UNIVERSITY of WASHINGTON

Team 11: Recovery Improvement
Interactive Technologies (RIIT)
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Home Opioid Patient-Controlled Analgesia (PCA) Box

Seattle Children's
HOSPITAL · RESEARCH · FOUNDATION

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& The University of Washington
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Introduction

Opioids provide necessary pain relief to postoperative patients. However, opioids can be addictive, dangerous, and are often subject to misuse.

Our project, an in-home oral Patient-Controlled Analgesia (PCA) box, will address these issues by providing patients with the guidance they need to manage their pain effectively during their postoperative recovery.

How It Works

Everyday users will be asked to rate how their pain is being managed overall. Users will also be asked to rate their current pain level every time they request medication. This data will help us understand how we are doing with the wean prediction.

Touch Screen
Once the device is plugged in. Touch the screen to begin.

Ready Timer
When all dots are filled in, the button will say "Ready."

Pill Dots
Each dot represents a pill. When filled, a pill is available.

Pill Cup
Pills will drop into the cup once requested on the screen.

Companion App

The RIIT App pairs well with the device, giving you mobile access to your information.

You can share with friends and family who want to assist and see your progress.

Available on the App Store

Android App on Google Play

The Weaning Chart

The weaning chart will help you stay on track and monitor your recovery progress.
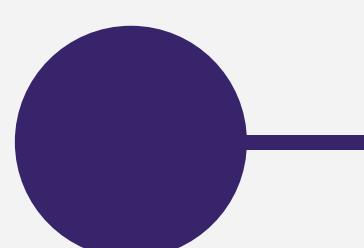
Each dot represents a dose. Everytime you take a dose, a new dot appears. If you stay within the green, you are on track to weaning successfully.

Quick Start Guide

The Quick Start Guide helps clarify the device's features and use to first-time users.
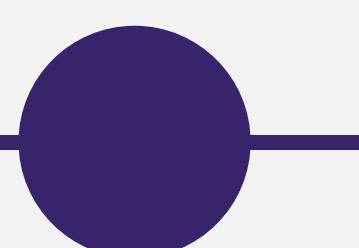
This guide will be supplied to the post-operative patient when they receive the device from a pharmacy or hospital. A nurse or pharmacist can explain the use of the device to patients before they leave the hospital using this Quick Start Guide.

Design
Pill Box
Companion App
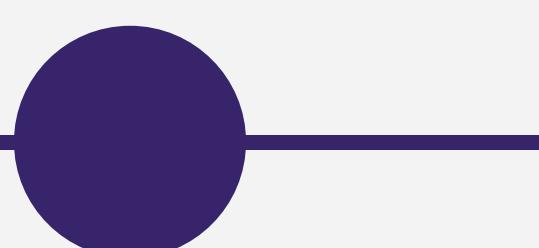
We turned our conceptual ideas into concrete artifacts so systems can be built and tested.

Prototype
Physical Computing
Interactive Demo

We created a 3D and 2D Prototypes for the PCA device, the device interface, and the companion app.

Evaluation
Usability Testing
Data Analysis

We evaluated and analyzed our PCA device and companion app through usability evaluations with participants.

Iteration
Pill Box 2.0
Updated Companion App

We iterated on our design by utilizing what we have learned from all previous steps in this process.