

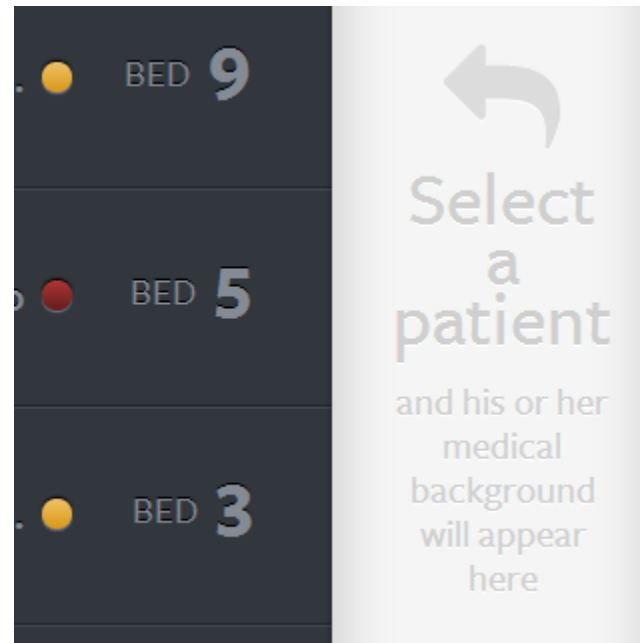
Heuristic Evaluation: EZ-ICU

Positive Comments:

1. Use of temporary whitespace for help information

(Help and Documentation)

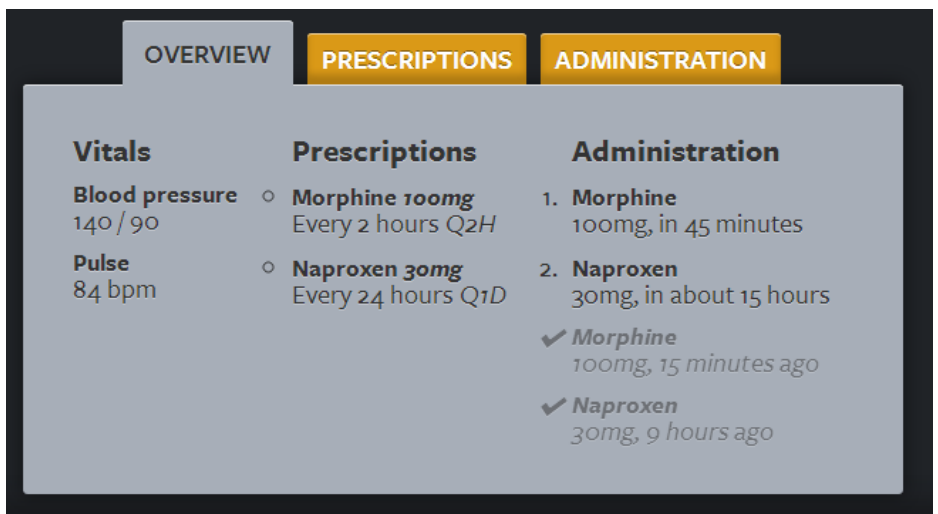
The whitespace area which will fill with patient details is effectively used for help text telling the user how to use the interface when not in use. It explains both how to interact with the list and the eventual purpose of that whitespace.



2. Overview tab shows what prescriptions and administration tabs do

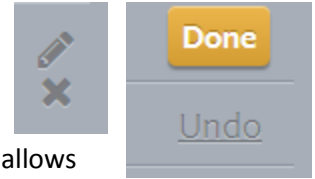
(Consistency & Learnability)

The overview tab has a prescriptions and administration section, with short information about the prescriptions in each. This makes it clear to the user that the prescription and administration tabs have more information about these prescriptions and more affordances of interaction with these prescriptions. The ordering is also internally consistent.



3. Errors with Prescriptions and Administration are easily recovered (Error recovery)

There are clear affordances to edit or delete prescriptions after they have been made, and marking a prescription as done replaces it with an undo button. This allows all errors with regards to these data to be easily recovered from quickly and in an easy to learn way.



4. Detailed view is well organized and easy to read (Aesthetic and minimalist design)

The color choice and vertical organization of the detailed view looks really good. The coloring of section titles and their size (combined with the use of icons) makes it really easy to chunk the data apart. Other color and font style choices in this section also help to provide a hierarchy of information which makes it very easy for users to quickly skim and get the necessary information quickly.

A vertical patient profile card for George Bush. At the top is a circular portrait of George Bush. Below the portrait, the name 'George Bush' is displayed in a large, bold, dark font, followed by '66-year-old male' in a smaller, grey font. The card is divided into sections by horizontal lines. The first section is titled 'Allergies' with a red exclamation mark icon; the text below reads 'Patient allergic to penicillin' in red. The second section is titled 'Other Medications' with a plus sign icon; the text below reads 'Patient not on any other medications' in grey. The third section is titled 'Visit Information' with a calendar icon; the text below reads 'Admitted with head trauma 1 day ago' in grey. The fourth section is titled 'Patient History' with a document icon; the text below reads 'In ICU after suspected cerebral hemorrhage 3 hours ago' in grey. The fifth section is titled 'Demographics' with a house icon; the text below reads 'Sex Male' in grey.

Problems:

1: Minor: **Lack of Contrast may make text hard to read** (Visibility)

In many places on the page, the text is a dark shade of gray inset into a dark gray area (see screenshots). Specifically the text used in the sort buttons and number of current patients is so dark that the visibility of these affordances and information is greatly reduced. The same problem occurs with critical information like the next time the patient should take their medications.

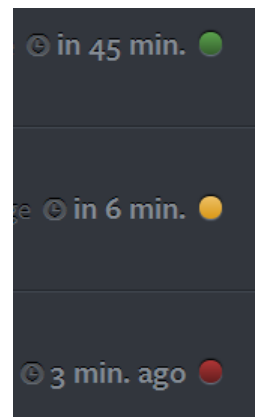
Recommendation: Increase contrast on text of important information, or provide a different background color.



2: Minor: **Unclear what the color status indicators actually mean** (Learnability)

There are different color indicators on the patients to provide glance-able information to a doctor looking at a patient. It is not clear what controls this color (the time to next medication or if this is some indication of status in the ICU).

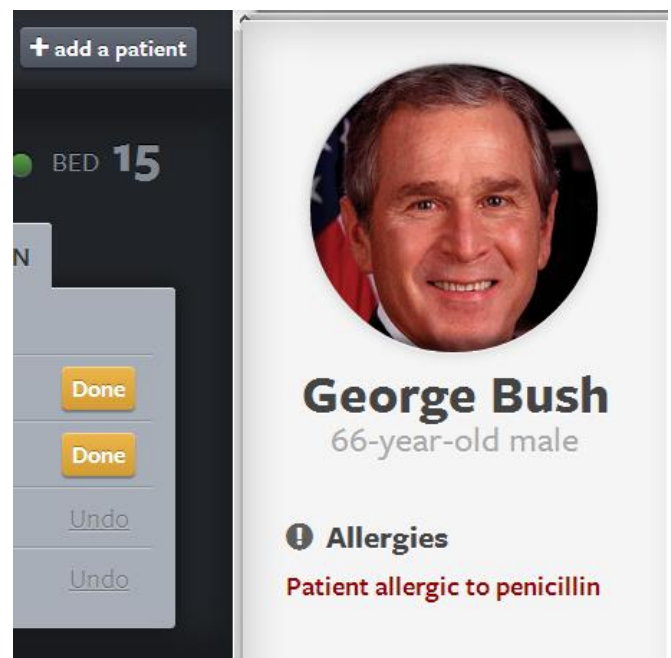
Recommendation: Whatever information the colors correspond to could also be colored in the same way.



3: Catastrophic: **Scrollbar partially hidden by patient detail view** (Consistency, affordances)

The scrollbar afforded by the list of patients view is hidden by the detail view (see screenshot). This is not externally consistent with other interfaces where the scrollbar is not hidden in such a way and prevents users from being able to see and use this affordance. It is even more confusing when the user sees a part of the scrollbar and wonders why it is being covered up (but cannot fix it).

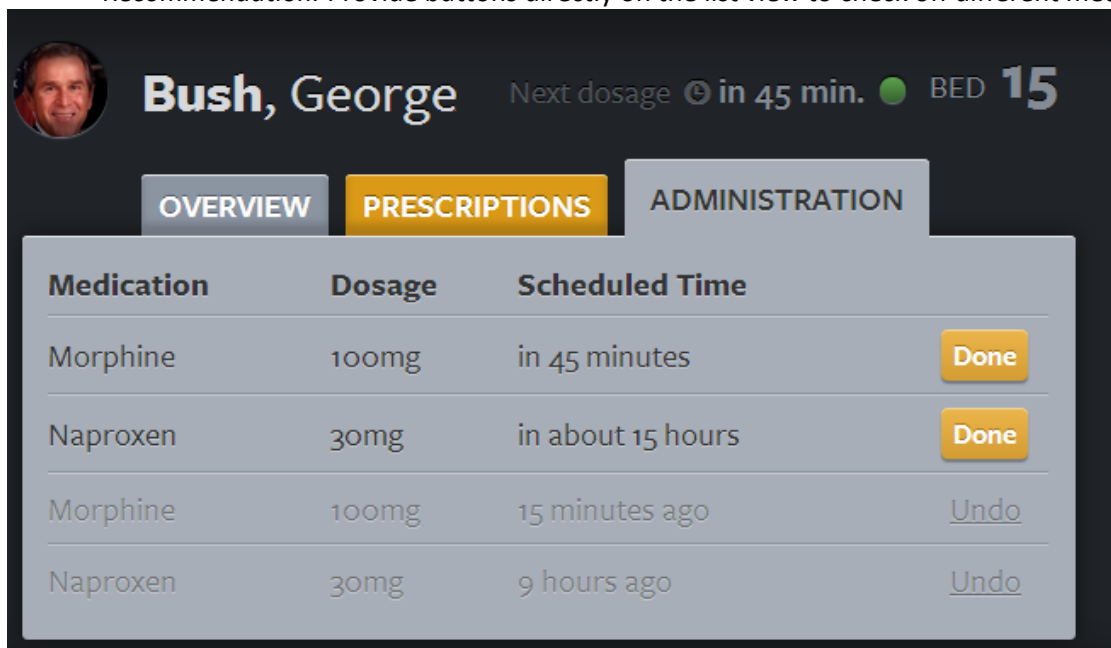
Recommendation: Shrink horizontal space used by detail view or adjust the z-index of the scrollbar, getting rid of the overlap effect.



4: Major: **Checking off patient medications is slow** (Efficiency)

Performing a checkoff on a patient may be slower than is required, a user must wait on the animation to complete, navigate to the administration tab and then click done. If the user has to do this for a lot of patients it may be very inefficient.

Recommendation: Provide buttons directly on the list view to check off different medications.



5. Major: **No affordance to edit or remove a patient** (Efficiency & Error Recovery)

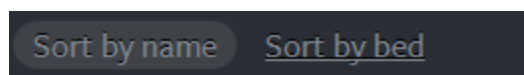
Even though the patient-add interface has not been implemented in this prototype, there is no way to remove a pre-existing patient. This can be a problem if the patient is no longer in the hospital and is cluttering the system, or if a patient was erroneously added and must be removed.

Recommendation: Include edit and remove buttons in the detailed view of a patient.

6. Minor: **Sorting button affordances unclear** (Consistency and Standards)

Normal buttons have an on-hover effect which makes it clear that they are indeed buttons. The top sorting buttons (while affording the pointer hand) do not have on hover effects. In addition, it is not apparent until trying the sorting buttons which one is the currently selected one (one is underlined and one has a background box).

Recommendation: Add normal button affordances to these buttons, including on-hover, on mousedown and clear selected states.



7. Cosmetic: **Top left icon is not an affordance** (External Consistency)



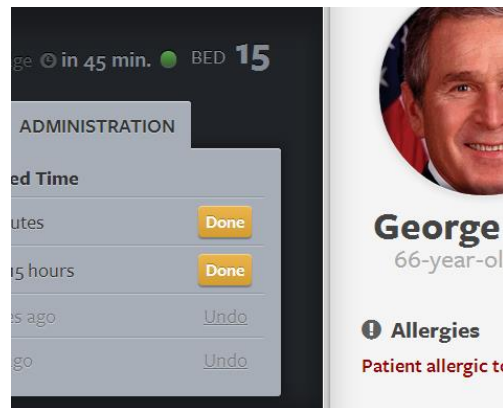
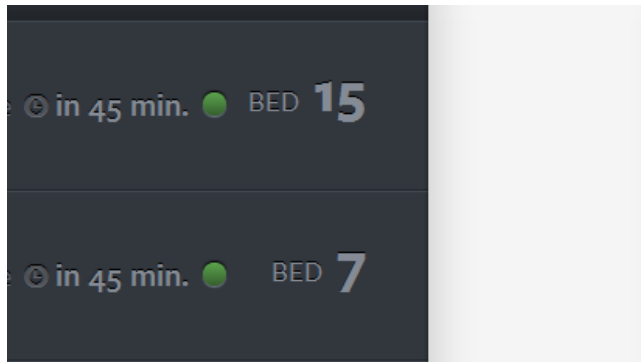
The top left icon is the same icon used by many mobile interfaces to specify a menu or more options. Clicking on the button does nothing and it seems to serve only an aesthetic purpose.

Recommendation: Either remove the top icon or provide it a clickable affordance that is externally consistent with other appearances of this icon.

8. Major: **Overlapping detail view doesn't act like an overlap** (Match the real world)

The detailed view looks like a stack of cards and overlaps the list view slightly (even overlapping the scrollbar as explained above). This would indicate to users that it should act like an overlap does and slide over the list view when expanded. Instead it contracts the list view and expands, keeping the same amount of overlap between the two.

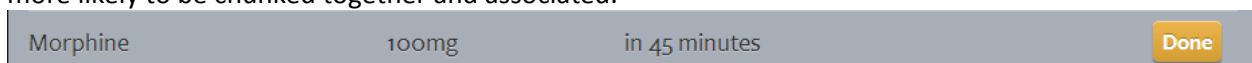
Recommendation: Remove the overlap effect altogether, it appears you don't actually want this to function as an overlap by covering up content, so use a different physical mapping.



9. Minor: **Easy to mark done on the wrong prescription** (Error Prevention)

The done button is on the other side of the box from the name of the medicine itself. While the horizontal lines make it easier to delimit the rows, it is still easy to slip if there is a long list of medicines. The same is true of the edit and delete icons on the prescriptions tab.

Recommendation: Place the done button closer to the name of the medicine, so they will be more likely to be chunked together and associated.



10. Minor: **Top Nav-bar offers no affordances but uses space** (Aesthetic & Minimal Design)

Currently nothing on the top bar is an affordance. This static information is fine but the top navbar is also anchored to the top of the page, meaning it will always use that screen real estate no matter how far down the user scrolls.

Recommendation: Add an affordance to change user in the top nav-bar, and not locking it to the top of the page.



11. Major: **No way to batch interact with patients** (Flexibility and Efficiency)

There are no affordances for interacting with multiple patients at once. A doctor may, for example, use the tool after checking in with several patients and may want to mark them all off as having taken their medication. Given the inefficiency of marking a single patient off (listed above) this process is not efficient.

Recommendation: Add check-boxes to each patient to allow the doctor to select many patients at once and check them all off.