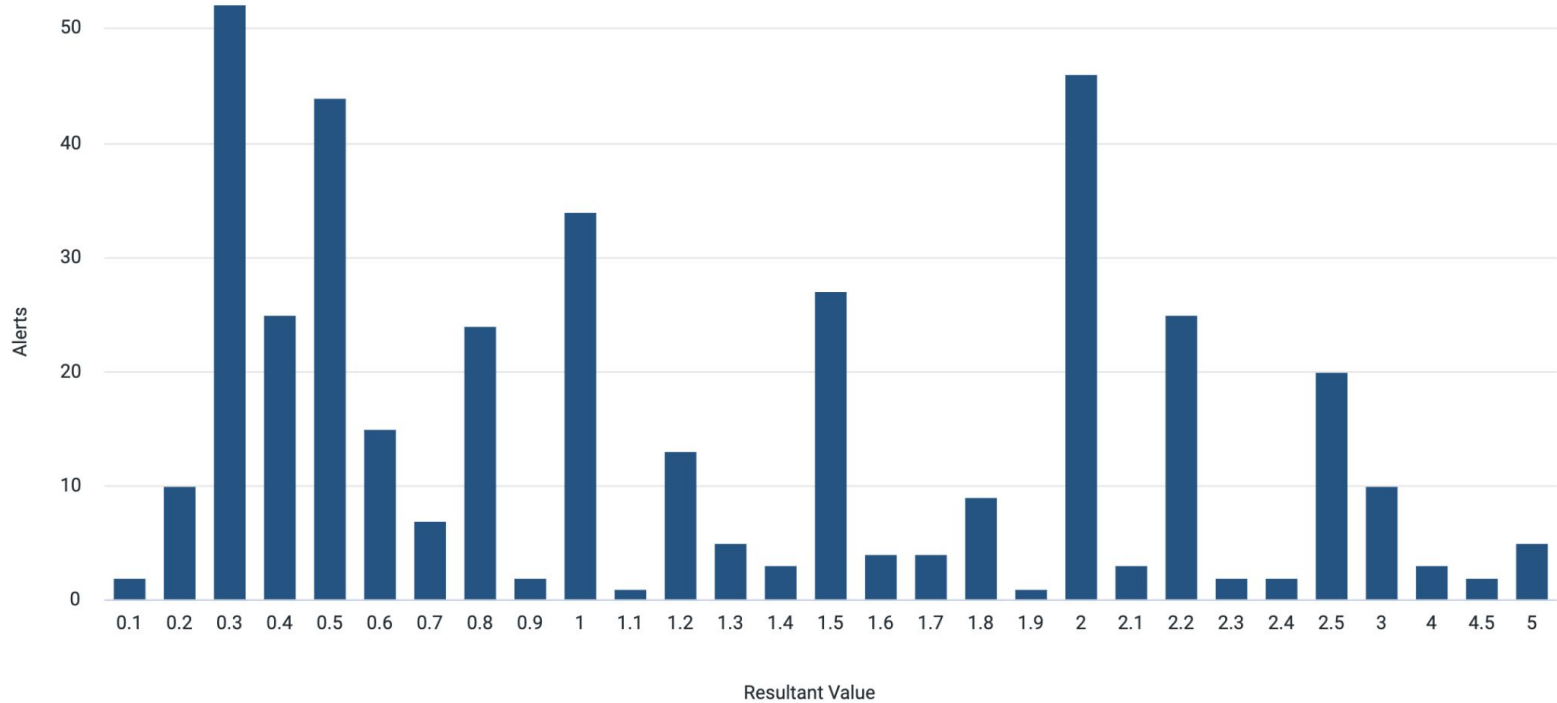
Programmed values that fired an alert for continuous dose upper hard limit



Dexmedetomidine (Pediatrics, mcg/kg/hour)



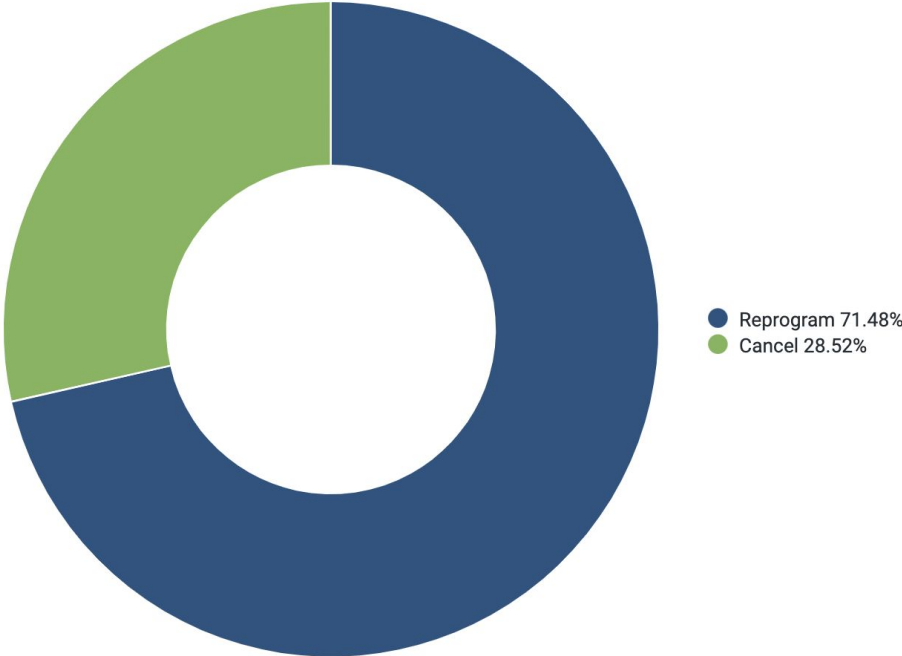
Re-programmed value after the continuous dose upper hard limit alert fired



Dexmedetomidine (Pediatrics, mcg/kg/hour)



Alert Response



Dexmedetomidine (Pediatrics, mcg/kg/hour)



Doses Administered

189

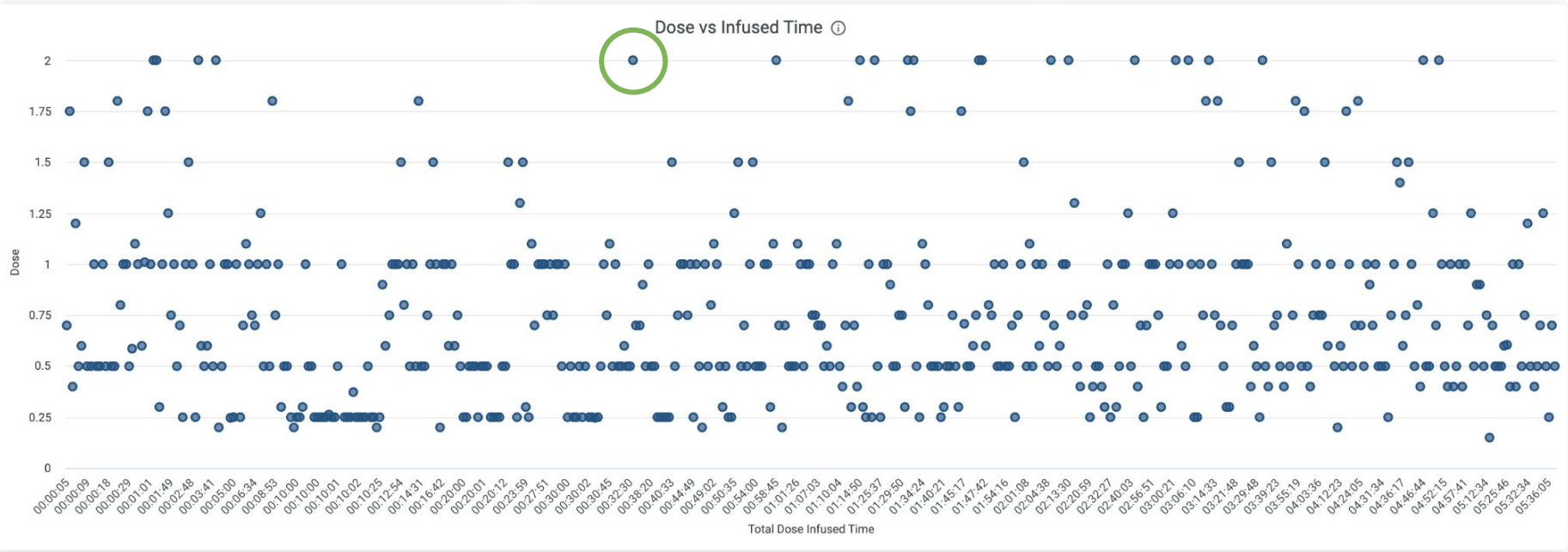
Pumps Reported

793

Infusions

1,775

Pump Starts



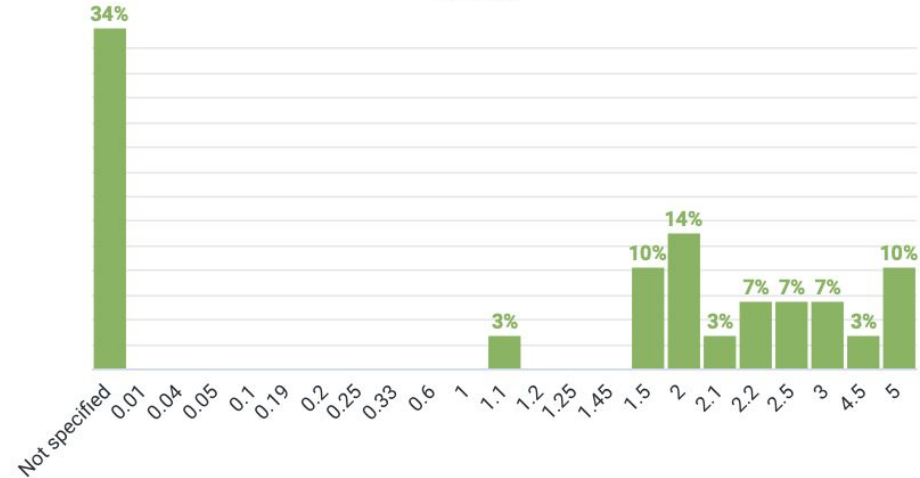
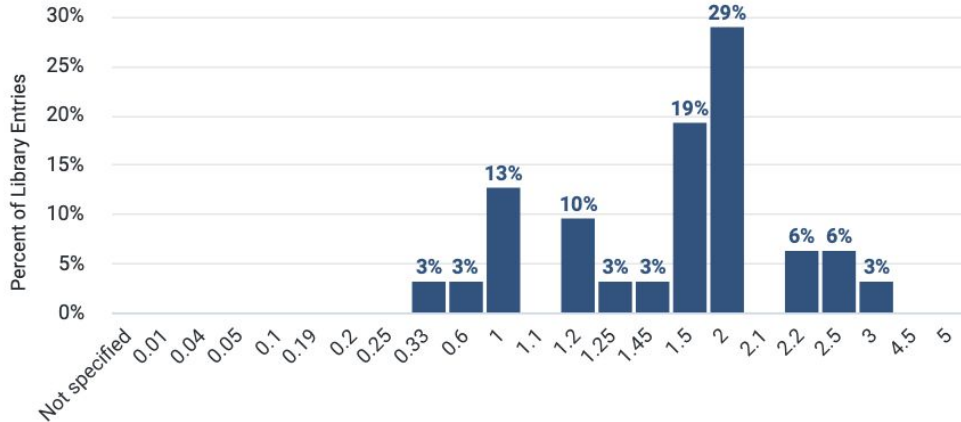
Dexmedetomidine (Pediatrics, mcg/kg/hour)



Bainbridge Health Network Pediatric Continuous Dose Library Limits

Soft max

Hard max



Summary



- **Hard Limits can prevent significant programming errors**
 - Ex. magnitude errors
- **Hard Limits are often cancelled and potentially re-programmed outside dose error reducing software (DERS) limits**
- **Reviewing infusion pump data can help determine clinically meaningful hard limits**
 - Programmed values
 - Reprogrammed values
 - Doses administered
 - Network benchmarking

A horizontal bar with a blue segment on the left and a green segment on the right.

Questions

Email:
soneill@bainbridgehealth.com

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