Seattle Children’s Hospital serves sick children from all over the country. Due to IV pump design limitations and the large number of pumps in use, it is difficult for anesthesiologists to track all their patient’s medications.

IV PUMP DASHBOARD

Scrolling Text
Medication names and dosage are displayed using scrolling text on the IV pump. Anesthesiologists commented their initial assessment time increases because they have to stop and watch the scrolling text. These are crucial seconds that can make a difference in patient care.

Unclear Alarms
Alarms both sound and flash. These alarms can vary in urgency, alerting the anesthesiologist to a finished medication or a potentially dangerous blockage in the IV line. Either way, with so many different pumps and stimuli, it is hard for doctors to quickly locate which IV pump is alarming and why.

Indistinguishable IV States
The large number of IV pumps operating at once also make it hard for anesthesiologists to know which IVs are running. Pumps can be paused but it is not always clear that the pump is paused which can lead to significant complications.

Solution
A dashboard that displays all IV pump medication information in one place

Homepage
The homepage displays all the IV pumps for the patients. The medication names are shown in tallman lettering with the drug class colors, both international standards that allow anesthesiologists to identify medication easier. The medications show the rate or dosage, depending on the medication, and paused IV pumps are clearly marked.

Medication Page
The secondary page for each IV pump shows more details about the IV, including total dose and time remaining. The drip visual also allows doctors and nurses to make a quick assessment of how much drug is remaining.

Alarm Page
The alarm screen clearly alerts anesthesiologists to a problem right away, they are able to tell which pump is alarming, the contents of the pump, and the problem causing the alarm. Anesthesiologists also have the ability to dismiss the alarm, silencing the alarm when they see fit.

Process
User research
- Competitive analysis
- Literature review
- Interviews and surveys with nurses and anaesthesiologists
- Contextual inquiry in ICUs and in operating rooms

Ideation & Design
- Card sorting with data from our research
- Personas and storyboards
- Sketches and wireframes

User Testing & Evaluation
- Participatory design with anesthesiologists using an early prototype
- Hi-fidelity mockups and prototype