Responding to Nurse Alarm Fatigue

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Alert Fatigue

“Nurses might hear over a hundred alarms an hour, many of them false positives... but if the nurse responds to a false crisis 29 times in a half hour, the 30th time she may not move so fast.”

- Barbra Drew (cardiac monitoring expert)
Review - Reasons Alarms Trigger

- Alarm parameters set too tight
- Settings not set to individual patient
  - Ex. If a patient is especially light, the pump will constantly trigger alarms.
- Malfunctioning alarms.
- Inadequate staff operation
Key Learnings / Approach

- Alarms are important and for a reason (don’t hide or limit them)
- Sound alarms create a stressful environment for patients and nurses.
- How can we embrace the alarms and create a way to manage readings in a less stressful way?
Brainstorming & Storyboarding
contributing factors
-alarm settings set too tight
-settings not adjusted to individual patient
-frequent false signals
-inability of staff to hear alarms
-inadequate staff training
-malfunctioning alarms

1:20 nurse helps patient most in need
4:26 nurses help patient least in need

sound is reserved only for the most urgent issues

Nurse plugs in glasses when shift ends

alert fatigue glasses
Concept Model

Hospital support helps set up alert system when first bought.

Glasses On - different colors are different alarms.

Should have charging station and enough glasses for nurses to use while others are charging.

Patient View: Pulls up patient records and vitals.

Important alarms use noise alerts.

Removing the majority of beeping alarms makes for a more peaceful environment.

Patients can call nurses through a call button or app.

Glasses Off: Still notify nurse of emergencies.
Wireframes & Wireflow
Physical Products Ideation

Glasses
Adapter
Charging Station
Further Research

How to make pumps talk to glasses
Features

● Glasses
  ○ Stand-by Mode
  ○ General Room Mode
  ○ Patient Mode

● Calibration Software
  ○ Allows customized color codes
Final Design
Glasses Design

- High density silicon
- Motion Sensors
- OLED Glass
- Induction charging
- Charge Indicator

Glasses
Charging Station

Transformer and Power source.

Induction charging mount

Wall mounts and stand offs

Modular charging addition
Glasses Views
Stand-by Mode

- Indicators go off on each side, represent the direction and wait time (max: 5 min) of alarms
Stand-by Mode

- When there is a 4th alarm on one side, the indicators combine into a big one.
- When the wait time of an alarm is over 5 minutes, the indicator flashes.
General Room Mode

- Indicators show above the pump when alarms go off, and the numbers represent seat number.
General Room Mode

- Indicators show above the pump when alarms go off, and the numbers represent seat number.
- When the nurse approaches to one patient, the alarms out of his/her view fly to the sides.
Patient Mode

- Patient info, pump info, current problem, alarms from other patients.
Patient Mode

- Other problem with other color code, (wipe to switch to show) vitals
Foci: The Values

- More information per alarm
- Quicker access to patient info
- Reduction of false alarms
- Involving more senses
- Less information to be drowned out
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Thank you