

6.813 HW2

Heuristic Evaluation of EZ-ICU

By: Alvaro Morales

Collaboration Statement

I did not collaborate with anyone on this assignment.

1. Top bar shows which user is logged in

Good feedback

The interface is personalized to the user that logged in.

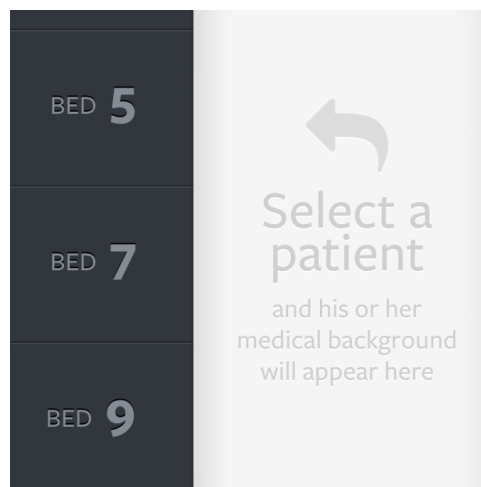


You are currently logged in as  Dr. Strangelove

2. The sidebar shows clear instructions on how to open the patient detail view

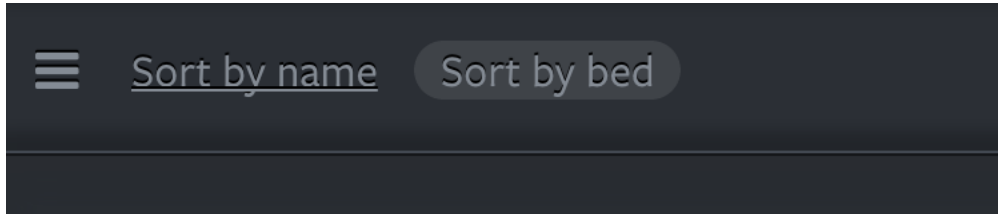
Good help & documentation

When the user first opens the interface, good instructions on the minimized sidebar show how to use the main browsing interface.



3. “Sort by” menu icon suggests that the bar is draggable

Minor affordances, external consistency



The “sort menu” icon looks like the iOS draggable row widget icon:



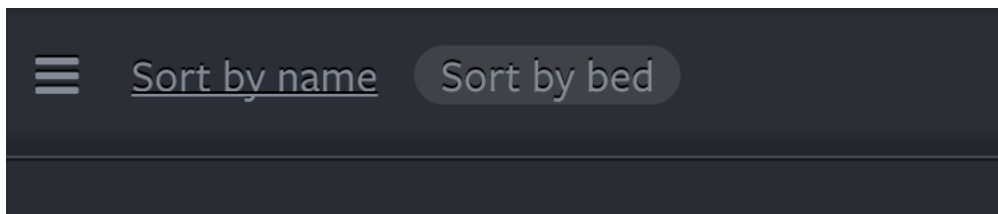
<http://creativealgorithms.com/iphone/EditCalcList.jpg>

Recommendation: change the icon so prevent the user from thinking that the bar is movable.

4. Patients cannot be sorted by proximity of dosage

Major efficiency

As the list of patient gets long, the doctor or nurse would probably prioritize care to those who need to receive medicine next. The interface offers no feature to sort patients by who needs medication next.

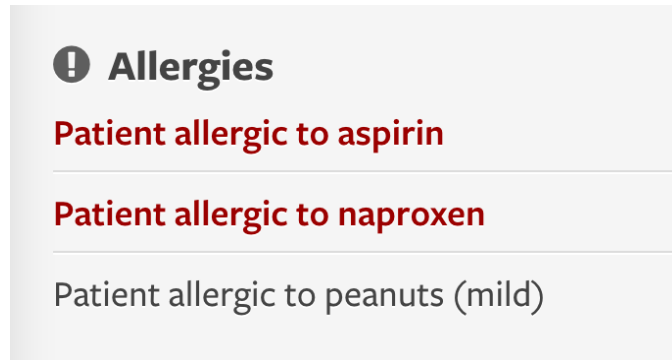


5. The list of allergies is repetitive and prevents at-a-glance browsing of allergies

Cosmetic

simplicity, minimalist design

The list of allergies repeats the phrase “patient allergic to”. The sidebar shows the medical background specific to the patient, so it is obvious that the allergies belong to the patient.



Recommendation: simply list allergies. A more minimal list of allergies will allow faster browsing.

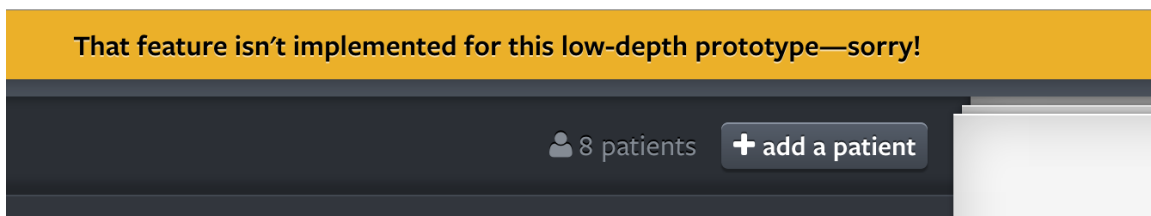
6. “Add a patient” button looks disabled but is not

Minor

affordances

When the user expands the patient detail view, the “add a patient” button greys out to suggest that it is disabled.

However, the button still retains some affordance that it is clickable (for example, it darkens on hover). In addition, clicking the greyed-out button has the same effect as clicking the enabled button (displaying the alert bar).



Recommendation: if the intent is to prevent the user from adding a new patient when looking at another patient in detail, actually disable the button. If not, don't change the button's affordances.

7. Add prescription form offers no validation

Major error prevention

The user can enter an illegal value for a prescription dosage (letters instead of numbers, for example). There is no validation of the user's input.



The screenshot shows a prescription form with three input fields. The first field contains the text 'Morphine'. The second field contains '12adbfg mg', where 'adbfg' are letters instead of numbers. The third field is a dropdown menu currently showing 'Every hour'.

Recommendation: restrict dosage input to numbers or validate that the user input is correct.

8. Good contrast easily distinguishes between static display components and interactive controls

Good aesthetic design

Static display components have gray tones, and interactive features have bright yellow tones. This results in offering good information scent of the interface's affordances.

Frequency	Start	End
Every hour <i>Q1H</i>	2 hours ago <i>2 dosages given</i>	in 1 hour, 2 minutes <i>2 dosages remaining</i>

Add prescription

9. User can undo a prescription administration

Good reversible actions, error recovery

The "Administration" tab allows the user to record which prescriptions have been administered. If the user makes a mistake and marks a prescription as "Done", they can recover from the error by clicking "Undo".

SCRIPTIONS		ADMINISTRATION
Dosage	Scheduled Time	
100mg	in 6 minutes	Done
30mg	in about 15 hours	Done
100mg	54 minutes ago	Undo

10. Unsaved “Add prescription” forms are not discarded

Minor

flexibility & efficiency

The user can click the “Add prescription” multiple times, and a new row will appear each time. However, when the patient detail view is collapsed, and then re-opened, the empty input rows are still there.

Naproxen	30mg	Every 24 hours <i>Q1D</i>	9 hours ago <i>1 dosage given</i>	in 6 days, 15 hours <i>7 dosages remaining</i>	
Medication	Dosage mg	Every hour	Start	End	
Medication	Dosage mg	Every hour	Start	End	
Medication	Dosage mg	Every hour	Start	End	
Add prescription					

Recommendation: discard unsaved rows after the patient detail view is collapsed.

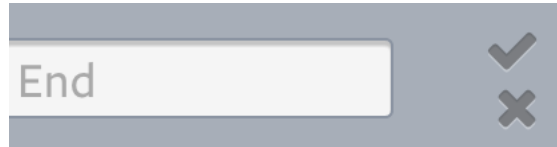
11. Low safety when adding a new prescription

Minor

error prevention

When the user creates a new prescription, they must click on the checkmark icon to save it. The save and discard icons are fairly unobtrusive, as they do not contrast with other components, and

may be overlooked. If the user switches out of the “Administration” tab, no warning alerting that their change is unsaved appears.

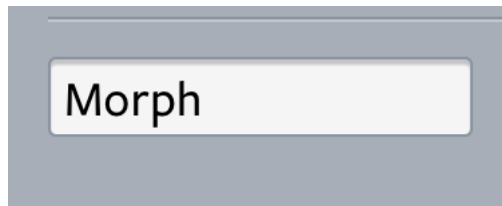


Recommendation: prevent the user from switching out of the “Administration” tab before saving or discarding a new prescription. Increase the contrast of the save/discard buttons with the rest of the “Administration” components.

12. No auto-complete for medication names

Minor efficiency

In an ICU, a small number of medications will probably be prescribed over and over again. The “add prescription” feature offers no auto-complete of the medication name.



13. Ordering of administered prescriptions is not immediately obvious

Cosmetic external consistency

The “Administration” tab shows a table of prescriptions to administer. It is not obvious that the prescriptions are sorted by descending “next schedule time”.

Obama, Barack Next dosage 3 min. ago BED 12

OVERVIEW PRESCRIPTIONS ADMINISTRATION

Medication	Dosage	Scheduled Time	
Aspirin	100mg	3 minutes ago	Done
Aspirin	100mg	1 hour, 3 minutes ago	Undo
Aspirin	100mg	about 2 hours ago	Undo

Recommendation: add an arrow next to the table column to show the ordering of prescriptions, preserving external consistency.

14. Ordering of administered prescriptions is not updated

Minor internal consistency

The “Administration” tab shows the prescriptions left to administer on top, and the completed ones below. After the user marks a prescription as done, the ordering of the prescriptions table is not updated.

Dernoncourt, Franck Next dosage in 6 min. BED 9

OVERVIEW PRESCRIPTIONS ADMINISTRATION

Medication	Dosage	Scheduled Time	
Morphine	100mg	in 6 minutes	Undo
Naproxen	30mg	in about 15 hours	Done
Morphine	100mg	54 minutes ago	Undo
Naproxen	30mg	9 hours ago	Undo

Recommendation: when the user switches out of the “Administration” tab or closes the patient detail view, updated the ordering to maintain internal consistency.

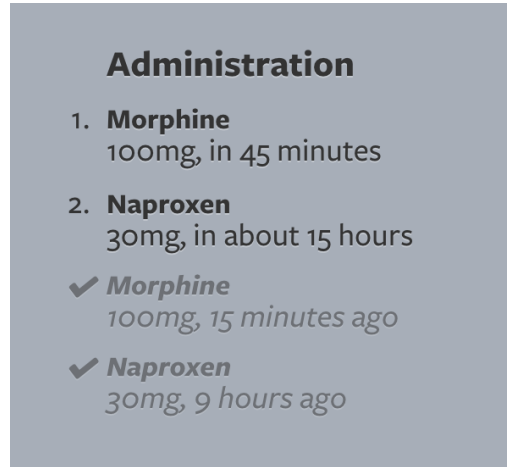
Do not change the order immediately, so that the user can undo a change immediately without having to scan the table to locate the row.

15. Next dose in patient view doesn't have a proximity indicator

Minor

internal consistency

In the patient list, every row has a proximity indicator (a red circle if the next dose is overdue, a yellow circle if the next dose is upcoming, and a green circle if the next dose is still a while away). The “Overview” tab in a patient detail view, however, does not make use of these indicators.



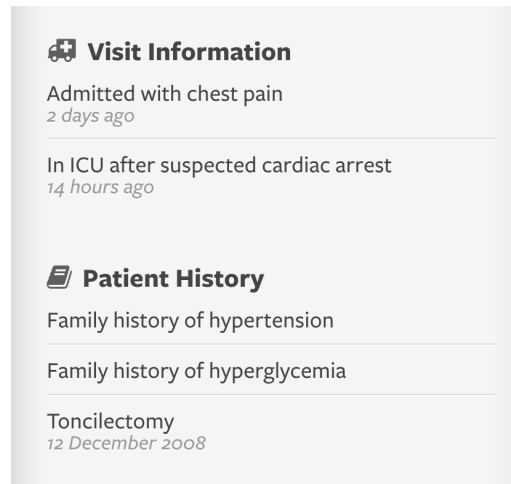
Recommendation: In the “Overview” tab, include a proximity indicator for all doses that have not yet been administered.

16. Danger of displaying too much historical information

Major

aesthetic and minimalist design

If a patient has many visits to the ICU, or a long patient history, the overview sidebar might display too much information. The interface suggests that it will display all historical information at once.



Recommendation: Display only the most recent or more relevant pieces of history and visit information, and allow for the user to expand and collapse the full sections.

17. No option to edit patient information

Major

user control & freedom, error recovery

After a patient is created, the doctor might have missed an important piece of the patient's history or entered incorrect personal details. The interface gives no option to edit patient information.

Recommendation: allow for the doctor to edit all patient information. A nurse should probably not have permission to do this.

18. No option to discharge a patient

Major

user control & freedom

A patient will not remain in the ICU forever. The interface gives no option to discharge patient. Similarly, the interface gives no option to re-admit a previous patient.

Recommendation: Implement a "discharge patient" feature. In addition, perhaps the "add a new patient" option (unimplemented in GR4) might allow for the user to search previously admitted patients.