



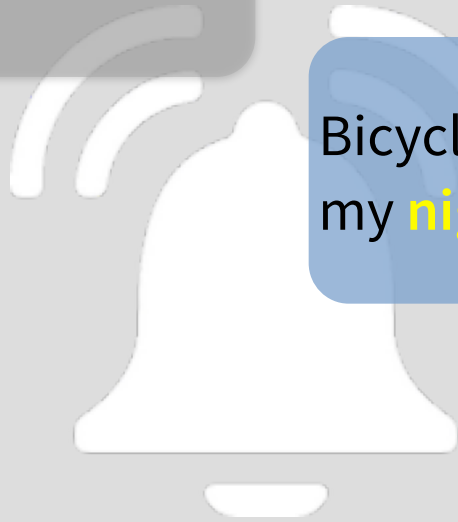
The NICU Noise Project

Redesigning the Neonatal ICU – Fall 2014

Cesare Jenkins
Josh Feler
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Parents find alarms stressful

Brittany: “You get used to the different noises and **learn which ones to freak out about.**”



Bicycle Steve: “That beeping was in my **nightmares for months.**”

David: “**Alarms are just shit.** No matter what, you are like, ‘Oh my God.’ ...”

but recognize their utility.

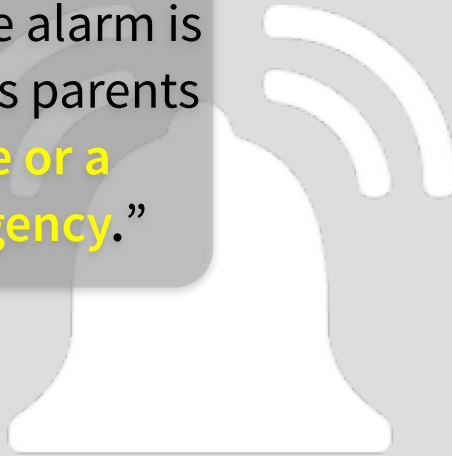
Jeff & Jenny: “**The monitor was a two-edged sword**, it was great when things went well, but really stressful when it wasn’t”

Brittany: “In a perfect world, you wouldn’t hear any alarm at all, but **nurses need to know who needs help when the designated nurse isn’t there.**”

David: **I would like to know if something is happening to my kid.** If it is someone else’s kid, it’s okay. It’s awful. I feel for you but thank god it’s not mine.”

Even nurses have an anxious reaction.

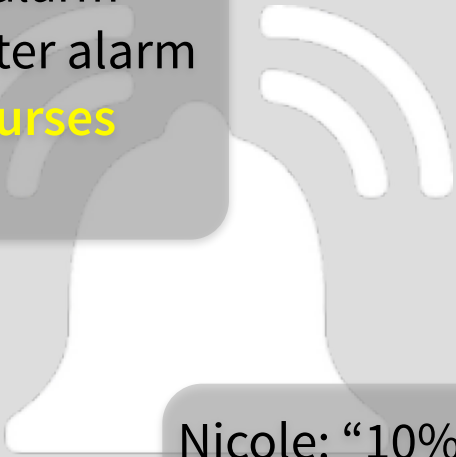
Janice: When the alarm goes off, “**you just want to sprint to it**...When the critical situation is going on, the alarm is still going on. More panic, freaks parents out. **I wish there were a remote or a way to turn it off during emergency.**”



“**There are not really distinguishable alarms** – I need to make sure by turning around and looking at them.”

A brief aside on docs...

Nicole: I “ignore the slow rate alarm and only notice louder and faster alarm after ten seconds to **see why nurses have not turned it off yet.**”



Nicole: “10% needs urgent response/intervention; 40% false alarms that I do not care about; the rest are informative... **all kinds of false alarms**”

Where we started... parents.



Nurses and parents have incredibly intricate and involved relationships with the alarms in the NICU.

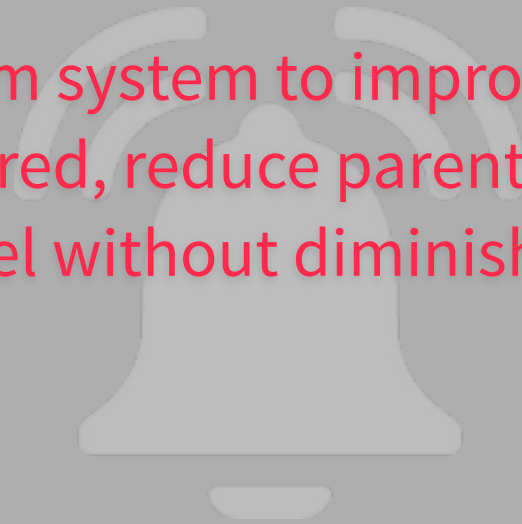
we'll talk more about what those are later.



Nurses need a better way to receive alerts about the babies in their care because audible alarms are information poor, cause anxiety to parents, and contribute to a loud NICU environment.

How Might We...

- transform the alarm system to improve the quality of information delivered, reduce parent anxiety, and lower the NICU noise level without diminishing response quality?



Prototype 1



Prototype 1

Steve's HR has dropped.

HR: 120

BP: 50/30

RR: 45

O2sat: 93

Blink to clear. Blink twice for more options.



Prototype 1 Feed back

“ ... the sounding alarm is usually necessary to alert others for help, ... send the vital signs of a critical baby to all nurses’ in the room would be helpful for them to gather information quickly.”

- Janice

Prototype 2



Prototype 2



Prototype 2



Prototype 2



Prototype 2 Feedback

“Watches cannot be worn in the NICU”

- Dr. Rhine

“If I could remotely silence the alarms, that would be great.”

- Kate

When the alarm is going off, I want everyone in the room to know

- Kate

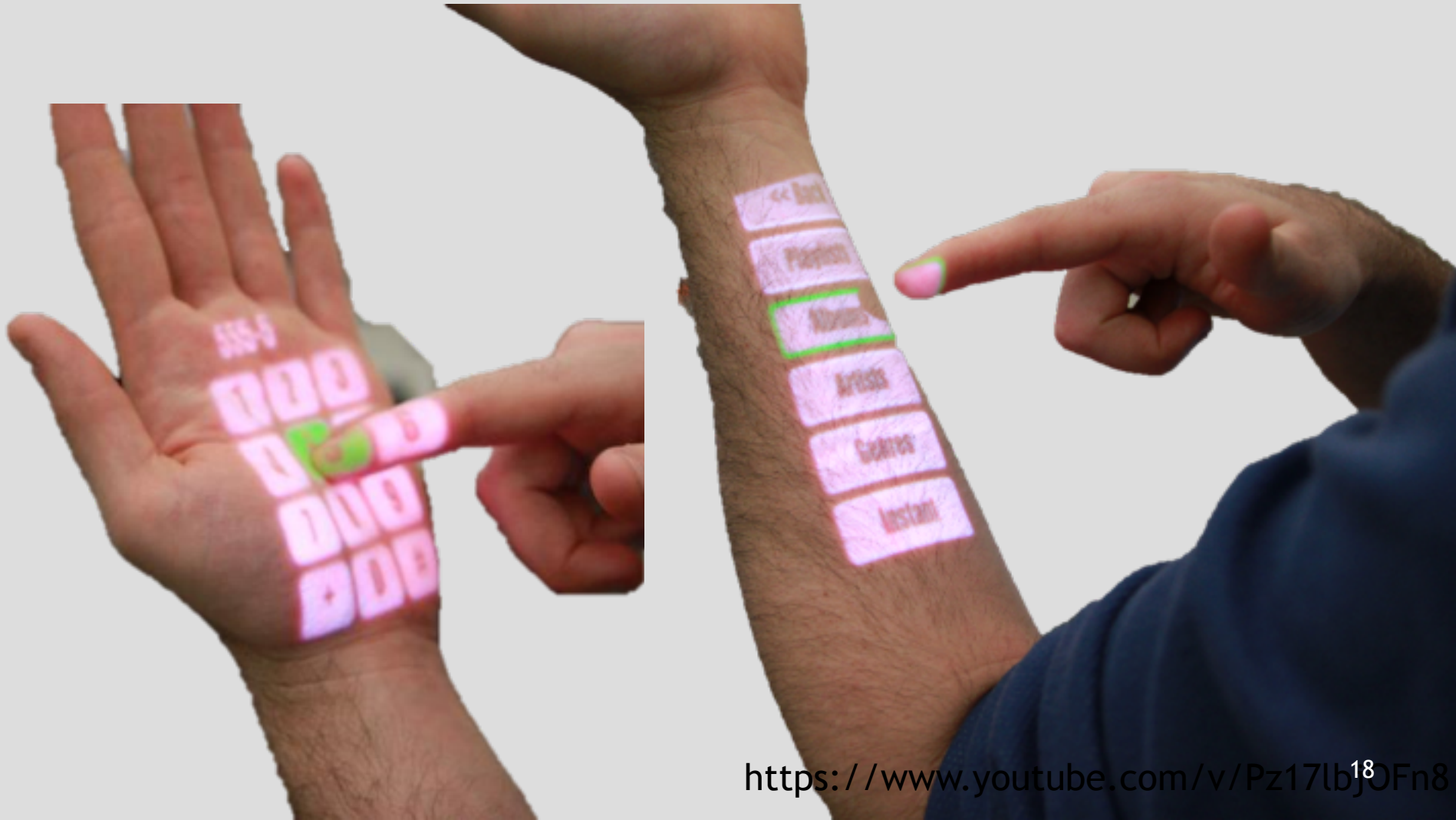
Information In Hand



A hand is shown holding a transparent sticker with patient information. The sticker contains the following text:

bed	1
HR	143
SpO ₂	95
RR	54
updated 12:53 PM	

This is Real!







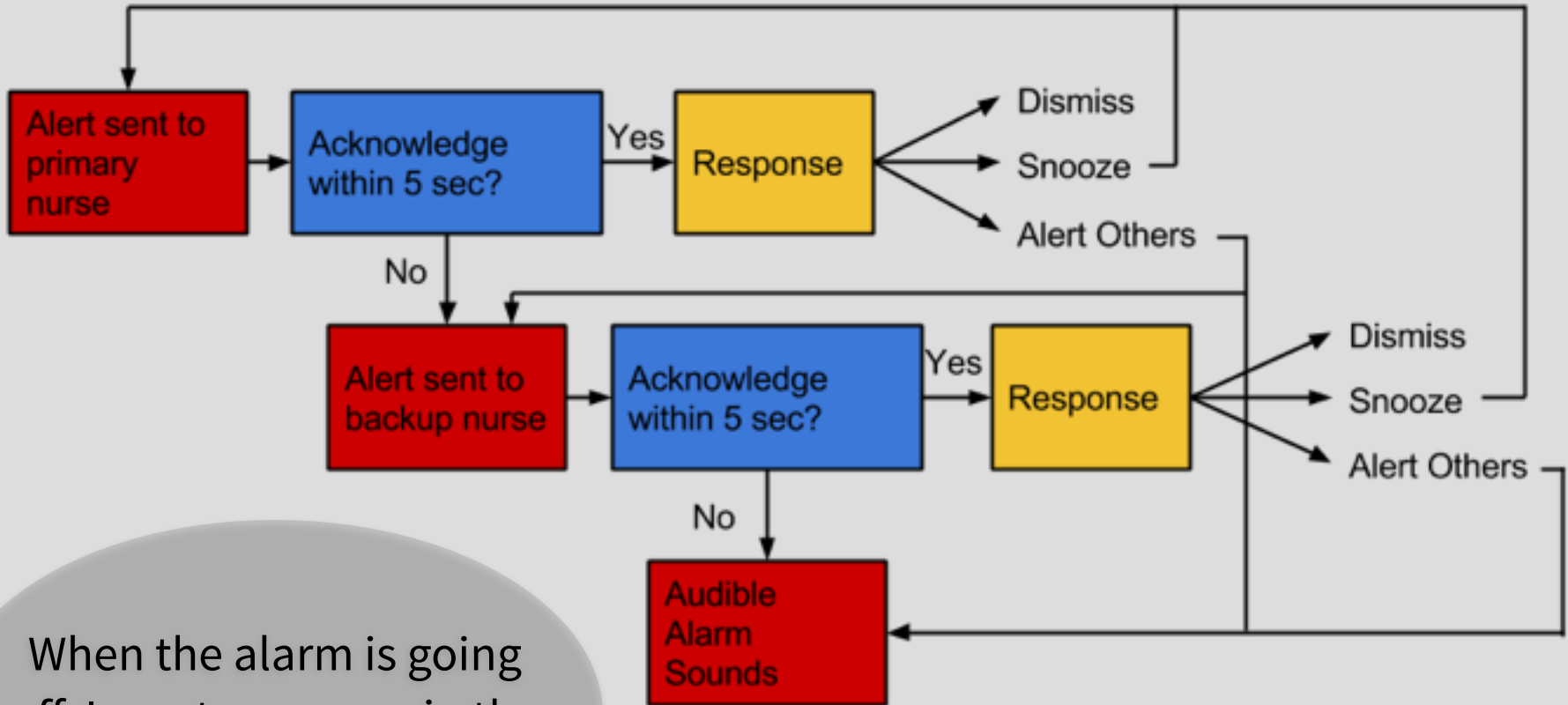






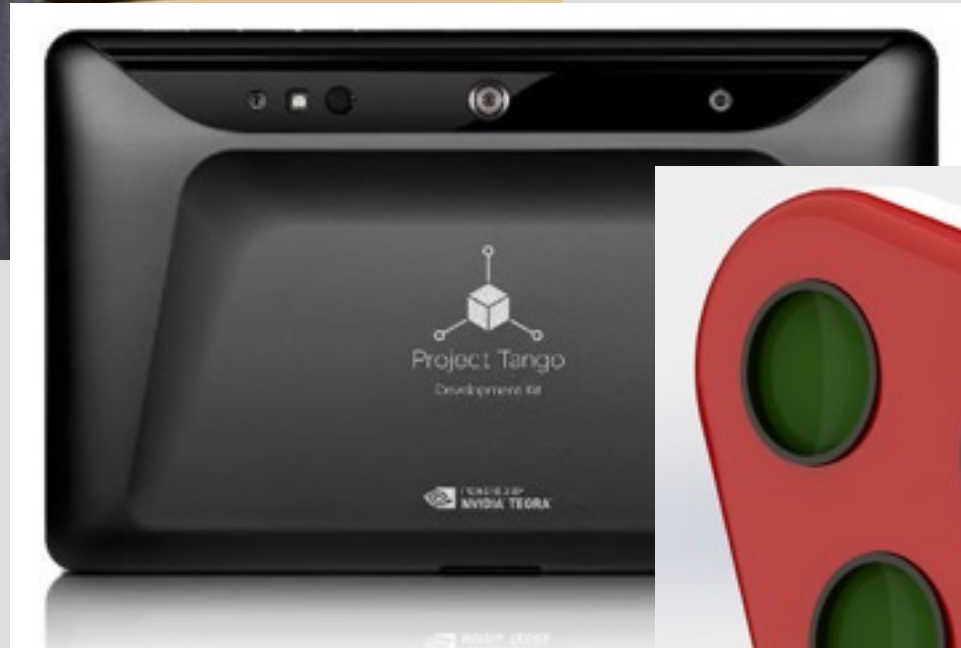


Notification Flow



When the alarm is going off, I want everyone in the room to know.

*All red alarms are audible



Thank You...

Jules and Dr. Rhine



To all the wonderful parents, doctors, nurses, and design coaches who shared of their expertise and experiences to help us along the way.



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