OPTIMIZATION OF BLOOD MANAGEMENT & TRACKING SYSTEM

Special thanks to our sponsors: Brenda Nelson, Kyle Danielson, & Dr. Patricia Buchanan

SYSTEM OVERVIEW

AIRLIFT NORTHWEST BACKGROUND

Emergency medical transportation

BLOOD STANDARDS

TOOF - Blood Time Out Of Fridge

Base Possession: 7 DAYS

TOOF Limit: 24h

CURRENT STATE

- Nurse Task Overload
- Data Inaccuracies
- Manual Paper System

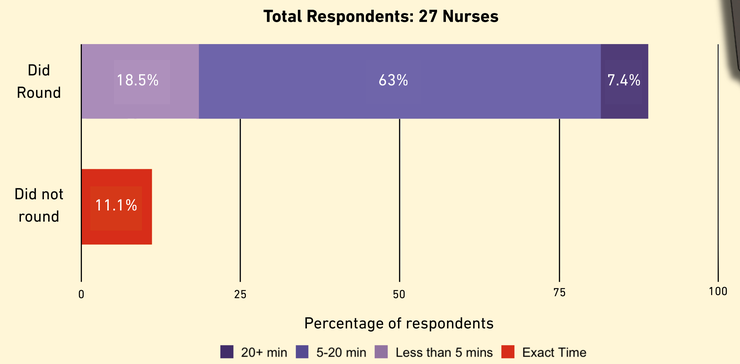
PROCESS

Survey Data Collection → Initial Prototype → User Testing & Iteration → Final Prototype

BENCHMARKING SURVEY

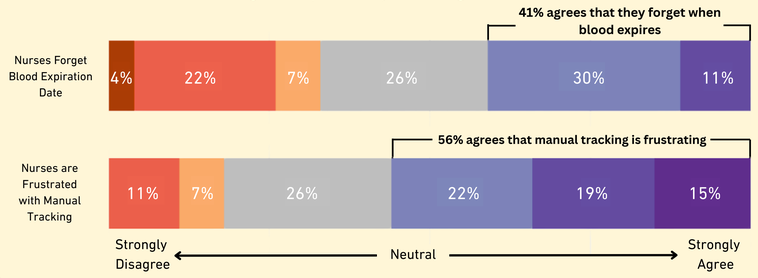
BLOOD TIME LOG ROUNDING BEHAVIOR

Total Respondents: 27 Nurses



TIME-OUT-OF-FRIDGE TRACKING

Percentage of respondent by level of agreement (n=27)



PROBLEM

How can Airlift Northwest implement a standardized, digital blood-tracking system?

GOAL

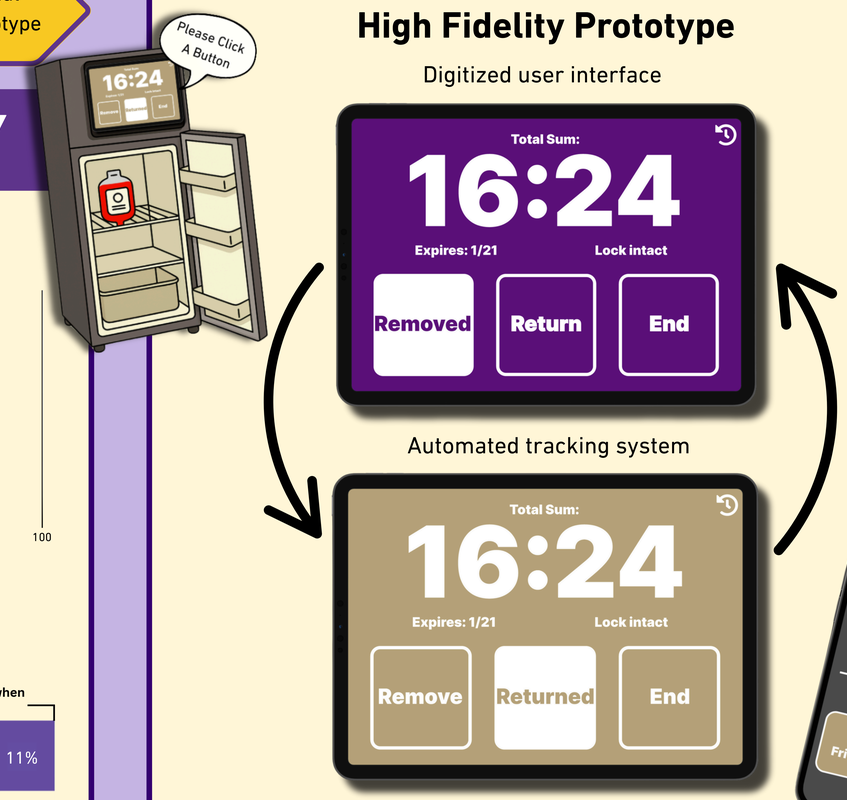
Decrease Mental Load & Risk of Blood Waste

Develop Blueprint for automated, digital tracking system

DELIVERABLES

High Fidelity Prototype

Digitized user interface



Mistake Proofing (Poka Yoke):

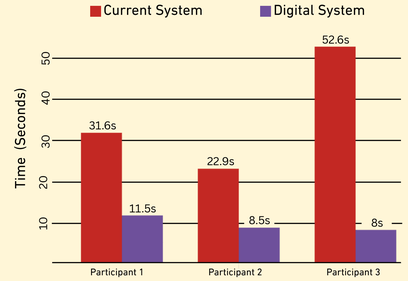
Auditory Feedback · Color Coding · Reminders

IMPACT

- **4 Steps Fewer Per Task (on avg)**
- **71% Faster Logging**
- **Increase TOOF Limit by 50%**

TIME TO COMPLETE BLOOD REMOVAL & RETURN LOGGING

User Testing Data



Direct User Quotes:

"Faster, straight forward, no math"

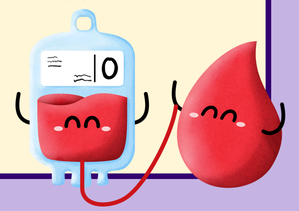
"I love that! History will be super helpful"

COST ANALYSIS: $106,876.00 SAVED PER YEAR

39.6% of annual costs | Payback period: 2 months

Base	Annual Exchanges Reduced	Exchanges by Courier	Exchanges by Flights	Courier Cost ($)/one way	Flight Cost ($)/trip	$ saved
Arlington	24	18	6	100	1000	$ 9,600.00
Bellingham	24	18	6	100	1750	$ 14,100.00
Bremerton	16	10	6	100	500	$ 5,000.00
Davenport	25	25	0	300	NA	$ 15,000.00
Juneau	36	36	0	528	NA	$ 38,016.00
Olympia	16	10	6	100	500	$ 5,000.00
Wenatchee	25	25	0	160	NA	$ 8,000.00
Yakima	38	38	0	160	NA	$ 12,160.00

Money Saved Per Base = (exchanges by courier)(courier cost) + (exchanges by flight)*(flight cost)*

RECOMMENDATIONS

- **Develop a fully functional application**
- **Track other equipment with new application**
- **Future Improvement: inventory management**