

## THE VISUAL DASHBOARD & HEADS-UP DISPLAY OF PATIENT CONDITIONS

### ASSESSMENT VOLUME

PREPARED FOR:

**TELEMEDICINE AND ADVANCED TECHNOLOGY RESEARCH CENTER  
(TATRC)**

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## Introduction

The *Assessment Volume* documents the comments and requests received from project stakeholders and clinical consultants during weekly reviews. This document also includes the action item and results associated with each comment or request. This document helps to clearly document and communicate requested changes by project stakeholders and ensure changes are captured and integrated into the final prototype and supporting documentation. This document has been updated each quarter and represents our current understanding of the project's requirements.

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### **III. USABILITY TESTING RESULTS**

July 19–December 14, 2012

## Executive Summary

### INTRODUCTION

The Parsons Institute for Information Mapping (PIIM), of The New School received Internal Review Board approval from The New School on December 14th, 2011. On February 17th, 2012, PIIM was notified that the IRB protocol in support of this project was determined by the USAMRMC not to involve research activities in accordance with 32 CFR 219.102(d).

PIIM conducted internal “dry runs” with staff to organize and inform the overall testing effort prior to the formal testing utilizing subjects. Formal testing began on July 19, 2012 and concluded on December 14, 2012. By the conclusion of the usability effort, 10 dry run tests, 20 benchmark tests (used for *Time* and *Path* comparisons), and 24 official interviews had been conducted.

Of the 24 subjects:

- 42% were female, 58% were male;
- 58% were between the ages of 31–45;
- 75% had a 4-Year College Degree (BA, BS) or higher;
- 83% spoke English as a first language;
- 100% used Web Browsers, 95% used Office Applications, and 71% used Creative Applications;
- 83% used the computer daily at school or work;
- 88% used the computer daily at home;
- 96% had not used a software package to track health-related information.

A known limitation of our study as indicated by the subject demographics was that the population from which the subjects came from was a university campus. Clearly, there are differences in the level of education and general population of active duty military personnel. Subsequent

usability testing should take this into account; and future usability studies are planned that should provide better insight into this key difference.

### STUDY DESIGN METHODOLOGY

The usability testing was broken into four groups of six testers. The idea was that as the subjects identified usability constraints with the prototype, the application could be redesigned and reprogrammed thereby providing a second opportunity to assess not only the effectiveness of the original design but the effectiveness of the revision. The subjects were recruited in four groups of six: Group 1A, Group 1B, Group 2A, and Group 2B. Since the HealthBoard prototype included both a patient and a provider portal, the subjects were given personas that were modeled after anticipated user workflows. Since the test was to be conducted over a 45-minute duration, it was more effective for evaluation and for the subjects to divide up the functionality of the HealthBoard prototype across different groups.

Overall, the iterative redesign of the HealthBoard prototype based on initial feedback led to notable improvement in the completion of tasks between testing groups. Of the initial 30 identified tasks, 18 of them were improved, and an additional 6 tasks were flagged for requiring further redesign beyond the redesigns conducted during the usability testing.

### RESULTS

For analysis, PIIM conducted both qualitative and quantitative data. Data provided the backbone for understanding fundamental flaws in the original design, while the qualitative data helped inform what subjects felt or thought about the application. Using a software package called *Morae*, PIIM calculated a number of task-based metrics including *Successful Completion*, *Task Time: Benchmark Time*, *Task Path: Benchmark Path*, and *Error Rate* were recorded. Testers were also given scorecards following each task to rate *Task Complexity*, *Visual Design*, and *Overall Appeal*. These scorecards provided PIIM with better insight into overall user satisfaction. Tasks were judged as “improved” based if more than one metric were identified as improving from one round of testing to another.

Overall, subjects responded favorably to the usefulness of HealthBoard on average -58%, or 14 of 24 subjects stated that they would be at least somewhat likely to use HealthBoard if made available to them. Subjects cited the most common reason as being the “convenience of one-stop shopping”; other comments included identifying HealthBoard as an “all in one software on health and



food!” and provided “ease of communicating with health provider.” Furthermore, 63% (15 of 24) rated the application as at least somewhat easy to use. Considering that these surveys were conducted after subjects had on average less than an one-hour to work with the prototype, we believe that this bodes well for dashboard-based personal health systems.

The dark color scheme and contrast had been identified prior to the testing as something that some subjects might have a strong opinion about. On occasion prior to the testing, some reviewers from the Military Health System had reflected on feedback they had received on a similarly-skinned system JANUS. Based on the usability testing however, this criticism wasn't uniformly noted by subjects. A few subjects identified the color scheme as being rather soothing—“dark color scheme is comforting—not clinical” or “I like the color scheme; it's very neutral and adjusted to my eyes.” One subject commented the “color scheme is o.k. It will be nice to have option. The color scheme seemed fine.” Others did express that they would prefer “brighter colors, not as monochromatic” or “the color of screen is a little too dark. It will be better if it's lighter.” Based on further observation and subject comments it became evident that the experience and visual design may benefit overall from being more friendly and approachable. One tester commented “it does look slick, but it does not look friendly.” Another said “if I could change the color, it will make it a little more friendly.” Yet another mentioned: “Too much gray...looks like a tombstone (laughs).”

These comments generally confirmed that the importance of providing the user with customizable options. While some users indicated indifference about the colors used for the prototype, providing an option for those who would prefer some level of control over the appearance would likely satisfy those who would have preferred lighter backgrounds or colors used in the application. The HealthBoard prototype has now incorporated an alternate color scheme which could be further enhanced depending on where HealthBoard might be used.

*HealthBoard* has two different “homescreen” views: a simplified button view and a dashboard view which contains key data points from each module. The majority of subjects preferred the button view, saying things like “[the button view is] a little less cluttered, I think.” Another subject said the widget view “is a bit overwhelming. I like button view better. [In widget view,] there are a lot of things on the screen. I'd like to just focus on things. I prefer button view.” After completing the task to change button view to widget view, PIIM even observed some testers revert to back button view.

PIIM invested significant time and resource into developing a “Next Steps” feature. The next-step feature provides recommendations from the patient's provider team, such as “Schedule Tetanus vaccination.” Initially, this information was contained in the *Medical Records* module, and subjects scored a 83% successful completion rate when attempting the task. PIIM made an effort to promote the feature to the “homescreen,” hoping to drive 100% successful completion. Unfortunately, the change that was made put the feature in a “blind spot” of the user interface, and subjects only scored a 33% successful completion. When asked what was most challenging, one tester commented “it was to find the ‘Next Steps’ information.” Another tester commented: “Looking [for] a history of Next Steps. Not sure what Next Steps meant.” The term itself appeared to cause confusion. Since the term may also be associated by some with *advance directives*, meaning the protocol for a person's end-of-life care, we believe that an alternate phrase is probably more appropriate. The ease of access to the information held in such a summary screen does however provide a great opportunity for communicating important information to patients.

The Exercise Module had an aggregate success rate of 71%, compared to the median module score of 81%. One contributing factor could be the *Physical Readiness Test*, with which civilians are unfamiliar. Another could be the several different types of exercise: *Personal Readiness Tests*, *Physician Assigned*, and *Personal*. Perhaps only having *Physical Readiness Test* and *Other Exercises* would simplify the module.

Finally, the interactive trackers in the *Vital Signs* occasionally caused problems for subjects. PIIM believes this could be a powerful tool to empower behavior change through information. In our task the subject was instructed to create a tracker for the number of cigarettes smoked. Despite attempted fixes, the task's success rate sunk to 50%. It seems testers do not associate the *Vital Signs* module, perhaps taxonomically, with custom trackers or understood their intended function. An opportunity may exist to merge *Trackers* with *Next Steps*.

## OTHER OBSERVATIONS

Improving *HealthBoard*'s nonverbal communication might also help with engagement. The intention behind having functionality like *Trackers* and *Next Steps* is to empower behavior change through information. The ease of access of such information may also encourage use and adoption of the application. Some companies have within the past few years developed devices (pedometers, scales, bracelets) where the information is automatically trans-

mitted to a reporting application (Nike Fuel, Fitbit, Basis, and Withings Wi-Fi Body Scale are a few examples).

On a high level, the user experience should be prioritized according to *communication*, second *data acquisition*, then finally *data retrieval*. The modules as currently organized are highly segmented and separated. Comments can be made in multiple modules but no single place exists to engage with comments. Creating a single, designated place for interacting with health care providers in *relation* to data (not just *Messages*) could improve effectiveness. One way of doing this could be the introduction of something like the *Health Focus* block from the Provider Portal into the Patient Portal.

## FUTURE USABILITY EFFORTS

The testing environment was identified as being overall important to the process. Distractions in the room, including multiple moderators, equipment and other items tended to complicate things for subjects. Removing as much of these factors possible would likely decrease any anxiety experienced by the subject. While subjects were offered food and beverages, the addition of light music to the environment might also lead to a more pleasurable environment.

In processing the data, *Hint Count* is one metric that would have been a useful indicator, perhaps even more so than *Error Rate*, would have. A *hint* is defined as any additional information, outside the task, dispensed by the moderator. This could be a good metric in determining problem areas.

Recruitment proved more difficult and time consuming than originally anticipated. Multiple no-shows complicated matters, and the incentive (a \$10 Metrocard) may not have been enough to adequately encourage participation. Formative testing may lead future tests away from design changes that negatively impact the usability scores before they are deployed in a formal testing environment. The usability testing confirmed for us that HealthBoard could be an effective way in ultimately improving the likelihood of patients recording and interacting with their personal health information.

## Methods

### RECRUITMENT

Following our IRB-approved protocol, PIIM recruited 24 subjects for testing using posters in and around The New School University (see FIGURE 1A and 1B). Respondents took a “tear away” containing a link to the study’s website (<http://piim.newschool.edu/ulab>).

On the “ULab” website (FIGURE 1C), interested parties reviewed additional details, agreed to an informed consent statement, and then completed a Pre-Screener Survey to participate. PIIM then corresponded with the respondents via e-mail to schedule appointments.



FIGURE 1A: ULab Poster

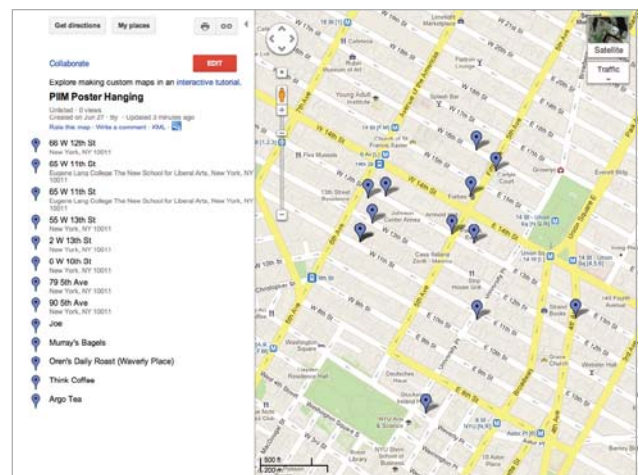


FIGURE 1B: ULab Distribution

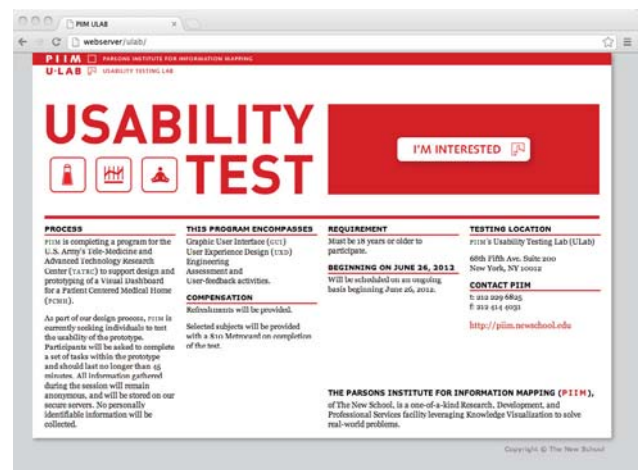


FIGURE 1C: ULab Website

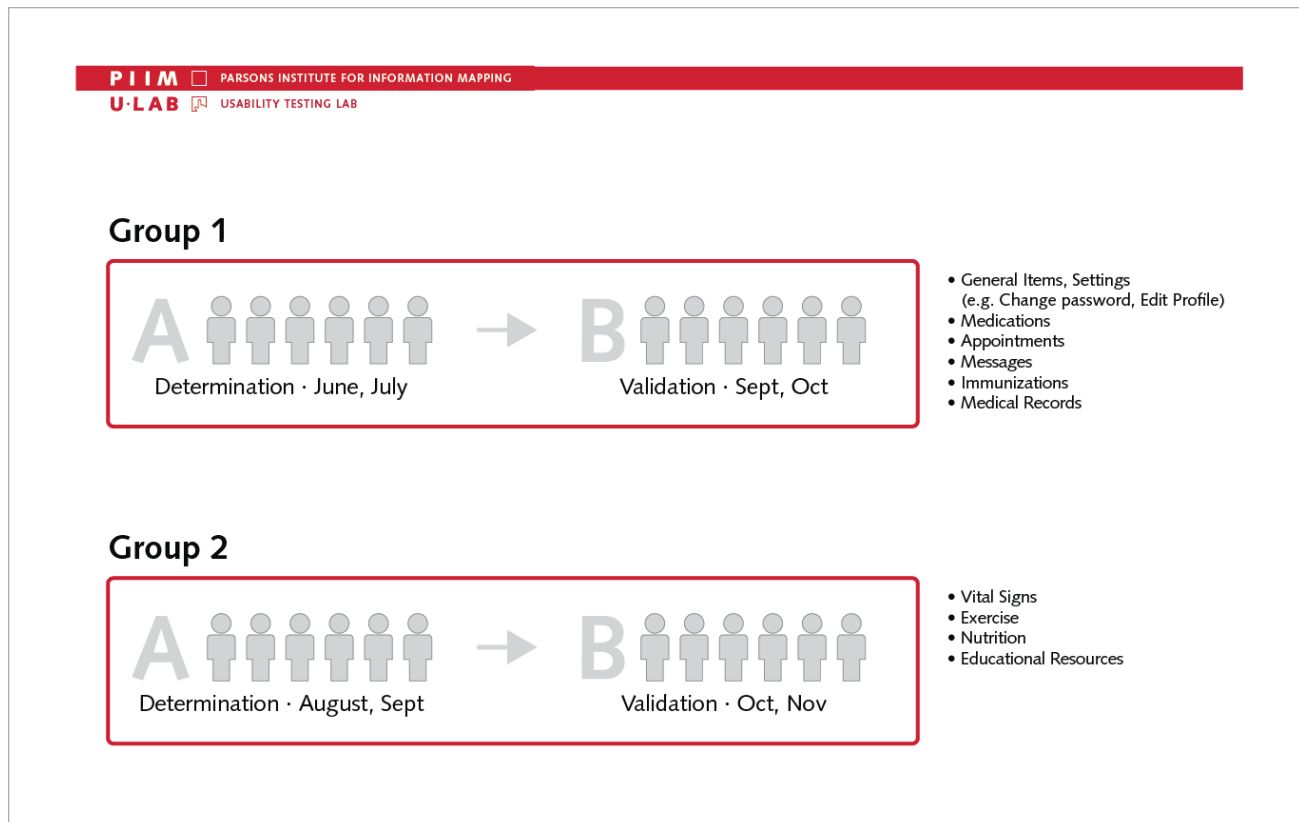


FIGURE 2: *Test Structure*

## TESTING STRUCTURE

Subjects were divided into four groups of six: Group 1A, Group 1B, Group 2A, and Group 2B (see FIGURE 2). Group A represented the testers, and Group B represented the validators. *HealthBoard's* breadth made it difficult to test the full prototype in a single 45-minute session, plus these groupings related directly to the schedule of our engineering effort.

- Groups 1 and 2 tested different sets of modules.
- Group 1 tested *Setting* (e.g. Change Password, Edit Profile), *Medications*, *Appointments*, *Messages*, *Immunizations* and *Medical Records*.
- Group 2 tested *Vital Signs*, *Exercise*, *Nutrition* and *Educational Resources*.

| MODULE               | COUNTED | NO. | TASK   |
|----------------------|---------|-----|--|
| GENERAL (GEN)        | •       | 01  | How would you reorder the modules?   |
|                      | •       | 02  | How would change the display of the homepage?  |
|                      | •       | 03  | Please login with the persona you've been provided.                                    |
|                      | •       | 04  | Delete a module.   |
|                      | •       | 05  | Add a module.  |
| VITAL SIGNS (VITALS) | •       | 01  | Tell a doctor their weight on a date.  |
|                      | •       | 02  | Tell a doctor their weight on the same day last year.                                  |
|                      | •       | 03  | Record weight and temperature with comment (for yesterday): "Feel sick, have the flu." |
|                      |         | 04  | Find help information related to blood pressure.                                       |
|                      |         | 05  | Find all the vitals for a specific entry (click node).                                 |
|                      | •       | 06  | Add a comment to the past entry.   |
|                      |         | 07  | Edit a recorded vital.   |
|                      |         | 08  | View a history of all readings (log).  |
|                      | •       | 09  | Remove a tracker.  |
|                      | •       | 10  | View a comment.  |
|                      | •       | 11  | Find a provider comment.   |
|                      |         | 12  | Re-arrange trackers.   |
|                      | •       | 13  | View details on a specific tracker (e.g. Weight).                                      |
|                      | •       |     | - What is your weight goal?  |
|                      | •       |     | - When were you overweight? How are you doing now?                                     |
|                      | •       | 14  | Edit your goal.  |
|                      | •       | 15  | Change Reference (e.g. BMI vs. Weight Average).  |
|                      | •       | 16  | How do you view details about your blood pressure?                                     |
|                      |         | 17  | Choose a custom date range.  |
|                      |         | 18  | Change to table view.  |
|                      | •       | 19  | Does your latest blood pressure reading indicate hypertension?                         |
|                      | •       | 20  | Add a tracker (quite smoking?).  |
|                      | •       | 21  | Make a tracker entry.  |
|                      | •       | 22  | Hide only the trackers your care about.  |
| EXERCISE (EXER)      | •       | 01  | Introduce PRT score. Based on this, what do you need to improve?                       |
|                      | •       | 02a | How would you find a results from (date)? How would you edit them?                     |
|                      | •       | 02b | How long before your next PRT?   |
|                      | •       | 03  | What have you most improved? What has suffered?  |
|                      | •       | 04  | What personal exercises are you doing?   |
|                      | (n/a)   | 05  | Record a PRT result.   |
|                      | •       | 06  | What is goal?  |
|                      | •       | 07  | Add a comment to yesterday's workout.  |
|                      | •       | 08  | Switch from 1.5 mile run to swim.  |
|                      | •       | 09  | Find details about your 1.5 mile run.  |
|                      | •       | 10  | Edit PRT goal.   |
|                      |         |     | - Switch from "Satisfactory Goal" to "Good" by the new year.                           |

FIGURE 2A: Cataloguing Tasks (Sample)

## TASK CREATION

The process of creating tasks began by creating a catalogue of available actions from the Design Volume, Product Requirements Document, and inspection of the prototype (see FIGURE 2A).

Once all tasks were catalogued they were broken down into a more manageable set. First, we removed similar tasks with different contexts; For example, "make a comment" in *Exercise* versus *Vital Signs*. Next, tasks were prioritized by perceived task importance. The team viewed it as more important to report taking a medication, and less important to be able to switch your homepage view.

Once candidates were determined, tasks were written into a "narrative form" (see FIGURE 2B).



## TASK NARRATIVE

1. (GEN03) Please login with the persona you've been provided.
2. (NUTR01) For the last six months, you've been using Healthboard to maintain a healthy weight through diet and exercise. How would you report eating a bowl of cereal with almond milk this morning?
3. (NUTR05) If you had trouble finding entering what you ate, where would you find help information?
4. (GEN01) Lets go back to the "home screen." How would you put the modules in order that makes sense for you?
5. (GEN01) Please change the "home screen" to "widget view."
6. (VITALS01) This morning you weighted yourself: 182 lbs. How do you enter that in?
7. (VITALS02) How much did you weight at this time last year?
8. (VITALS06) Five days ago you made an entry that your weight was 175 lbs. and temperature 101°. Go back and add a comment that you "had the flu."
9. (VITALS10-11) Where would you view other past comments? Has your doctor left any comments recently?
10. (VITALS13) Next, you want to review your weight history. Where would you find details? What is your weight goal? When were you overweight? How are you doing now?
11. (VITALS14-15) In talking to your doctor, you realized you feel better on the "skinny side." How would you change your goal from 170 pounds to 165 pounds?
12. (EXER01) Next we're going to think about Exercise. Active Duty personnel are required to maintain their physical condition, and must take regular "Physical Readiness Test(s)." The test consists of curl-ups, push-ups, and a 1.5 run (with substitution options). Personnel are given a score from Failure (less than 45 points) to Maximum (100 points). Based on this, in what area have you most improved? What area is suffering?
13. (EXER02a) What were the results of your last PRT check-in?
14. (EXER02b) How long before your next PRT?
15. (EXER06, 09) What is your PRT goal for the run?
16. (EXER10) You want to challenge yourself by the new year. How do you change your PRT goal from "passing" to "excellent," which is a time better than 10 minutes, 30 seconds?
17. (EXER08) Say you hurt your knee while running. How do you switch the PRT run for a swim?
18. (EXER07) Add a comment to yesterday's workout about your hurt knee.
19. (EXER15) Your doctor has recommended a few exercises for you. What are they? How are you doing with them?
20. (EXER11) Record that you walked 2 miles in 45 minutes yesterday, and cycled 10 miles for 90 minutes the day before (two days ago)
21. (EXER13) You have a pedometer that generates data about your walks. Import that into Healthboard, and add a note about the where you walked.
22. (EXER14) What reason did the doctor give for asking you to walk? How many

FIGURE 2B: Task Narrative



FIGURE 2C: Remove Task

Since tasks were organized by importance, creating context between tasks helps to "stitch" tasks together for the subject. The alternative would have been a series of "cold," disjointed and unrelated tasks.

When a candidate set of tasks was ready, PIIM ran a series of 2–4 internal "dry run" tests with our network of contacts in The New School University. This exercise allowed us to refine the test time by eliminating tasks and tweaking the language to be more comprehensible. Those participating in the dry-run tests went through the same protocol as the subjects.

## FINAL TASK SETS

Below are the tasks for Group 1 (A and B—task sets were frozen once testing commenced).

| TaskID     | TaskText   |
|------------|--|
| GEN03      | Please login with the persona you've been provided.  |
| MEDS02     | You're being treated with various prescription medications. Your doctor has asked that you use Healthboard to track your experience with the medications. Where and how would you do this? Say you just took Warfarin, and it made you feel jittery. How would your record that? |
| MEDS01     | You sometimes take Claritin for your allergies as needed (one 12 hour tablet, 10mg). How would you report to your Healthboard team that you took it today?   |
| MEDS05     | While looking at your medications, you realize your prescription for Lisinopril has no more refills. How do you request a renewal?   |
| APPT01     | Next, you'd like to schedule a new appointment regarding your allergies. How would you do that?  |
| APPT03     | You suddenly remember that you have an appointment this coming Wednesday which is in conflict with another event. How do you cancel the appointment?   |
| MSG01-03   | You just remember getting a notification that a Physician had responded to an e-mail you sent your Healthboard team. How would you go about reading it and replying?   |
| IMMU01-02  | You recently sustained a moderate injury from stepping on a nail. When is your next Tetanus shot? What other vaccinations are due soon?  |
| IMMU03     | When did you have your last Hepatitis A vaccine?   |
| MEDREC01   | You remembered that your doctor suggested some next steps for you — was it a class? How would you find out? What visit was it related to?  |
| APPT05     | Your doctor recommended a "chair yoga" class. How would you register?  |
| MEDREC02   | How would you mark that <i>Next Step</i> as complete?  |
| MEDREC03   | Where would you find a history of Next Steps?  |
| APPT02, 06 | You just remembered you have an appointment with a new doctor coming up soon regarding your allergies. When is it?   |
| MEDS03     | You want to show the new doctor a prescription medication you took last year related to the new appointment. How would you go about finding it? How would you find information on it?  |
| MEDREC06   | Next, you want to show the new provider the results of a past blood test. Where would you find it?   |
| MEDREC05   | How would you show the provider details about the nasal procedure you had?   |
| MEDREC07   | You want to give your medical record to your new doctor. How would you do that?  |
| MSG04      | How would you send a new (urgent) message about <i>Warafin</i> (which is making you feel jittery)?   |
| MSG05-08   | You sent a message containing a sensitive image to your Healthboard team a few weeks ago, and now you want to delete it. You know it's an e-mail about a "sinus surgery." How do you go about finding it, and permanently deleting it?   |
| GEN01      | How would you go about changing your password?   |
| GEN04      | Healthboard will e-mail you notifications and reminders, such as when you have any upcoming appointment. How would you adjust these notification settings?   |
| GEN05      | How would you make all the text on the screen bigger?  |
| GEN06      | How would you change the Homepage view of your Healthboard?  |

Below are the tasks for Group 2.

| TaskID      | TaskText   |
|-------------|--|
| GEN03       | Please login with the persona you've been provided.  |
| NUTR01      | For the last six months, you've been using Healthboard to maintain a healthy weight through diet and exercise. Report eating a grilled cheese sandwich with tomato for lunch.  |
| GEN02       | Healthboard is in "button view" by default. Please change the "home screen" to "widget view."  |
| VITALS01    | This morning you weighed yourself: 182 lbs. Enter that into Healthboard.   |
| VITALS02    | How much did you weigh around this time last year?   |
| VITALS06    | You last reported that your weight was 175 lbs. and temperature 103°. Go back and add a comment that you "had the flu."  |
| VITALS10-11 | Where would you view other past comments? Has your doctor left any comments recently?  |
| VITALS13    | Next, you want to review your weight history. Where would you find details? What is your weight goal? When were you overweight? How are you doing now?   |
| VITALS14-15 | Change your goal from 170 pounds to 165 pounds.  |
| EXER01      | Next we're going to think about Exercise. Active Duty personnel are required to maintain their physical condition, and must take regular Physical Readiness Tests. The test consists of curl-ups, push-ups, and a 1.5 mile run. Personnel are given a score from Failure (less than 45 points) to Maximum (100 points). Based on this, in what area have you most improved? In what area are you struggling? |
| EXER02b     | How much time until your next PRT?   |
| EXER06, 09  | What is your PRT goal for the run?   |
| EXER10      | You want to challenge yourself by the new year. Change your PRT goal from Satisfactory to Excellent, which is a time less than or equal to 11 minutes 30 seconds.  |
| EXER14, 15  | Your doctor has recommended a few exercises for you. What are they? What reason did the doctor provide? How many calories did you burn on your last exercise? How much weight have you lost since you started?   |
| EXER11      | Record that you walked 2 miles in 45 minutes yesterday, and cycled 10 miles for 90 minutes the day before (two days ago).  |
| NUTR07-09   | Speaking of calories, tell me about your food plan. What should you be eating? What should you avoid? What's the reason for this plan? How many calories a day should you have?  |
| NUTR18      | How have you been doing on your Food Plan over the last week? Over the last month? Did you ever exceed your calorie budget? What nutritional recommendations did you fail to follow?   |
| NUTR15      | What did you eat for breakfast today? How do you find nutritional information on it?   |
| NUTR06      | Report that you consumed 5 cups of water today.  |
| NUTR04      | Healthboard allows you to save frequent meals for quick entry. You eat a peanut butter and jelly sandwich for a snack at least once a week, and have saved it. Record you ate a peanut butter and jelly sandwich for a snack today.  |
| NUTR16      | Say you've already entered today's dinner into Healthboard. It's something you eat frequently. Save it for quick entry.  |
| NUTR10      | How much sodium should you have daily?   |
| VITALS19    | Speaking of sodium, does your most recent blood pressure check indicate any hypertension (aka. high blood pressure)?   |
| VITALS20    | You smoke an occasional cigarette, and want to quit. Add a tracker to help you remember how much you've been smoking.  |
| NUTR12      | You won't always have access to a computer and the internet. Download a worksheet to log your meals on-the-go.   |
| EDU03, 06   | Where would you find information on the occasional heartburn that some foods cause you? Bookmark it for future reference.  |
| EXER04      | What personal exercises are you doing?   |
| EXER17-18   | Add "weight training" as personal exercise. Add "soccer."  |





FIGURE 3: User Persona

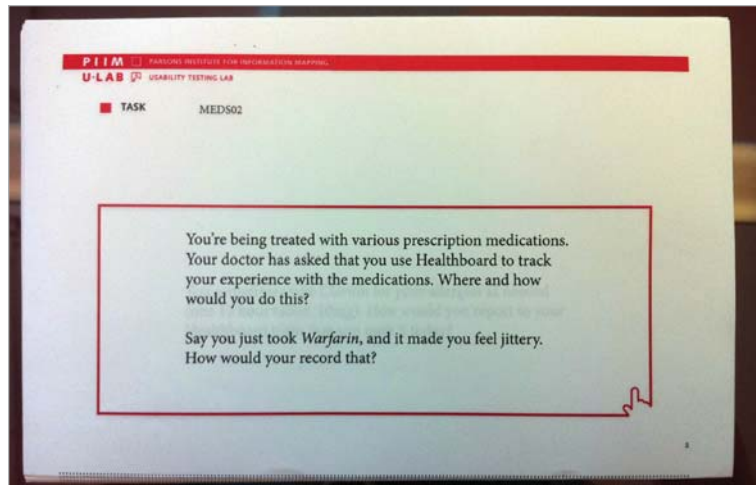


FIGURE 4: Task Card

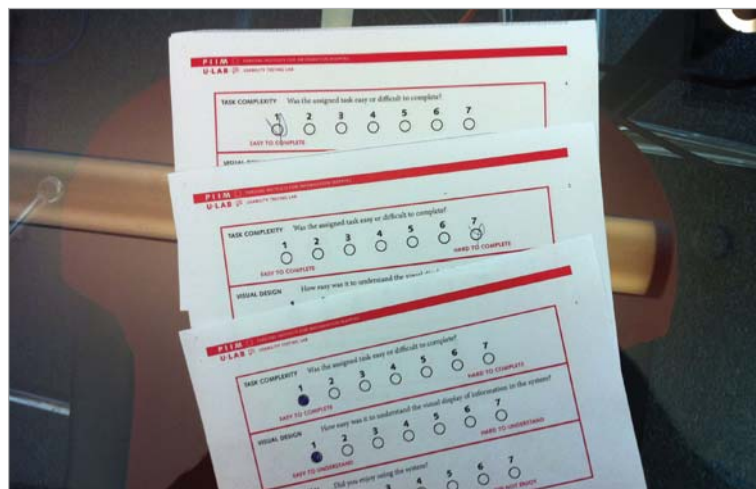


FIGURE 5: Task Scorecard

## TASK ADMINISTRATION

Upon arrival, subjects are welcomed and offered refreshment, then provided an *Informed Consent* form to sign. They are also provided a *Statement to Subject* document and a Confidentiality document to initial (see Appendix 3). Subjects are then taken to the lab, where the *Moderator* provided information and instructions based on the *Moderator Script* (Appendix 4). Subjects were provided a persona for reference, each containing a *HealthBoard* login (FIGURE 3). Personas are informational only and meant to provide a reference for test participants.

Once the test began, tasks were read from a *task card* (FIGURE 4), told firmly to “begin,” and the task card was placed in the subject’s view. Subjects were told to do “the task as quickly and accurately as possible ... and not to do anything more than was required in the task.”

When finished with the task, the subject would announce “done,” and then was administered a “scorecard” (see FIGURE 5). Tasks are then rated on a scale of 1 to 7 (1 being positive, 7 being negative) for *Complexity*, *Visual Design*, and *Overall Appeal*.

Once the scorecard is complete, it is flipped over and the next task is begun.

After all tasks are complete, the moderator asks two follow-up questions:

1. Any general impressions you want to share before we wrap up?
2. How did you feel about the color scheme?

Subjects express their thoughts verbally, which note taker captured for later analysis. An Exit Survey is then administered, which the subject completed on SurveyMonkey.com (see Appendix 5).



FIGURE 5A: New York Metropolitan Transit Authority swipe card

Upon departure, subjects were thanked and given an honorarium of a \$10 Metropolitan Transit Authority care (see FIGURE 5A) in a PIIM enveloped.

## TEST LOCATION AND ENVIRONMENT

Testing was conducted in PIIM's offices at 68 Fifth Avenue, Suite 200, New York, NY.

Our Usability Lab (or ULab) was a converted conference room with seating for the subject, moderator and note-taker (see FIGURE 5B). The participant's screen was simulcast via Morae (usability testing software), and viewable during the session by an information designer who served as an error-checker during the exercise. The Moderator introduced and initiated the test, read the tasks aloud, said "Begin," then recorded the start and end of each task. A scorecard was administered after each task.

Last, for later analysis, PIIM recorded the screen during each session. Files were saved to our secure server. No other audio or video was recorded during the session.

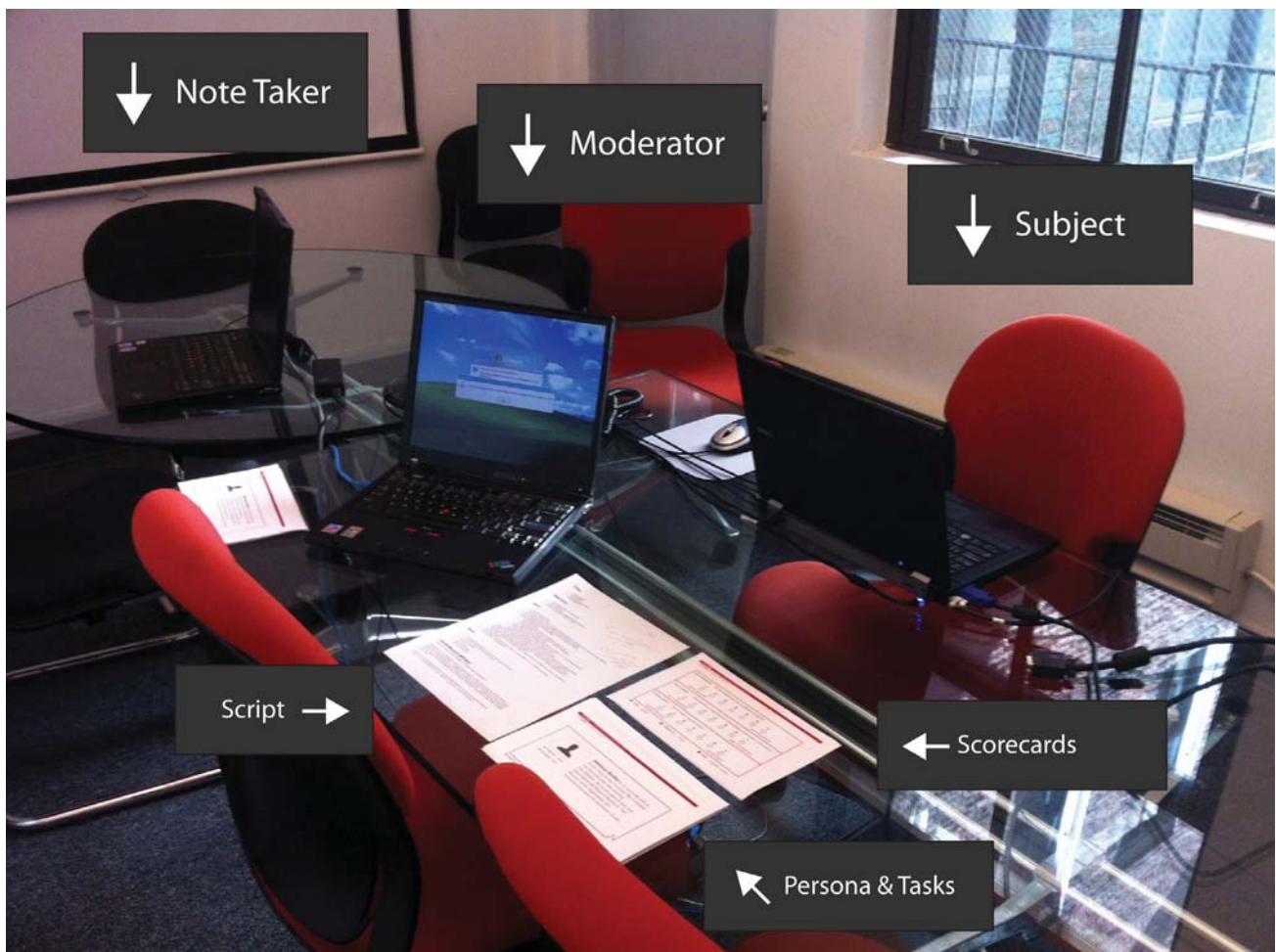


FIGURE 5B: The Testing Environment

| TaskID   | TaskText   | TEST P3-02 (3/1/10)  | TEST P3-02 (3/1/10)                                  | TEST P3-02 (3/1/10)                                 | TEST P3-02 (3/1/10)                                 | TEST P3-02 (3/1/10)                                 | TEST P3-02 (3/1/10)                                 | TEST P3-02 (3/1/10)                                 |
|----------|--|--|--|---|---|---|---|---|
| MED002   | You're being treated with various prescription medications. Your doctor has asked that you use medication to help your symptoms with the medication. Where did you find the medication? Say you have Warfarin, and I want you find (Why: How would you find it?) | - The tester entered detail for and recorded name (understood highlighted text in table) | - Tester entered name and clicked the window         | - Tester entered name and clicked the window        | - Tester entered name and clicked the window        | - Tester entered name and clicked the window        | - Tester entered name and clicked the window        | - Tester entered name and clicked the window        |
| MED001   | You sometimes take (Click) for your allergies as they are to help with things that you have to do. How often do you take it? (Why: How often do you take it?)  | - Tester immediately clicked "Add Medication" button                                     | - Tester returned to home and responded Medication   | - Tester returned to Medication                     | - Tester returned to Medication                     | - Tester returned to Medication                     | - Tester returned to Medication                     | - Tester returned to Medication                     |
| MED003   | While looking at your medications, you realize you've been taking (Click) for no more than 10 days. How do you feel about it?  | - Tester entered comment: "I was able to record it"                                      | - Tester was looking for the "Add Medication" button | - Tester entered comment: "I was able to record it" | - Tester entered comment: "I was able to record it" | - Tester entered comment: "I was able to record it" | - Tester entered comment: "I was able to record it" | - Tester entered comment: "I was able to record it" |
| APPT01   | Next, you're to schedule a new appointment regarding your allergies. How would you do that?  | - Tester entered name and entered Appointment  | - Tester returned to home and entered Appointment    | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   |
| APPT02   | You've been getting a notification that a Physician has received an email you sent. How often do you get that notification?  | - Tester entered name and entered Appointment  | - Tester returned to home and entered Appointment    | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   |
| APPT03   | You've been getting a notification that a Physician has received an email you sent. How often do you get that notification?  | - Tester entered name and entered Appointment  | - Tester returned to home and entered Appointment    | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   |
| MED01-03 | You've been getting a notification that a Physician has received an email you sent. How often do you get that notification?  | - Tester entered name and entered Appointment  | - Tester returned to home and entered Appointment    | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   |
| MED01-02 | You've been getting a notification that a Physician has received an email you sent. How often do you get that notification?  | - Tester entered name and entered Appointment  | - Tester returned to home and entered Appointment    | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   | - Tester returned to home and entered Appointment   |

FIGURE 5A: Note Spreadsheet

## DATA COLLECTION

Data was gathered with four separate methods: Screener & Exit Surveys, subject-completed scorecards, analytics using Morae usability testing software, and notes taken during session.

## SURVEYS

Surveys were used as “book-ends” to the testing. PIIM screened potential subjects using a Screener Questionnaire (Appendix 2), administered through the ULab website after subjects agreed to the study’s Informed Consent statement. Screener Questionnaire answers were used to capture name & contact information, determine gender, age, level of education, first language, self-reported technical literacy, computer usage, and previous experience with medical software. See page 44, *Screener Survey Results*, for more information about subject demographics.

## THE EXIT SURVEY

(Appendix 5) was administered at the very end of the test, to give the subject an opportunity to express privately their satisfaction with the software. This survey was mostly open-ended questions, but key ratings were captured on a 1 (negative) to 7 (positive) scale regarding: ease of use, likelihood to use, and likelihood to recommend. See page 156, *Exit Survey Results*, for more information about exit survey results.

## SCORECARDS

Scorecards (FIGURE 5) were distributed after each task. Subjects rated tasks on a scale of 1 to 7 (1 being positive,

7 being negative) for *Complexity*, *Visual Design*, and *Overall Appeal*. The aggregate values of each category are perhaps the most telling information about on which tasks users had issues of efficiency and effectiveness.

## ANALYTICS

Using Morae, the team is able to track metrics such as *Task Duration*, *Success Rates*, *Error Count*, and steps to completion (a.k.a. *Path Deviation*—measured by mouse clicks and wheel scrolls). PIIM has gone to some length to automate data collection to remove human bias, and bring our testing effort into general compliance with the *National Institute of Standards and Technology’s (NIST) recommendations* established in their white paper entitled *Customized Common Industry Format for Electronic Health Record Usability Testing* (Schumacher and Lowry, 2010) (Appendix 6).

To understand both *Time* and *Path* metrics, PIIM conducted internal benchmarking, the aggregate of which was assumed to represent a “power user” and, therefore the optimal time and path for each task. Benchmarking sessions utilized five staff members of varying familiarity with the application.

*Time* and *Path* comparisons were determined by dividing the *Observed* (subjects aggregate measurements) by the *Optimal* (benchmark aggregate measurements).

## NOTES

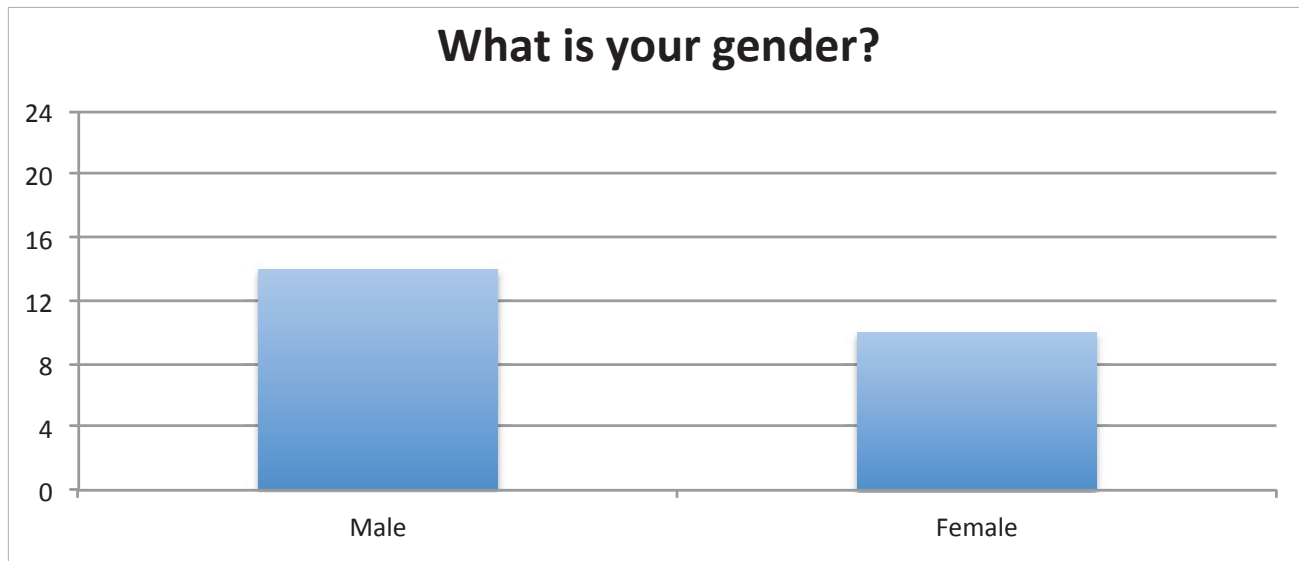
The team inputted each group’s notes into a spreadsheet (see FIGURE 5C).





## *Participant Snapshot*

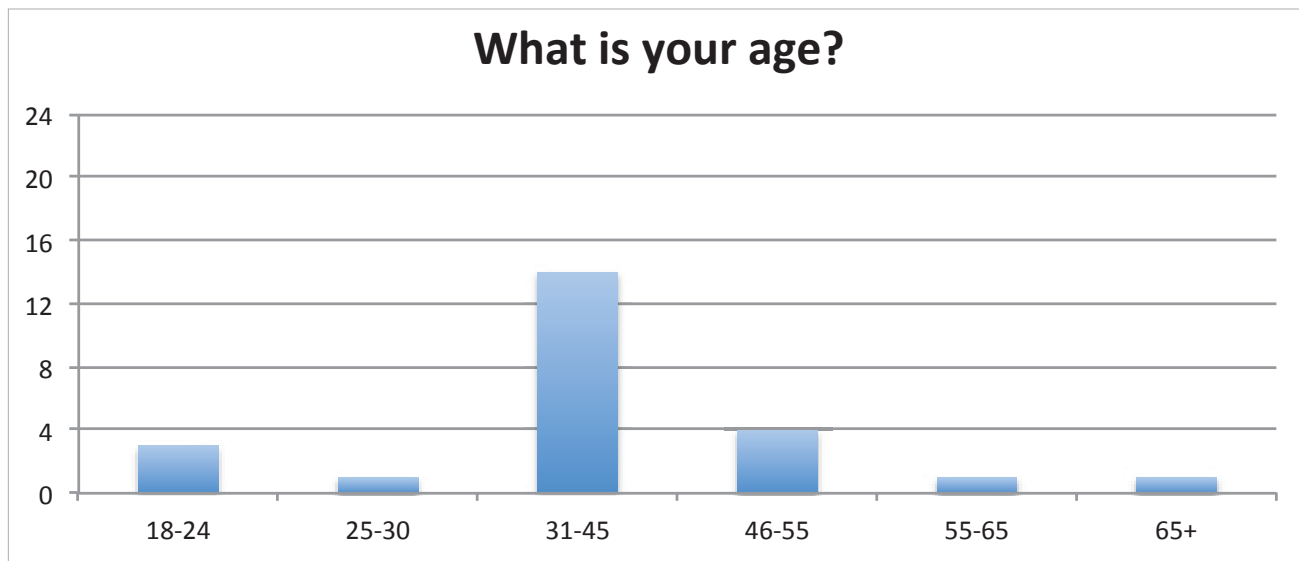
## WHAT IS YOUR GENDER?



Male: 58.3% (14)

Female: 41.7% (10)

## WHAT IS YOUR AGE?



Age 18-24: 12.5% (3)

Age 25-30: 4.2% (1)

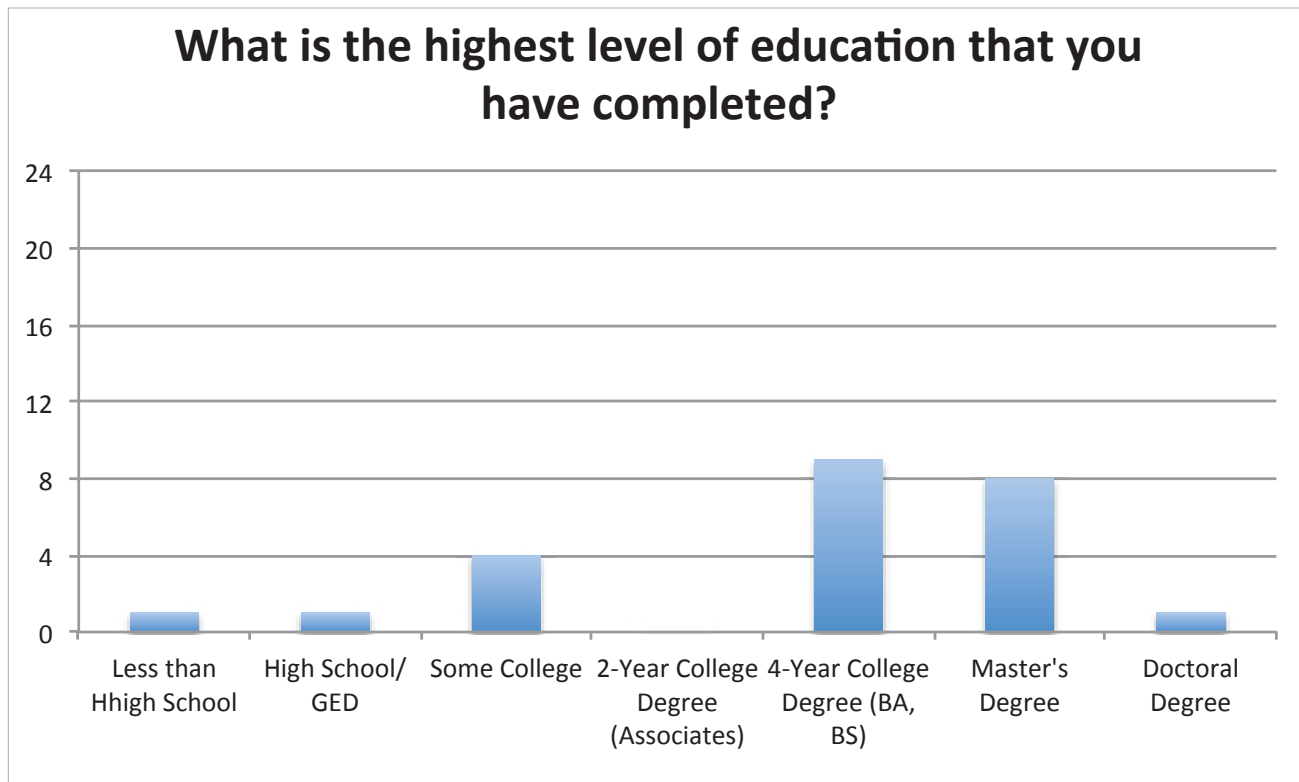
Age 31-45: 58.3% (14)

Age 46-55: 16.7% (4)

Age 55-65: 4.2% (1)

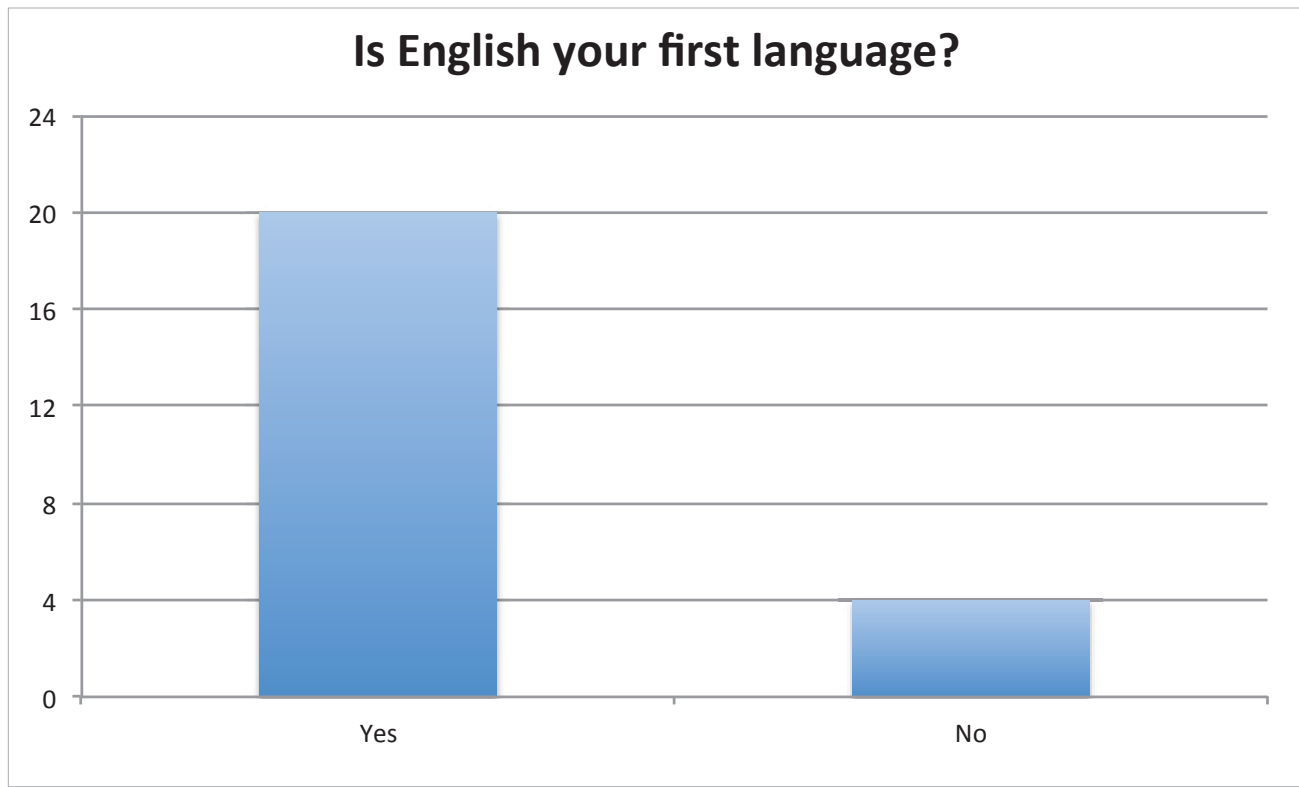
Age 65+: 4.2% (1)

WHAT IS THE HIGHEST LEVEL OF EDUCATION THAT YOU HAVE COMPLETED?



|                                     |           |
|-------------------------------------|-----------|
| Less than High School:              | 4.2% (1)  |
| High School / GED:                  | 4.2% (1)  |
| Some College:                       | 16.7% (4) |
| 2-Year College Degree (Associates): | 0.0%(0)   |
| 4-Year College Degree (BA, BS):     | 37.5%(9)  |
| Master's Degree:                    | 33.3% (8) |
| Doctoral Degree:                    | 4.2%(1)   |

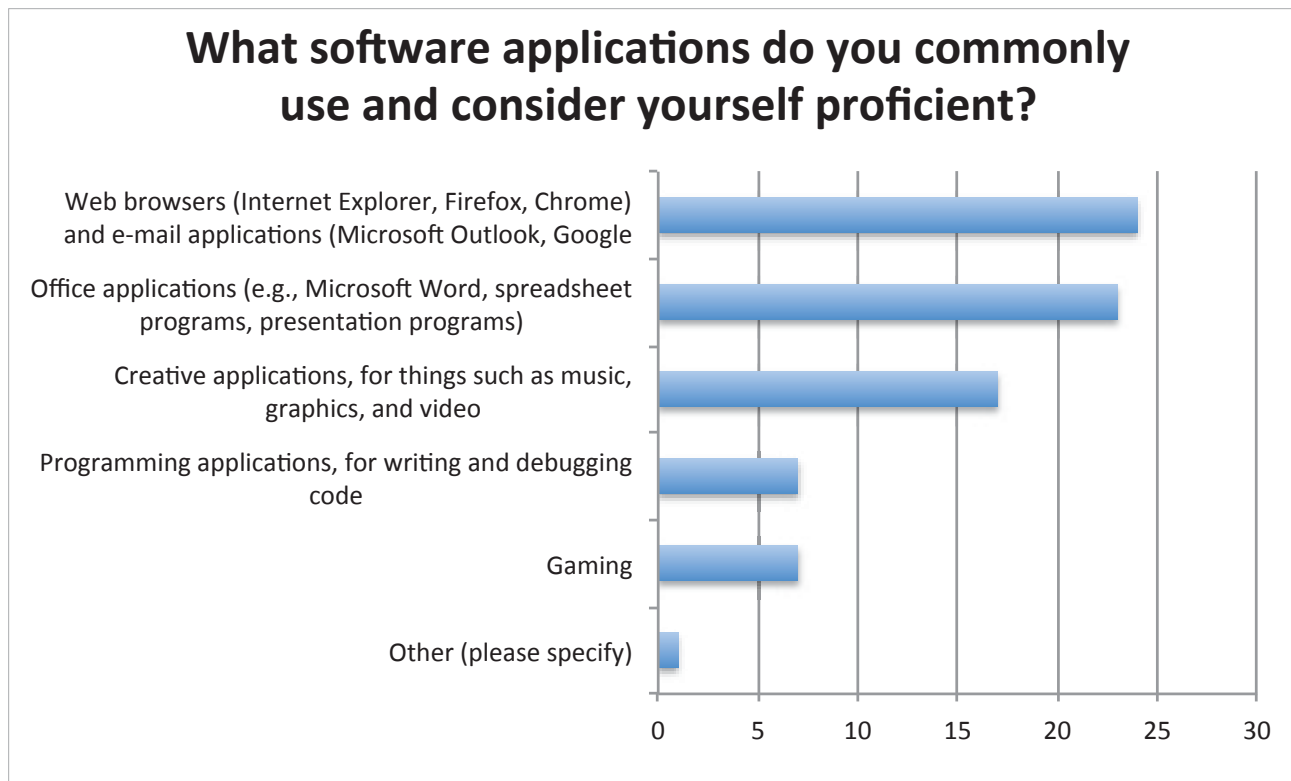
**IS ENGLISH YOUR FIRST LANGUAGE?**



**Yes:** 83.3% (20)

**No:** 16.7% (4) "Russian", "Cantonese", "Spanish"

WHAT SOFTWARE APPLICATIONS DO YOU COMMONLY USE AND CONSIDER YOURSELF PROFICIENT WITH  
(YOU MAY SELECT MORE THAN ONE)?



Web browsers (Internet Explorer, Firefox, Chrome) and e-mail applications (Microsoft Outlook, Google Mail): 100.0% (24)

Office applications (e.g., Microsoft Word, spreadsheet programs, presentation programs): 95.8% (23)

Creative applications, for things such as music, graphics, and video: 70.8% (17)

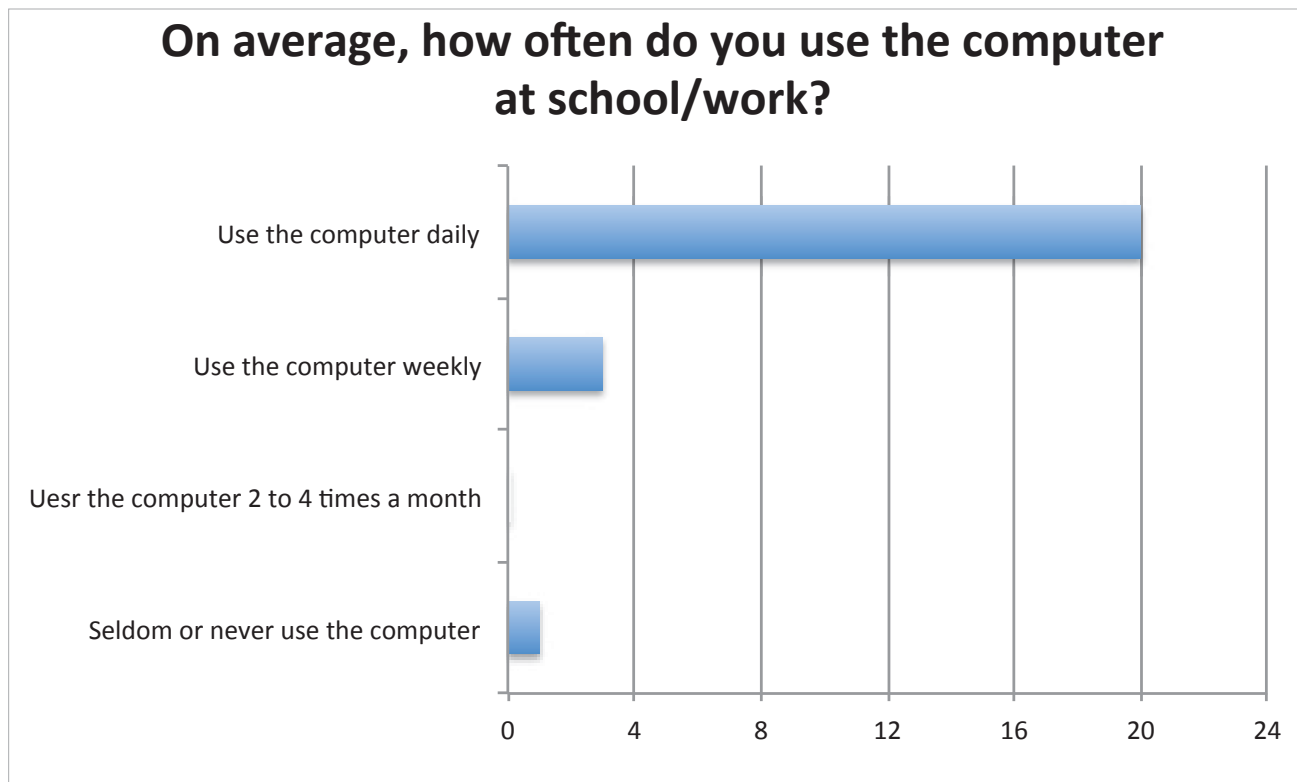
Programming applications, for writing and debugging code: 29.2% (7)

Gaming: 29.2% (7)

Other (please specify) 4.2%(1) “Use a lot of specific programs related to my work “

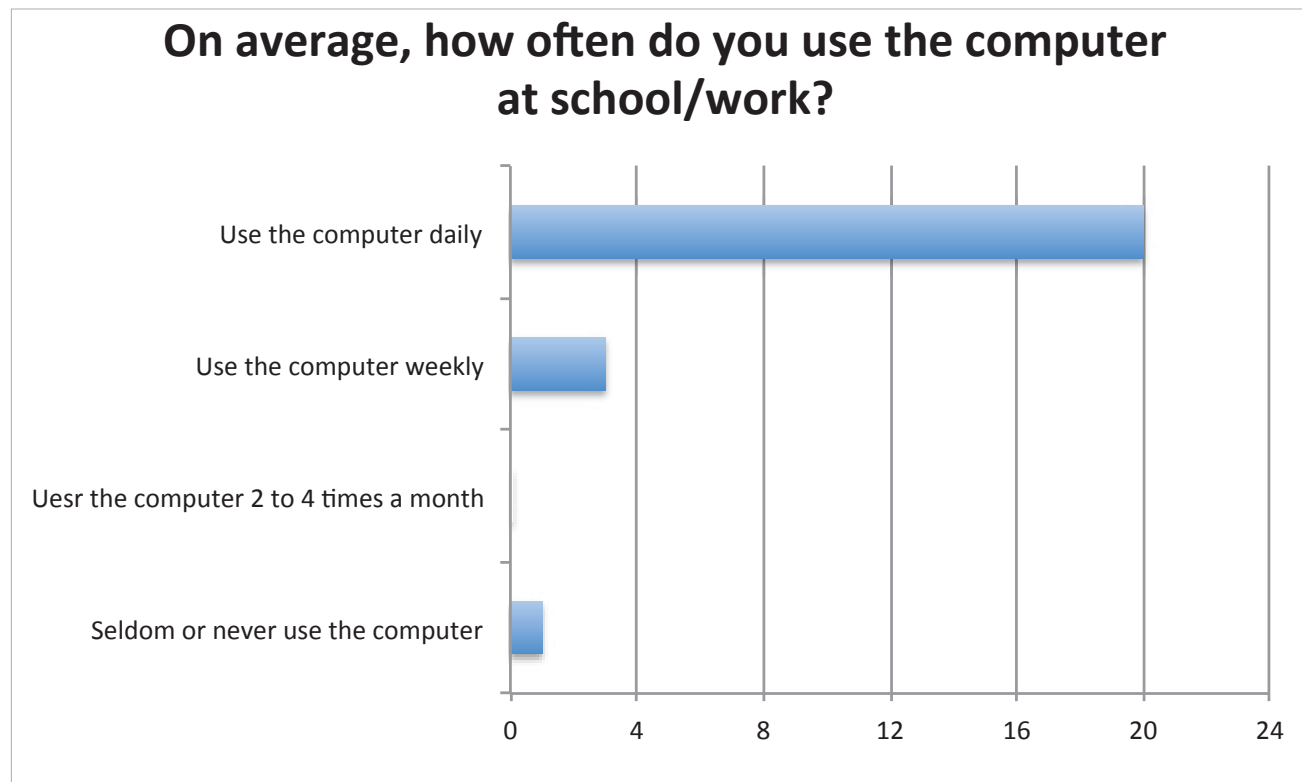


ON AVERAGE, HOW OFTEN DO YOU USE THE COMPUTER AT SCHOOL / WORK?



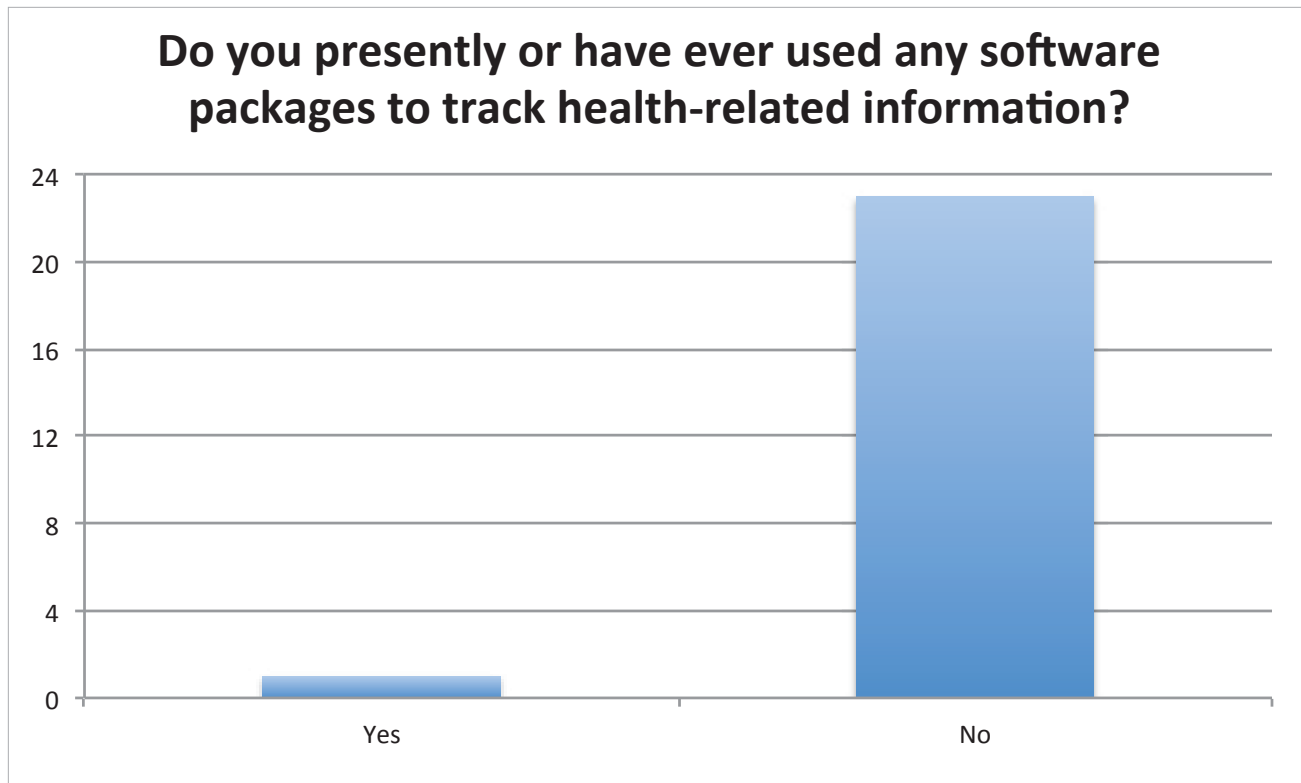
|  |            |
|--|------------|
| Use the computer daily:                | 83.3% (20) |
| Use the computer weekly:               | 12.5% (3)  |
| Use the computer 2 to 4 times a month: | 0.0% (0)   |
| Seldom or never use the computer:      | 4.2% (1)   |

ON AVERAGE, HOW OFTEN DO YOU USE THE COMPUTER AT HOME?



|  |            |
|--|------------|
| Use the computer daily:                | 87.5% (21) |
| Use the computer weekly:               | 12.5% (3)  |
| Use the computer 2 to 4 times a month: | 0.0% (0)   |
| Seldom or never use the computer:      | 0.0% (0)   |

**DO YOU PRESENTLY OR HAVE YOU EVER USED ANY SOFTWARE PACKAGES TO  
TRACK HEALTH-RELATED INFORMATION?**



**Yes:** 4.2% (1)

**No:** 95.8% (23)

## Results & Recommendations

### EVALUATION METHOD

PIIM came to these conclusions and recommendations by reviewing the data collected, reviewing the notes, watching the playback of each task (at 2x speed), and finally reading the exit surveys.

### GROUP A USABILITY SCALE

- 1. No Issue** means the functionality covered in the task is highly usable.
- 2. Minimal Issues** means there is functionality that could use improvement, but it is still usable. Stated recommendations are generally based on observation of research team.
- 3. Minor Issues** means functionality exists which is impairing usability, but tasks are still completed successfully. Stated recommendations sometimes are based on observation of research team, and occasionally on data.
- 4. Moderate Issues** describes functionality that is partially impairing the user's ability to successfully complete tasks. Stated recommendations are generally

based on data collected, and occasionally on observation of the research team.

- 5. Severe Issues** describes functionality that is definitely impairing the user's ability to successfully complete tasks. Stated recommendations are based on data collected.

### ATTEMPTED FIXES

Fixes were the result of collaboration between Design, Development and Usability Leads. Usability Lead makes a series of recommendations based on testing. Recommendations were then prioritized and estimated (level of effort for Design and Development), then accepted or rejected (See FIGURE 5D). On occasion, alternative solutions were worked out during the sessions and implemented. For more information, see Appendix 7: P1A Review.

### GROUP B USABILITY SCALE

- 1. Improved** means PIIM's attempted fix successfully improved the application across multiple categories (e.g., scorecard results, successful completion, time, path or error reduction).
- 2. Indeterminate** means the success of PIIM's attempted fix is not able to be determined due to lack of data, conflicting data or an absence of observational anecdotes.
- 3. Revert or Revise** means PIIM's attempted fix negatively improved the application across

| 1      | 2         | 3         | 4   | 5   | 6        | 7             | 8          | 9  | 10   | 11       | 12  | 13  | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
|--------|-----------|-----------|---|---|----------|---------------|------------|--|--|----------|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Ref. # | TaskID    | Recommend | Recommendation  | Dev Status  | Priority | Design Effort | Dev Effort | Acceptance (Y/N)                           | Notes  | Designer | Approval Status   | Additional Notes (10/24/2012)   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |
| 1      | MED001    | 1         | • Make the "as needed" and frequency information more prominent.  | Completed & reviewed  | 9        | 2             | 4          | Y  | Remove default option for frequency. If they don't add it, they get an error message. At the very least, make an error message, explore maybe other options to highlight.                              | B-V      | JK (B10)  |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |
| 2      | MED001    | 2         | • Mark the first dose as "taken" after a medication is added. For "as needed," maybe have a special dialogue.   | Completed & reviewed  | 9        | 3             | 4          | Y  | Add to the "Add Medication" form: Was it taken today? YES / NO. If as needed, show the frequency in the Add Medication form.   | A-V      | JK (B10)  |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |
| 3      | APPT03    | 2         | Add new display for the select appointment.   | Completed & reviewed (including Anthony's additional request of reverting the colors back to original—was orange and blue).   | 9        | 3             | 9          | Pending<br>Y (10/24)                       | Danman will let us know what he can do... slightly change color, make font bold, etc.  | B-V      | JK (B04)  | • Scheduled appt = gray<br>• Available time slots = bright blue<br>• Selected = orange<br>• Just added appt. will be orange (selected by default)<br>• Table view: Selected = orange<br>• Review history and revisit overall design |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |
| 4      | MF0RFP031 | 1         | • Have a block or section solely for patient's next steps, located at the top (similar to Health Focus in the "Provider" view). Also include a link to the original visit.  | Completed & reviewed (including additional revisions per discussion with Design Team; added links to each Next Step; closing "next steps" box when clicking outside of it; adjusted alignment, borders, padding, etc; custom sorting, etc)  | 9        | 6             | 8          | Pending (Super dupe priority)<br>Y (10/24) | Have a block that drops down from the top (like iOS notifications). So far seems like "go to next workshop" it can be marked as complete, for "quit smoking (and/or other items)" add link to tracker. | P        | JK (B14)  |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |
| 5      | GEN04     | 1         | Time and time again, users failed to identify the gear menu as Settings. Testers would navigate from module to module in search of it. Changing it to a link called Settings would be ideal, but another icon might be ideal. Positioning it closer to the user's name may also help. | Completed & reviewed  | 9        | 7             | 2          | Y  | We will try Settings, so the new order will be: (name) Settings Logout.  | P-V      | JK (B10); this has only been applied to the new medication screens. |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |
| 6      | MED002    | 4         | • Add "record intake" button back into the "medication box".  | Completed & reviewed (including additional revisions (e.g. 1. Navigation arrows (left/right) should move 1 DAY backward/forward instead of 1 month (COMPLETED); 2. We need to replace the medication name text field to a regular label showing the corresponding medication name (includes errors) | 8        | 2             | 6          | Y  | "Record today's intake" button   | P        | JK (B10)  |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |

FIGURE 5A:  
Note Spreadsheet

AGGREGATE SUCCESS RATE

Below are the aggregate success rates per module. These are calculated first by averaging Groups A and B, then by taking the mean success of all tasks for a given module.

| Module |       |
|--------|-------|
| MEDS   | 70.83 |
| EXER   | 70.83 |
| MSG    | 77.78 |
| VITALS | 80.21 |
| MEDREC | 81.94 |
| NUTR   | 86.11 |
| APPT   | 95.83 |
| IMMU   | 95.83 |
| Median | 81.07 |

## *Group 1 Task: Task Analysis*

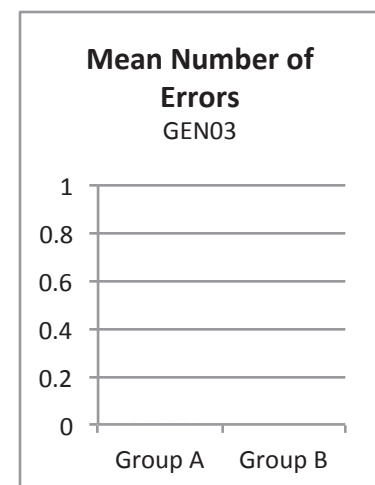
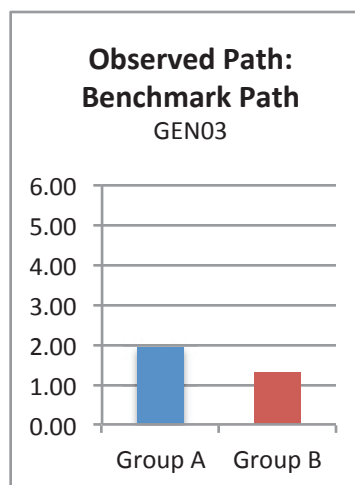
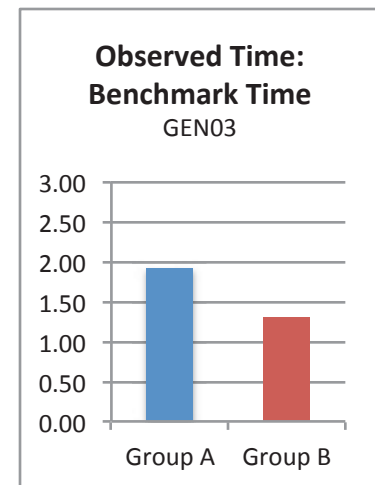
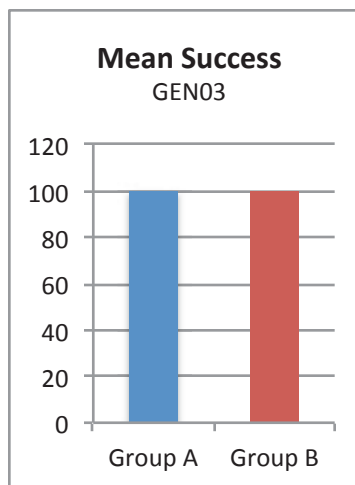
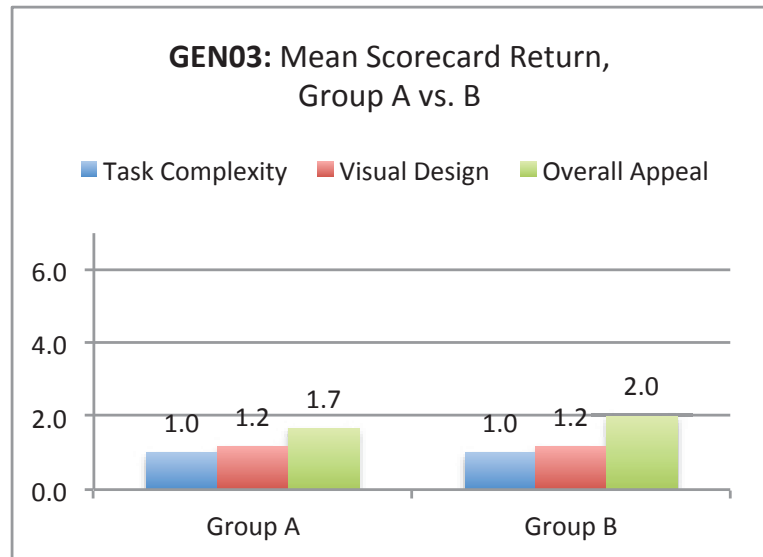
- Setting
- Medications
- Appointments
- Messages
- Immunizations
- Medical Records

## GEN03

Please login with the persona you've been provided.

### GROUP A DETERMINATION:

No Issues



## MEDS02

You're being treated with various prescription medications. Your doctor has asked that you use HealthBoard to track your experience with the medications. Where and how would you do this? Say you just took Warfarin, and it made you feel jittery. How would your record that?

### GROUP A DETERMINATION: Severe Issues

- Task Complexity: 3.8 (2nd worst)
- Overall Appeal: 3.0 (Tied, 3rd worst)
- Successful Completion: 66% (4th worst)
- Error Rate: 0.33 (2nd worst)
- Problem with testers not understanding the "blue highlight"

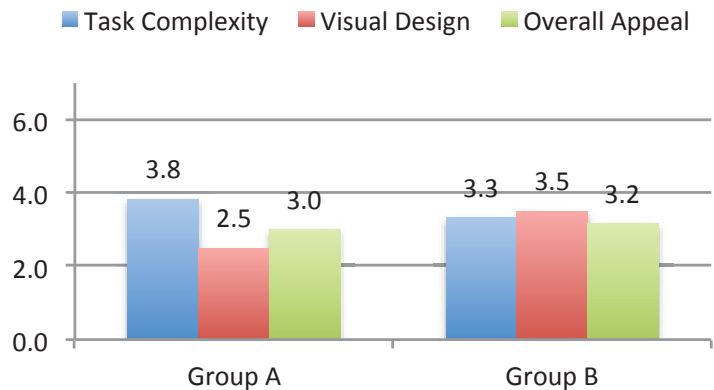
### GROUP B VALIDATION: Improved

- Successful Completion: 25% increase, from 66% to 83%
- Observed Time: Benchmark: 15% decrease, from 1.82 to 1.55
- Observed Path: Benchmark: 37% decrease, from 2.27 to 1.42
- Number of Errors: 48% decrease, from 0.33 to 0.17

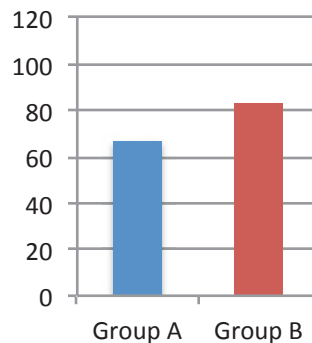
### RECOMMENDATION

- The changes were successful, showing an increased completion rate, less time, fewer clicks, and less error.
- Consider further simplifying or refine the visual design.

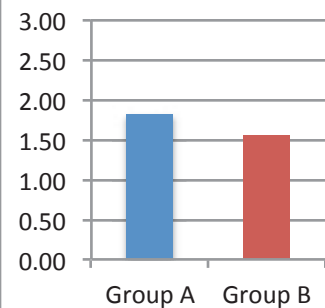
### MEDS02: Mean Scorecard Return, Group A vs. B



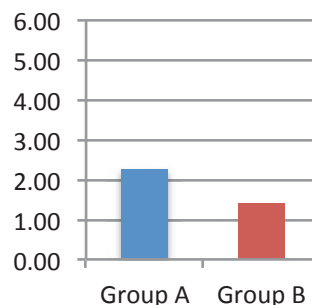
### Mean Success MEDS02



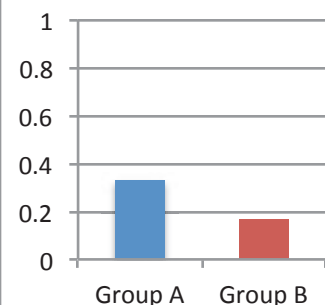
### Observed Time: Benchmark Time MEDS02



### Observed Path: Benchmark Path MEDS02



### Mean Number of Errors MEDS02





## ATTEMPTED FIXES

1. Display the “take medication” nodes as something similar to checkboxes.

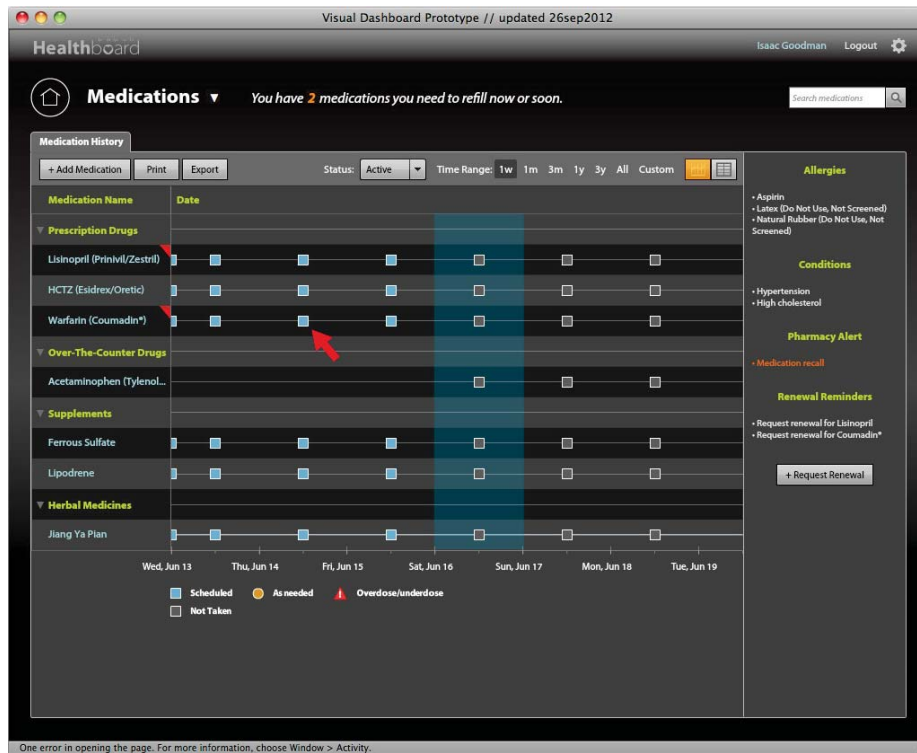


FIGURE 9A: *Before*

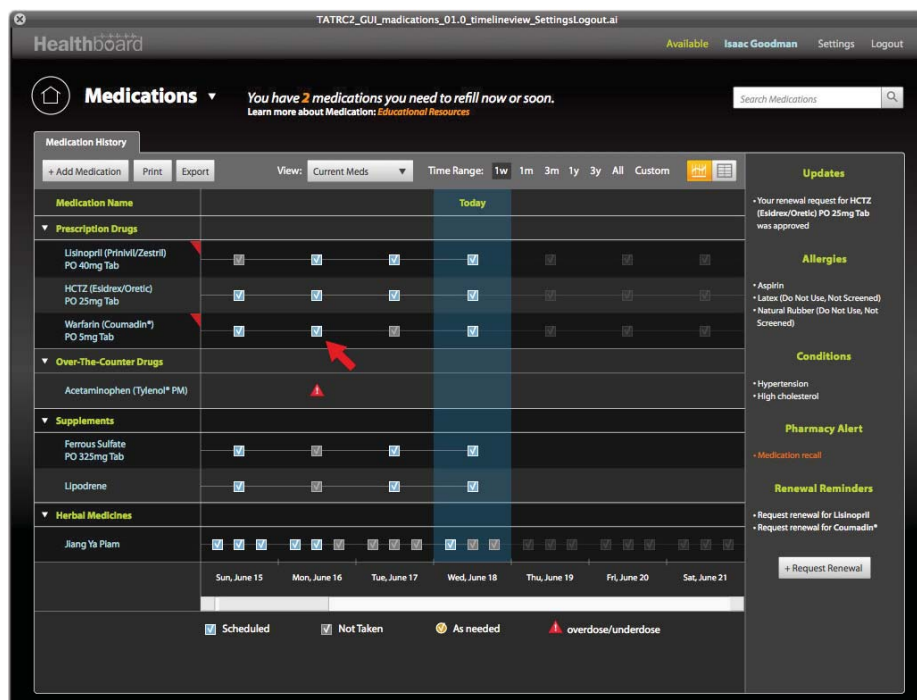


FIGURE 9B: *After*

## ATTEMPTED FIXES (CONTINUED)

2. Remove the irrelevant “Date” label, add *Today* above the “blue column.”

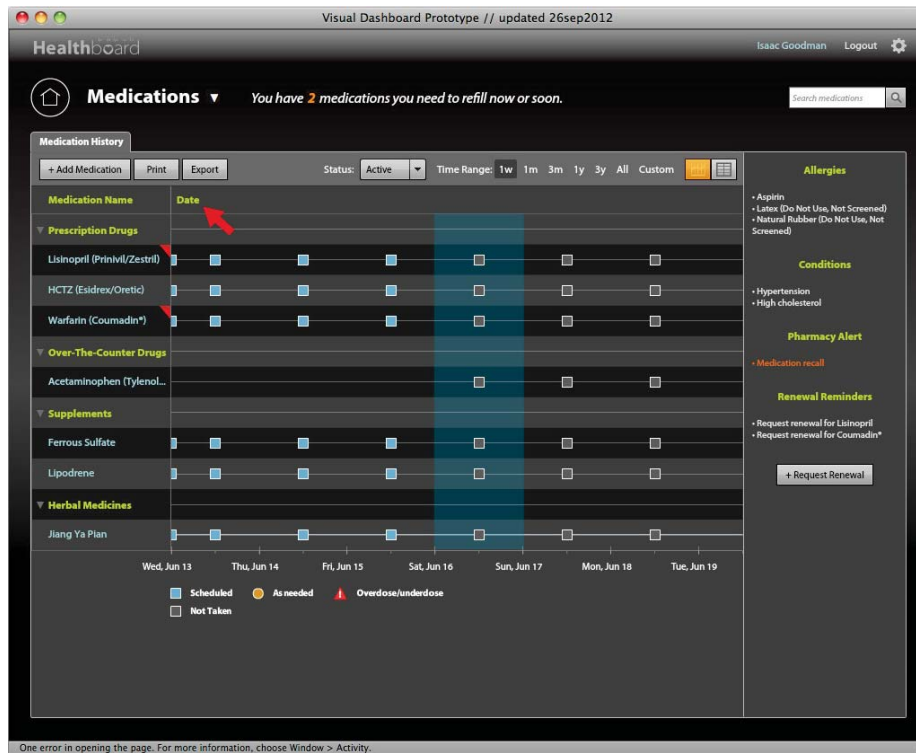


FIGURE 10A: *Before*

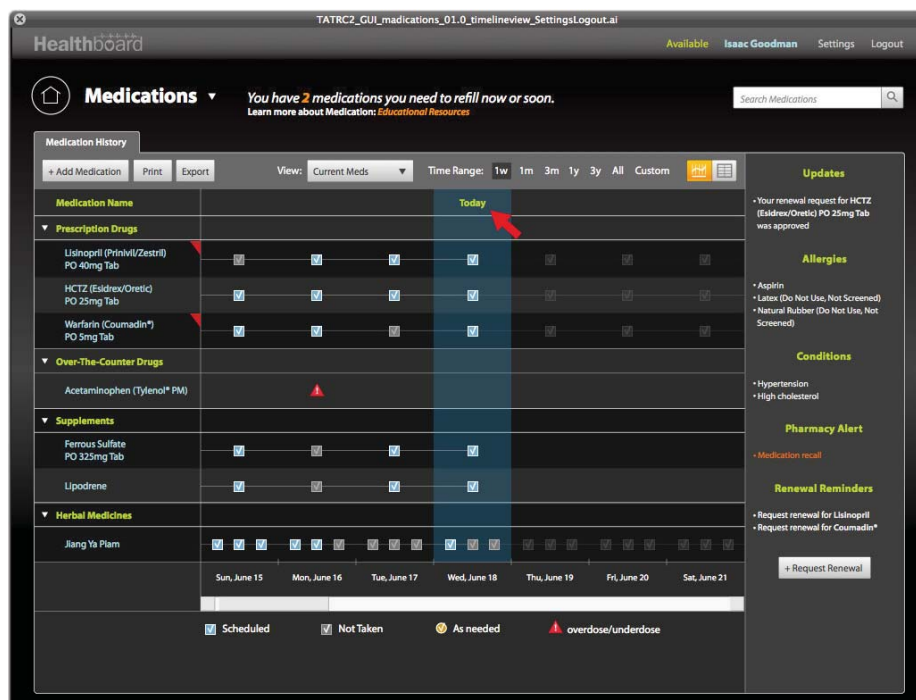


FIGURE 10B: *After*

## ATTEMPTED FIXES (CONTINUED)

3. On specific Medications, add a *Record Intake* button.

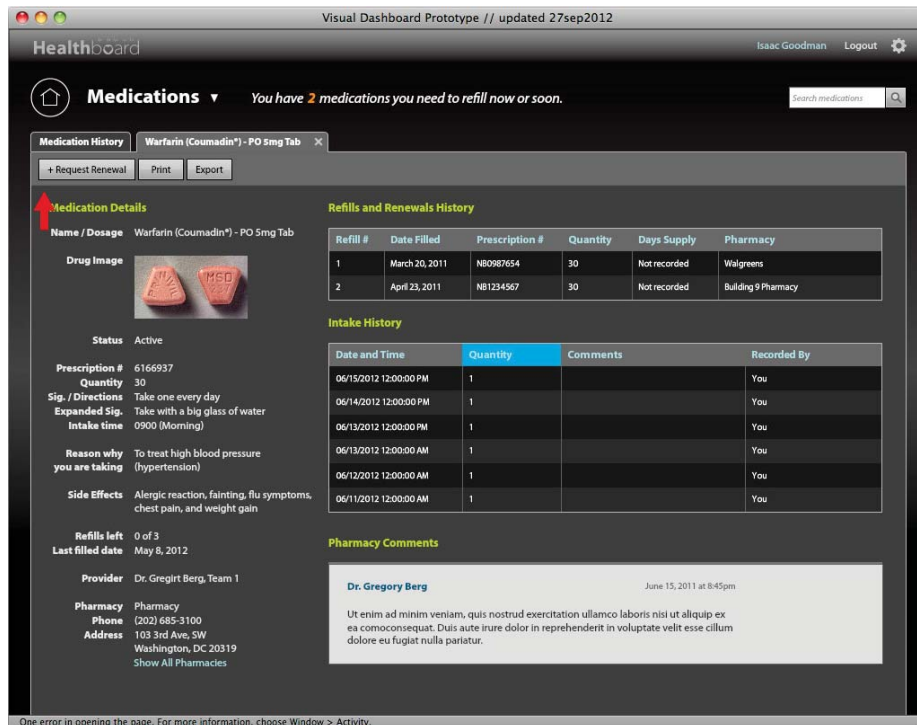


FIGURE 11A: *Before*

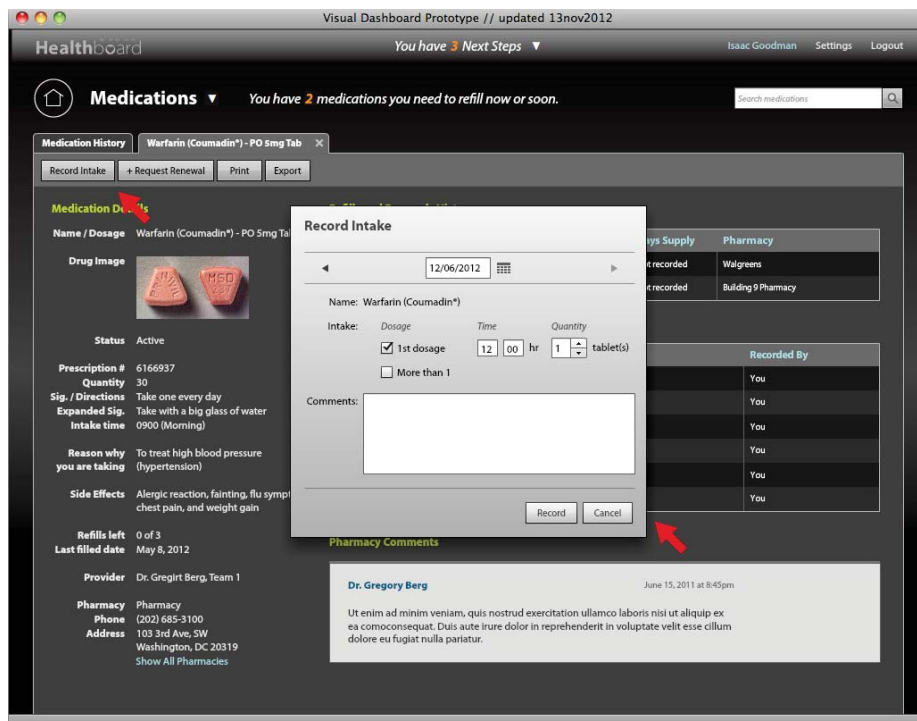


FIGURE 11B: *After*

## MEDS01

You sometimes take Claritin for your allergies as needed (one 12 hour tablet, 10mg). How would you report to your HealthBoard team that you took it today?

### GROUP A DETERMINATION: Severe Issues

- Successful Completion: 16.6% (Worst)
- Error Rate: 0.67 (Worst)
- Testers do not see the “as needed” option, or understand its meaning.
- Testers do not record intake after adding the medication.

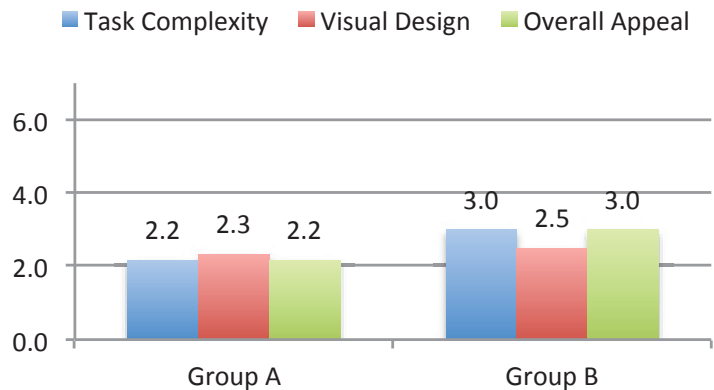
### GROUP B VALIDATION: Improved

- Successful Completion: 100% increase, from 16% to 33%
- Observed Path: Benchmark: 44% decrease, from 1.90 to 1.07
- Number of Errors: 24% increase, from 0.67 to 0.83.
- In group 1B, two errors were caused by participants selecting the wrong medication, either by misspelling it (e.g. “Claretin”) or choosing incorrectly from the “autocomplete” interaction. Two other errors were a task oversight, where the testers forgot to check the “Yes, this medication was taken today” checkbox.

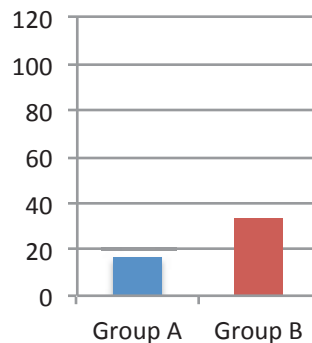
### RECOMMENDATION

- The changes were successful, showing an increased completion rate and fewer clicks.
- Insisting users verify the medication name may reduce error.
- Force a selection of “Yes, this medication was taken today,” perhaps using Yes and No radio buttons.

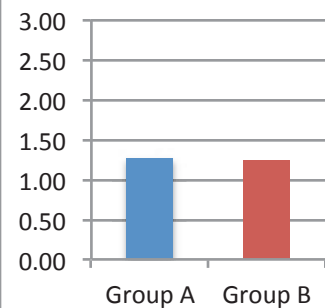
### MEDS01: Mean Scorecard Return, Group A vs. B



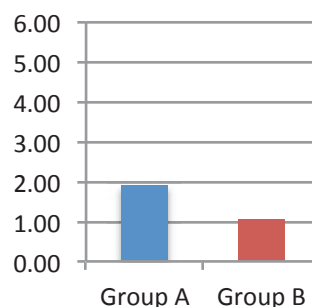
### Mean Success MEDS01



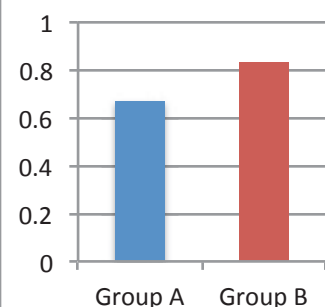
### Observed Time: Benchmark Time MEDS01



### Observed Path: Benchmark Path MEDS01



### Mean Number of Errors MEDS01



## ATTEMPTED FIXES

1. Remove default option for *Frequency*, if user doesn't selection, pop get error message.
2. Add checkbox: "Yes, this medication was taken today."

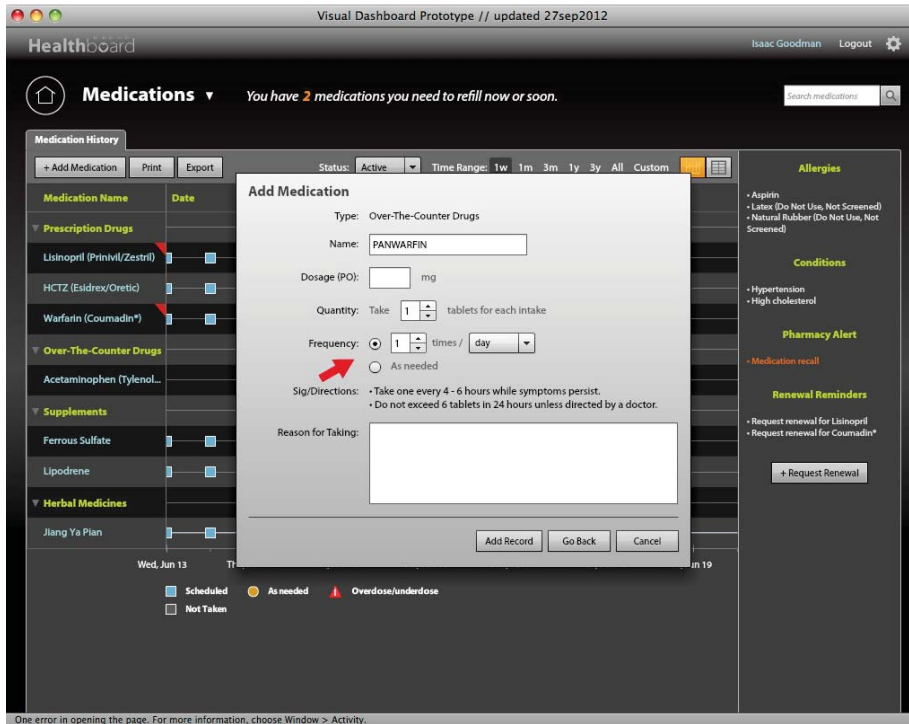
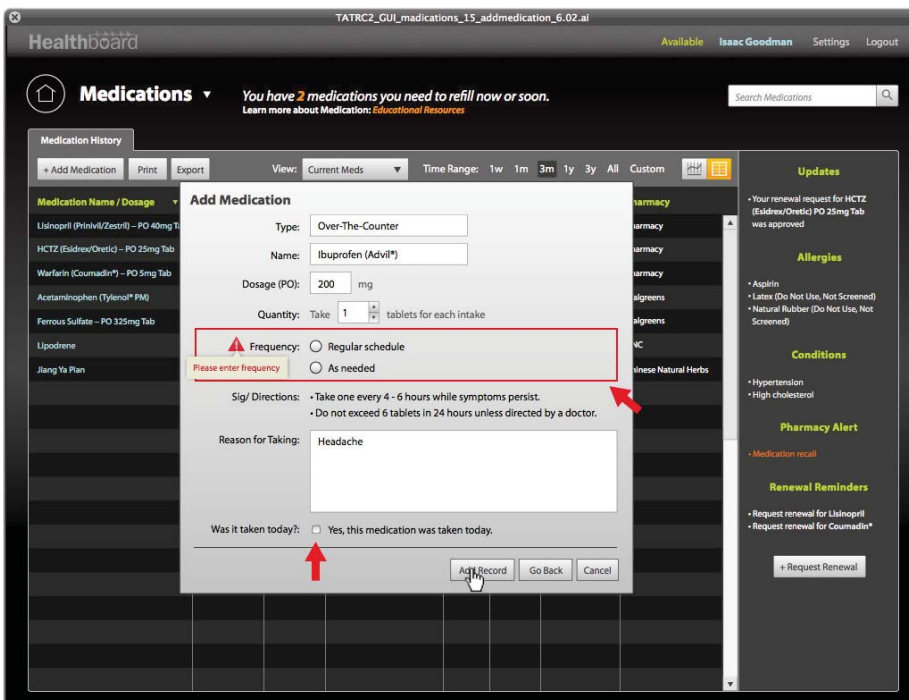
FIGURE 14A: *Before*

FIGURE 14B: *After. Error shown if no option for Frequency is selected.*

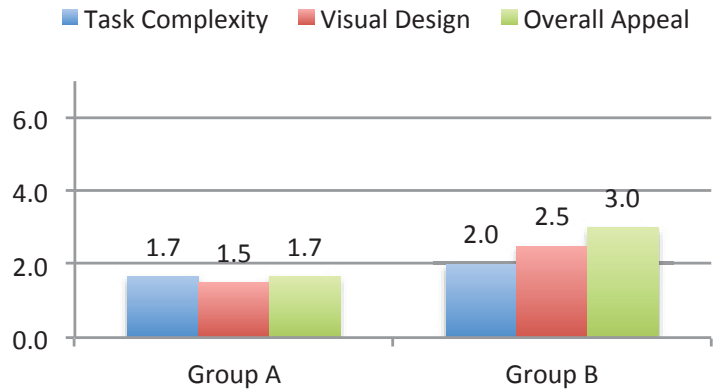
## MEDS05

While looking at your medications, you realize your prescription for Lisinopril has no more refills. How do you request a renewal?

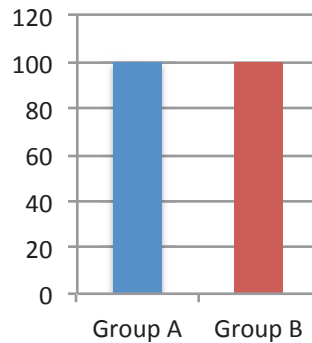
### GROUP A DETERMINATION

No Issues

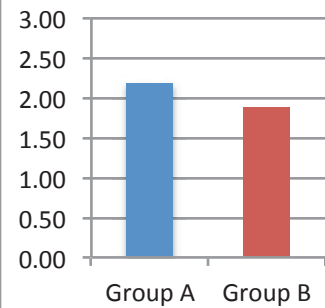
### MEDS05: Mean Scorecard Return, Group A vs. B



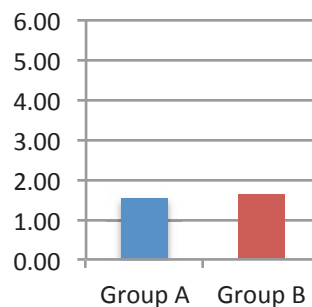
### Mean Success MEDS05



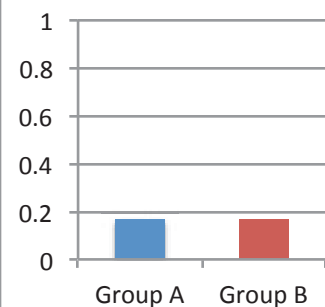
### Observed Time: Benchmark Time MEDS05



### Observed Path: Benchmark Path MEDS05



### Mean Number of Errors MEDS05



## APPT01

Next, you'd like to schedule a new appointment regarding your allergies. How would you do that?

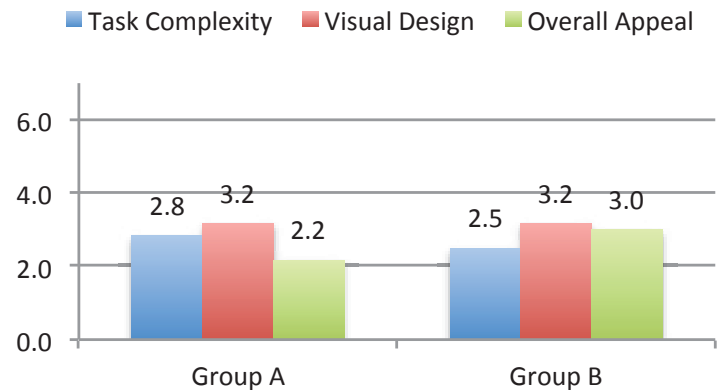
### GROUP A DETERMINATION: Moderate Issues

- Visual Design: 3.2 (3rd Worst)
- Approx. half the testers were confused by the "common reasons for visit" area and the "browse full list text;" we're not sure if this is something they should use or not.
- For some, it took a second to realize they needed to click the orange box to make the appointment.
- Nearly all expected some sort of confirmation message following clicking the orange box, like "Your appointment has been scheduled."

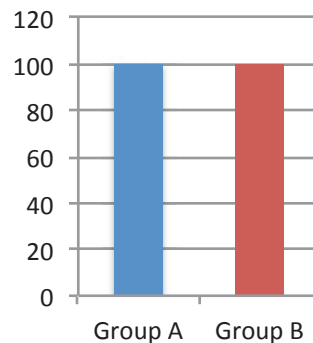
### GROUP B VALIDATION: Improved

- Due to the confirmation message, PIIM's team observed that users had no confusion after confirming an appointment time.

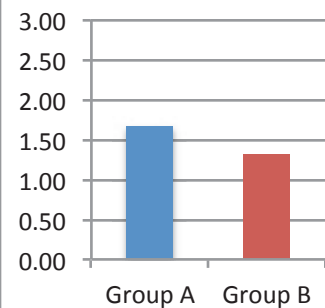
### APPT01: Mean Scorecard Return, Group A vs. B



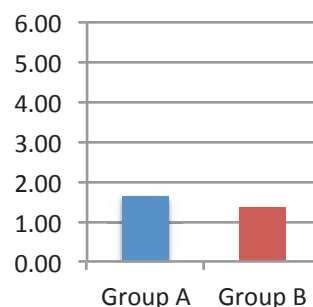
### Mean Success APPT01



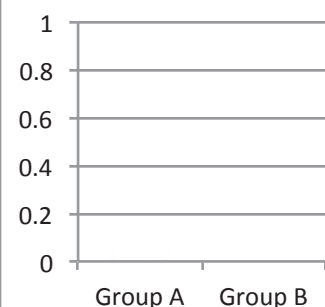
### Observed Time: Benchmark Time APPT01



### Observed Path: Benchmark Path APPT01



### Mean Number of Errors APPT01





## ATTEMPTED FIXES

Add confirmation message after appointment is made.

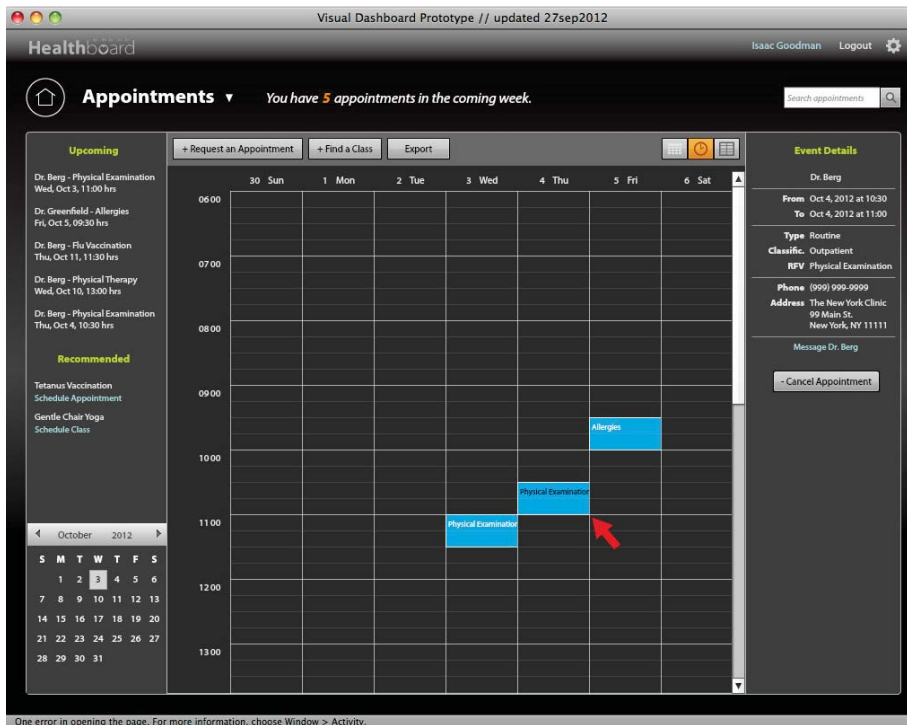


FIGURE 17A: (Before) Shows a recently added appointment.

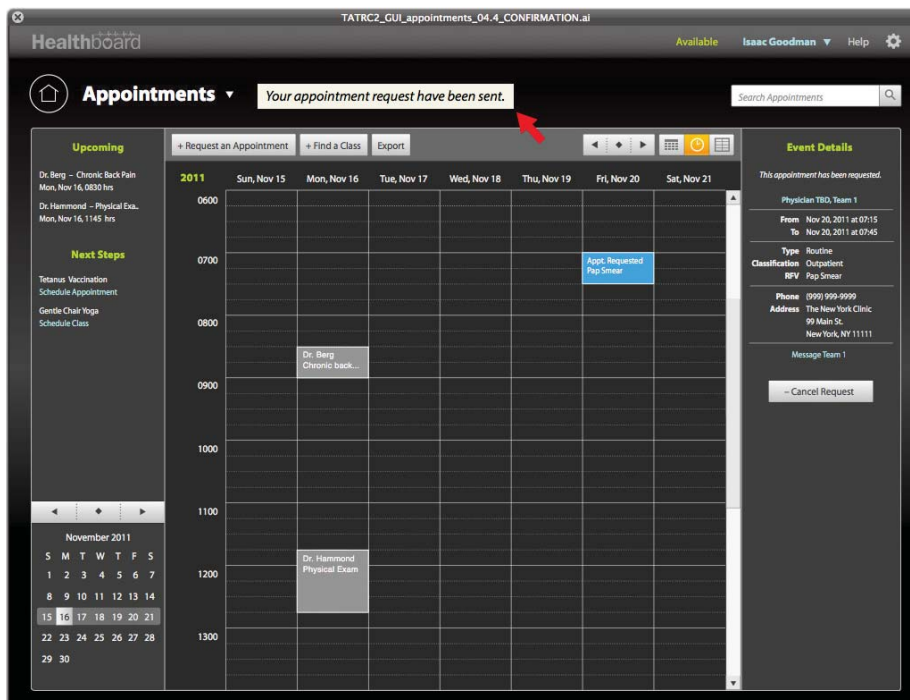


FIGURE 17B: After



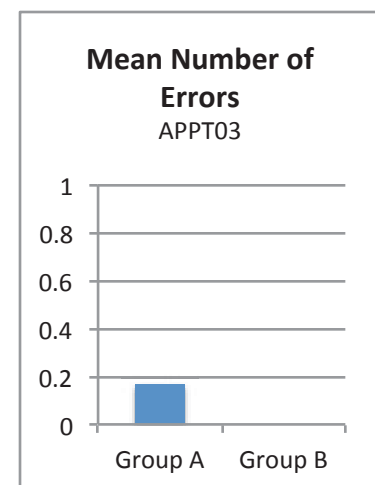
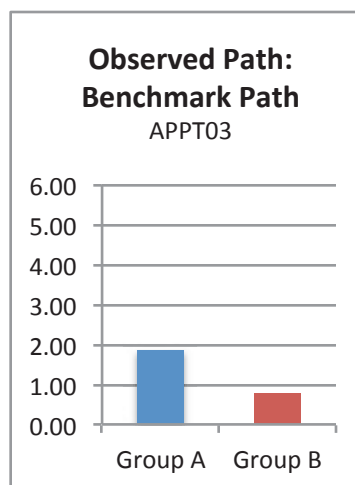
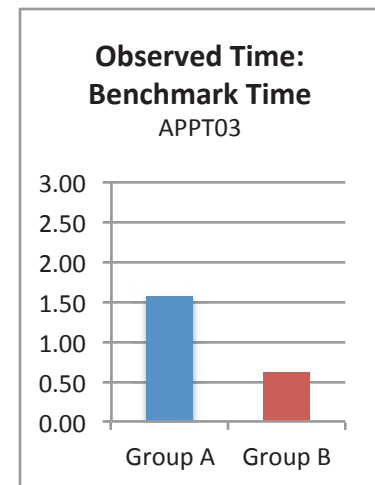
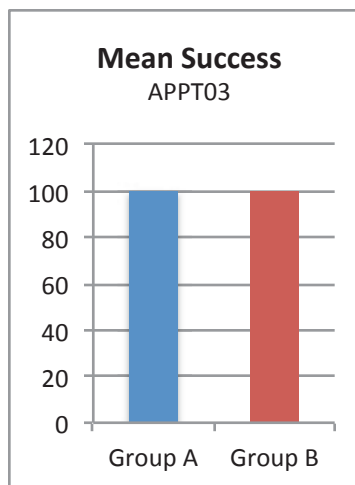
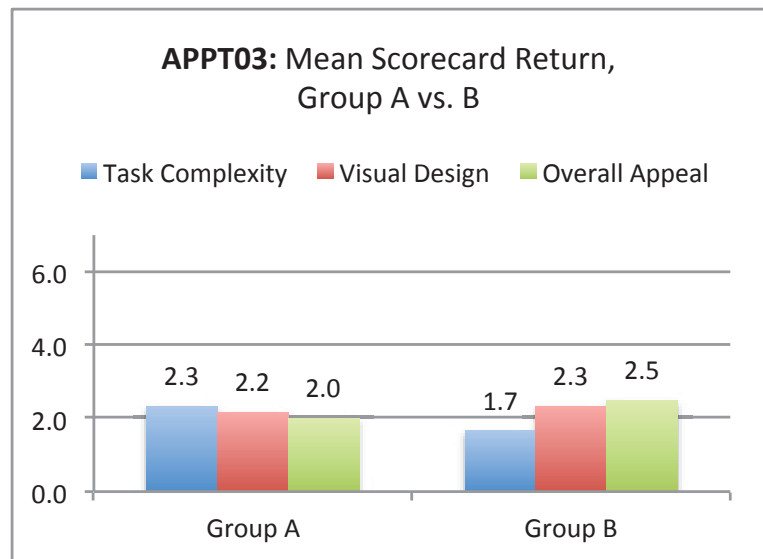
## APPT03

You suddenly remember that you have an appointment this coming Wednesday, which is in conflict with another event. How do you cancel the appointment?

### GROUP A DETERMINATION:

No issues

- Some users tried clicking on the appointments in the left column. These are disable for prototyping reason, but in the future these should be available.



## MSG01-03

You just remember getting a notification that a Physician had responded to an e-mail you sent your HealthBoard team. How would you go about reading it and replying?

### GROUP A DETERMINATION:

#### Minimal Issues

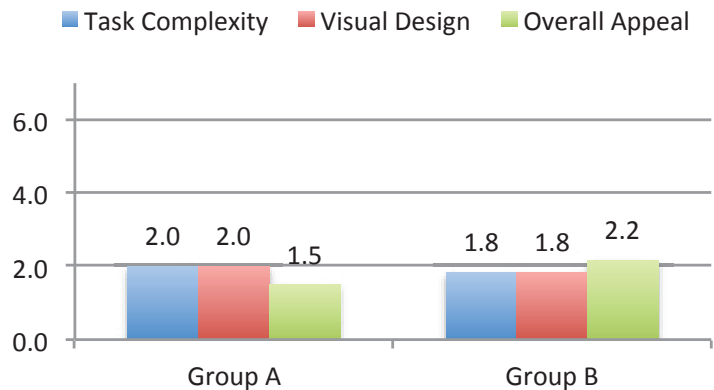
- Users appear to be confused for a second after replying to a message.

### GROUP B VALIDATION:

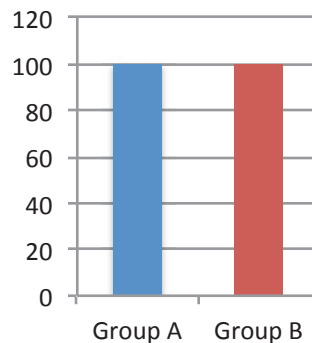
#### Improved

- Observed Time:  
Benchmark: 32% decrease, from 2.14 to 1.47. User noticed the confirmation message, would confidently announce “Done” at the end of the task.
- Observed Path:  
Benchmark: 42% decrease, from 1.90 to 1.11. Previously users would browse inboxes or scroll for “sent” verification.

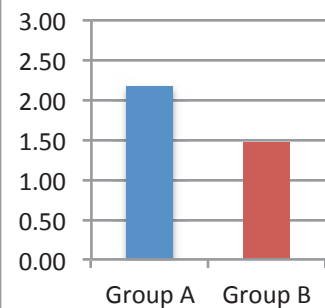
## MSG01-03: Mean Scorecard Return, Group A vs. B



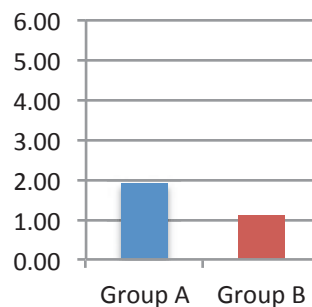
## Mean Success MSG01-03



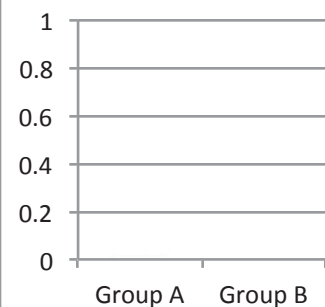
## Observed Time : Benchmark Time MSG01-03



## Observed Path: Benchmark Path MSG01-03



## Mean Number of Errors MSG01-03



## ATTEMPTED FIXES

Add a “message sent” success confirmation.

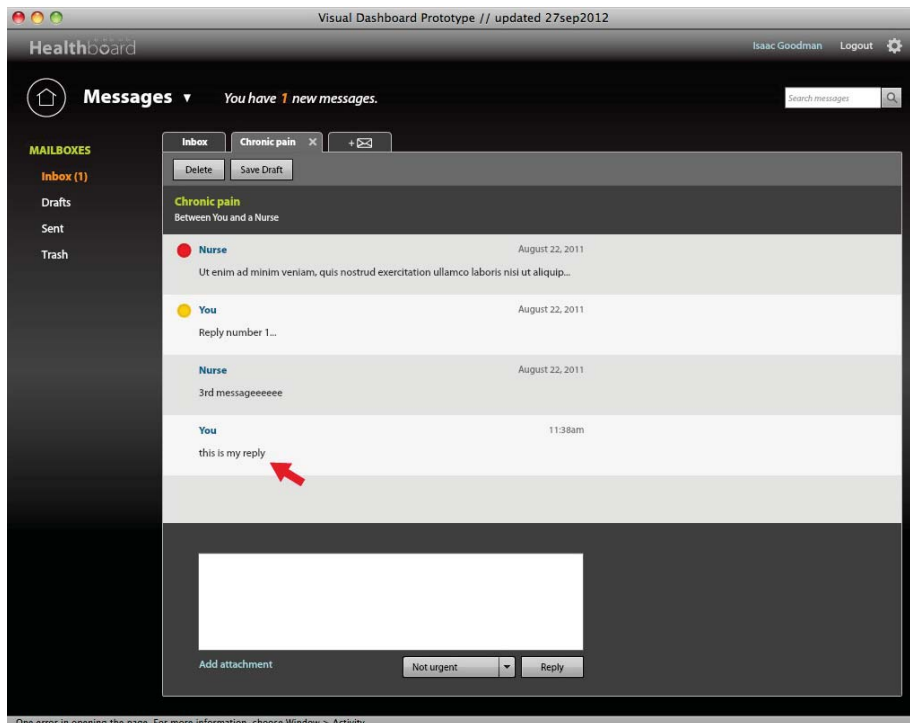


FIGURE 18A: (Before) Sent message just appears on the bottom of the thread.

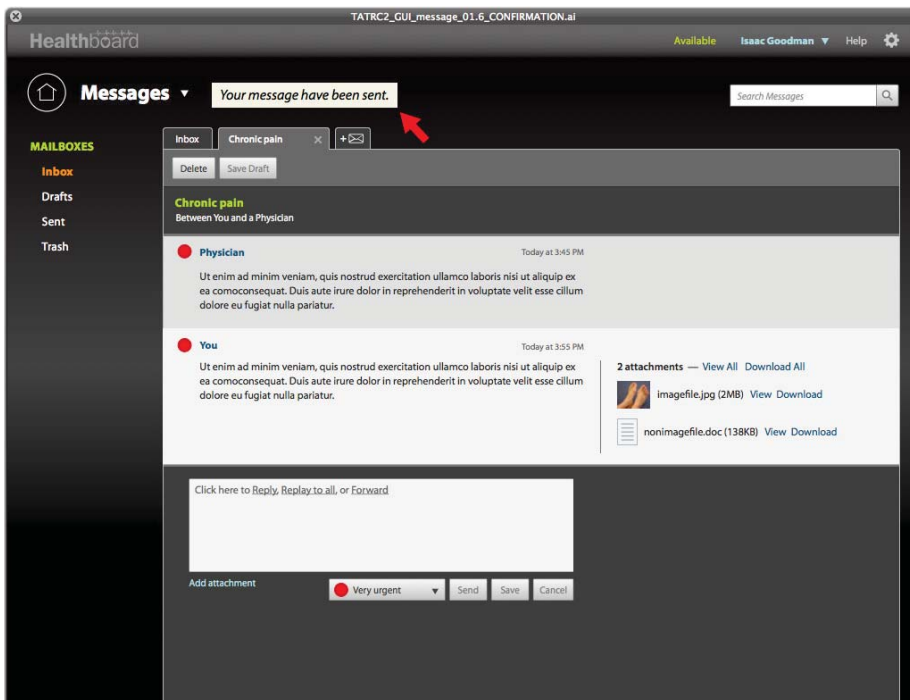


FIGURE 18B: After

## IMMU01-02

You recently sustained a moderate injury from stepping on a nail. When is your next Tetanus shot? What other vaccinations are due soon?

### GROUP A DETERMINATION:

#### Minor Issues

- Task Complexity: 3.2 (4rd Worst)
- Visual Design: 3.0 (4th Worst)
- Overall Appeal: 3.0 (Tied 3rd Worst)
- Successful Completion: 83.3%
- Observed Path:  
Benchmark: 2.95 (5th Worst)
- Error Rate: 0.17
- Most testers had difficulty finding Tetanus (labeled "Td/Tdap").

### GROUP B VALIDATION:

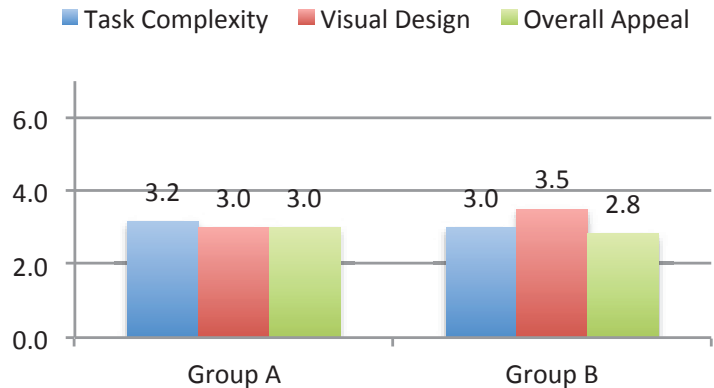
#### Improved

- Successful Completion:  
20% increase, from 83% to 100%
- Observed Path:  
Benchmark: 22% decrease, from 2.95 to 2.29 indicating testers were more confident in their answers.
- Error Rate: 0, decrease from 0.17

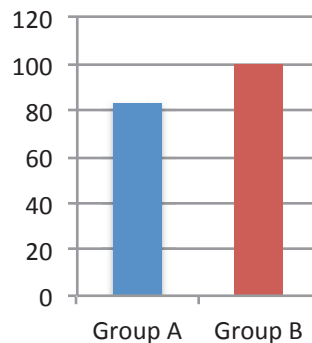
### RECOMMENDATIONS

- Keeping medical terminology and shorthand to a minimum will improve ease of use.

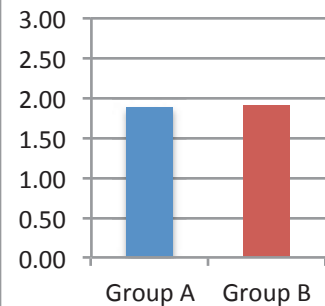
## IMMU01-02: Mean Scorecard Return, Group A vs. B



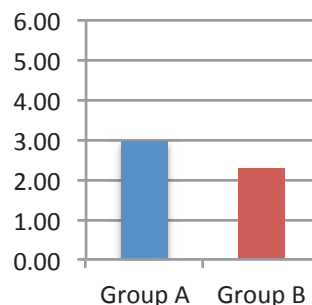
## Mean Success IMMU01-02



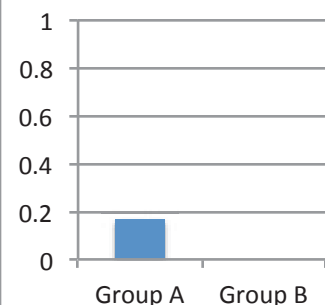
## Observed Time: Benchmark Time IMMU01-02



## Observed Path: Benchmark Path IMMU01-02



## Mean Number of Errors IMMU01-02



## ATTEMPTED FIXES

1. Change “Td/Tdap” to Tetanus-diphtheria.
2. Add *Today* to date bar for consistency with other modules.

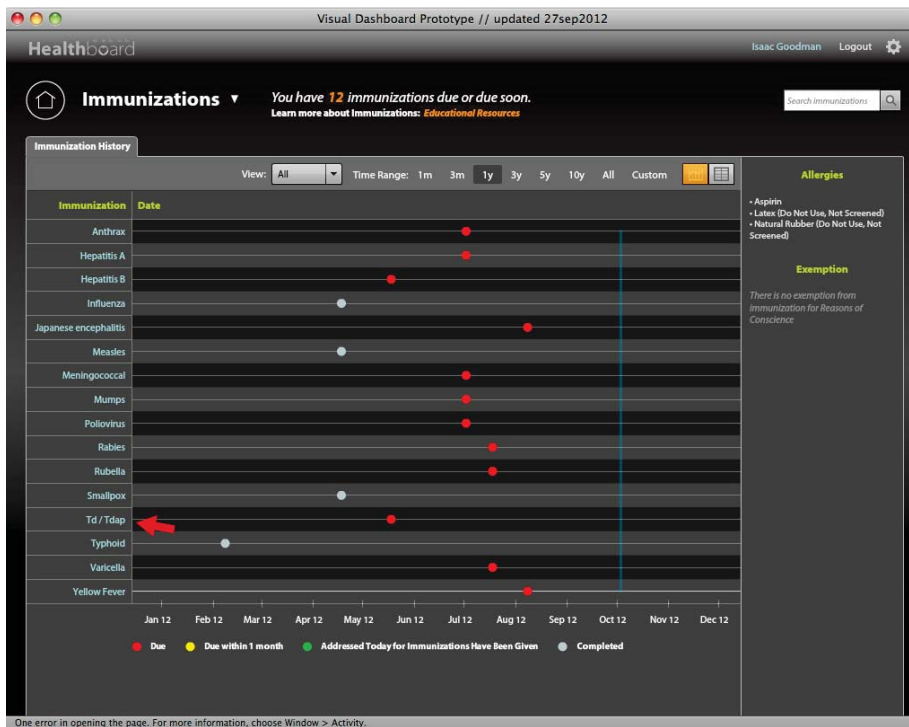


FIGURE 23A: *Before*

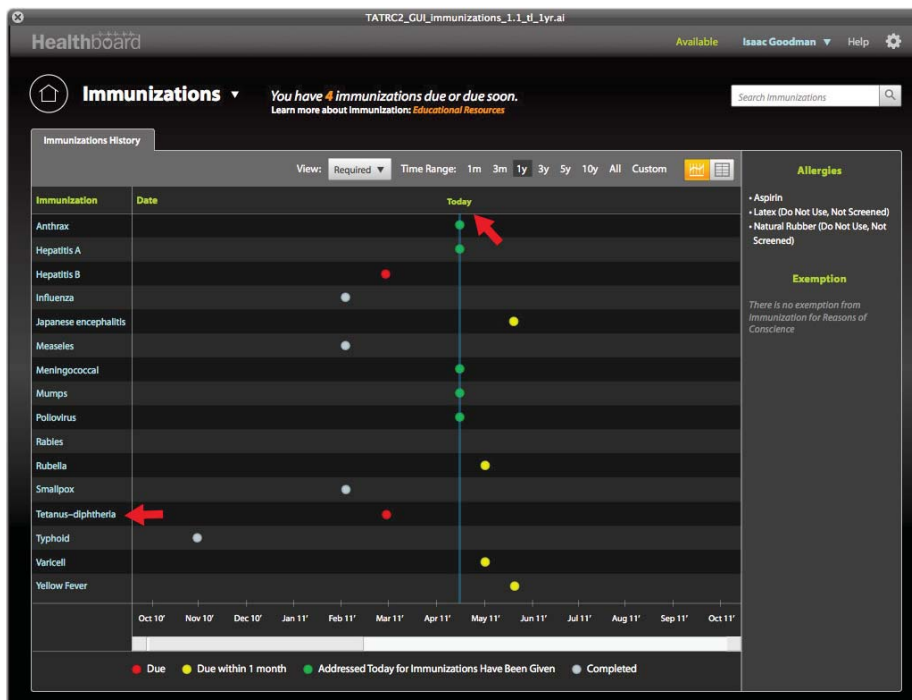


FIGURE 23B: *After*

## IMMU03

When did you have your last Hepatitis A vaccine?

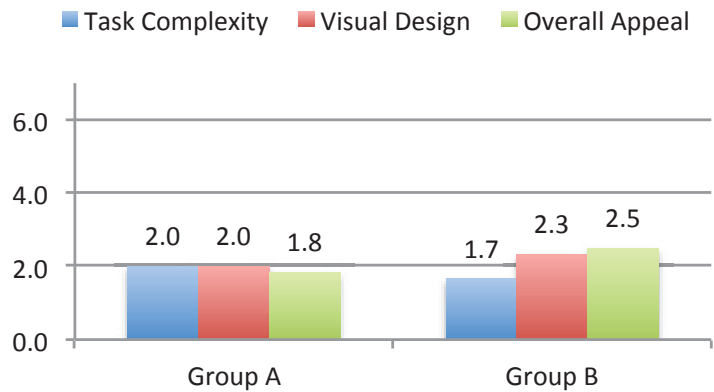
### GROUP A DETERMINATION:

No issues

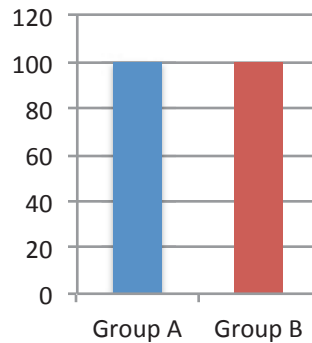
### GROUP B NOTE

- Observed Path:  
Benchmark: 664% increase, from 0.48 to 3.67. Mouse “wheel scrolling” is included in the *Path* metric. Occasionally, a “heavy scroller” will come along which can create false positives; this is the case here. *Tester PIB-08* had the heavy hand.

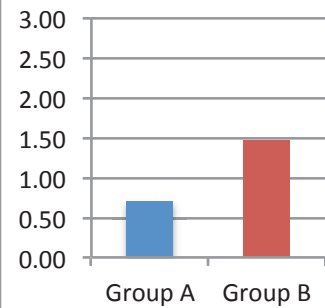
### IMMU03: Mean Scorecard Return, Group A vs. B



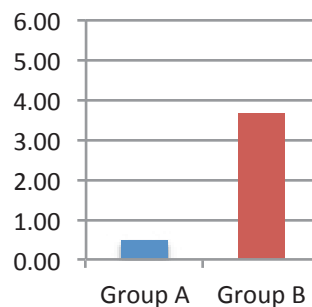
### Mean Success IMMU03



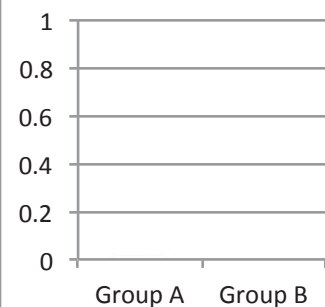
### Observed Time: Benchmark Time IMMU03



### Observed Path: Benchmark Path IMMU03



### Mean Number of Errors IMMU03





## MEDREC01

You remembered that your doctor suggested some next steps for you—was it a class? How would you find out? What visit was it related to?

### GROUP A DETERMINATION:

#### Moderate Issues

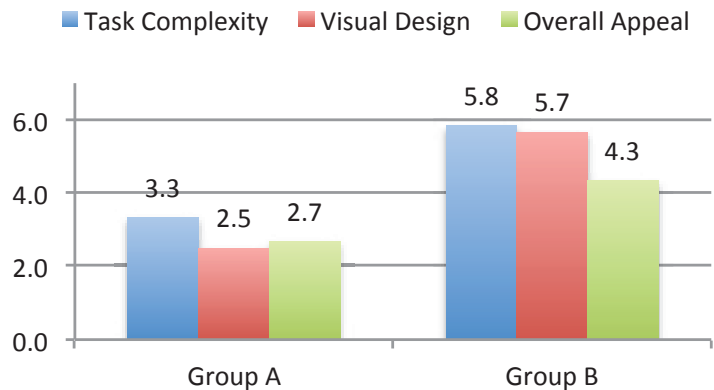
- Task Complexity: 3.3 (Tied 3rd Worst)
- Successful Completion: 83.3%
- Observed Path:  
Benchmark: 3.09
- All participants had difficulty locating *Next Steps*.
- In Appointments, “Next Steps” are called “Recommendations.”
- Testers had trouble locating the related visit.

### GROUP B VALIDATION:

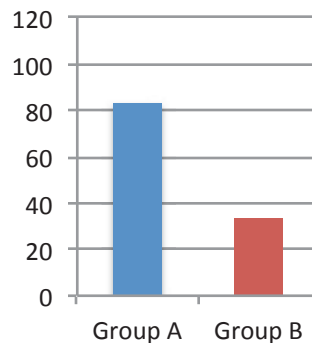
#### Revert or Revise

- Task Complexity:  
75% increase, from 3.3 to 5.8
- Visual Design:  
127% increase, from 2.5 to 5.7
- Overall Appeal:  
63% increase, from 2.7 to 4.3
- Successful Completion:  
60% decrease, from 83.33 to 33.33
- Error Rate: 0.67, up from 0
- Without question, PIIM positioned the *Next Steps* block in a “blind spot” of the UI. Most users failed to find the call-to-action, despite it being omnipresent in the interface.

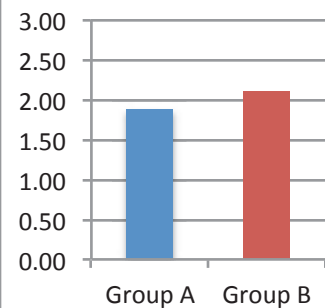
### MEDREC01: Mean Scorecard Return, Group A vs. B



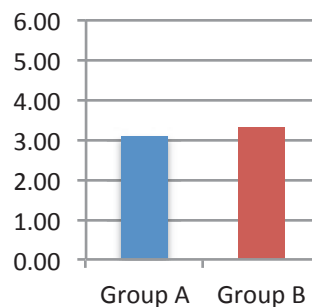
### Mean Success MEDREC01



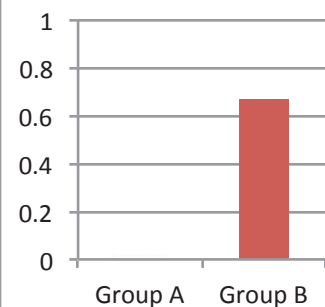
### Observed Time: Benchmark Time MEDREC01



### Observed Path: Benchmark Path MEDREC01



### Mean Number of Errors MEDREC01



## RECOMMENDATIONS

- Continue working on the display to Next Steps, but use *formative* test to determine the block's visibility.
- *Next Steps* should be the initial block every user sees after signing into HealthBoard. Perhaps this can be accomplished with UI similar to the *Health Focus* block within HealthBoard's Provider portal.
- Survey whether *Next Steps* is the appropriate vocabulary.

## ATTEMPTED FIXES

1. Have a block or section solely for patient's next steps, located at the top (similar to *Health Focus* in the Provider Portal). Also include a link to the original visit.

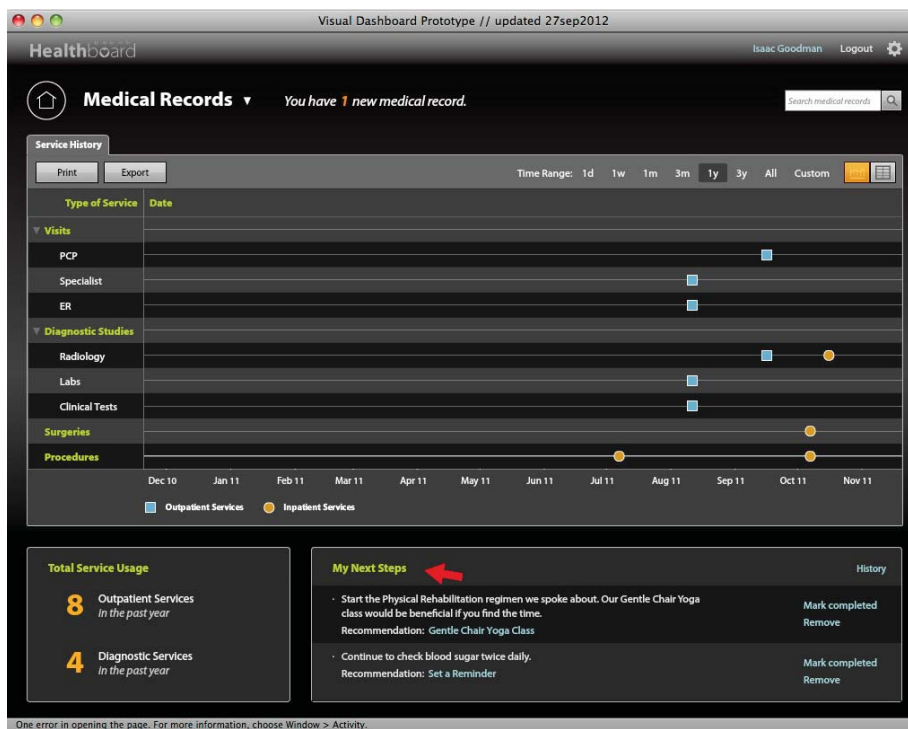


FIGURE 27A: *Before*

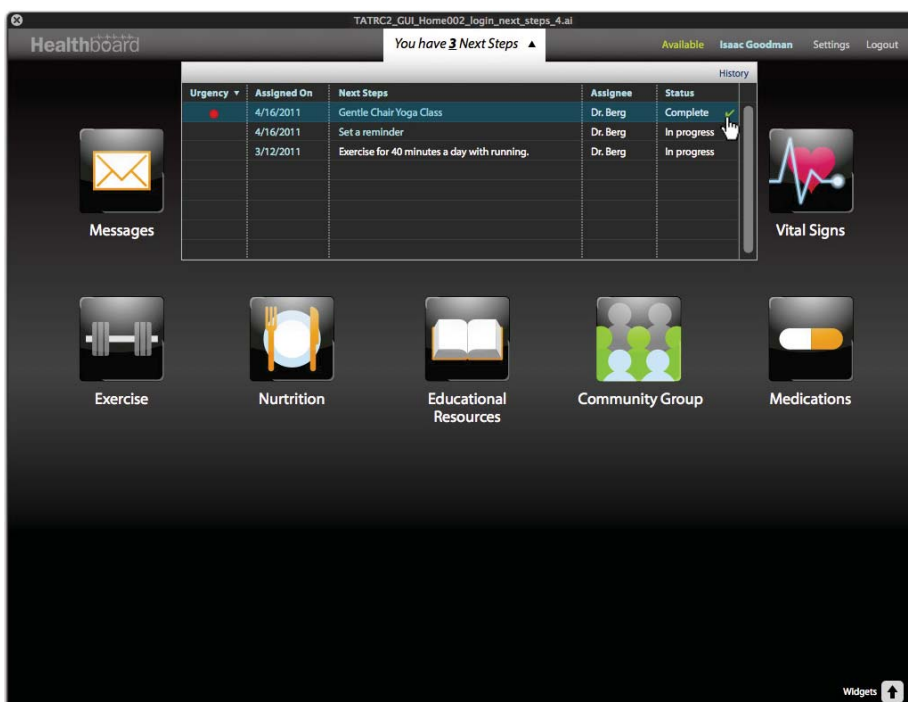


FIGURE 27B: *After*

## 2. In *Appointments*, re-label "Recommendations" to "Next Steps."

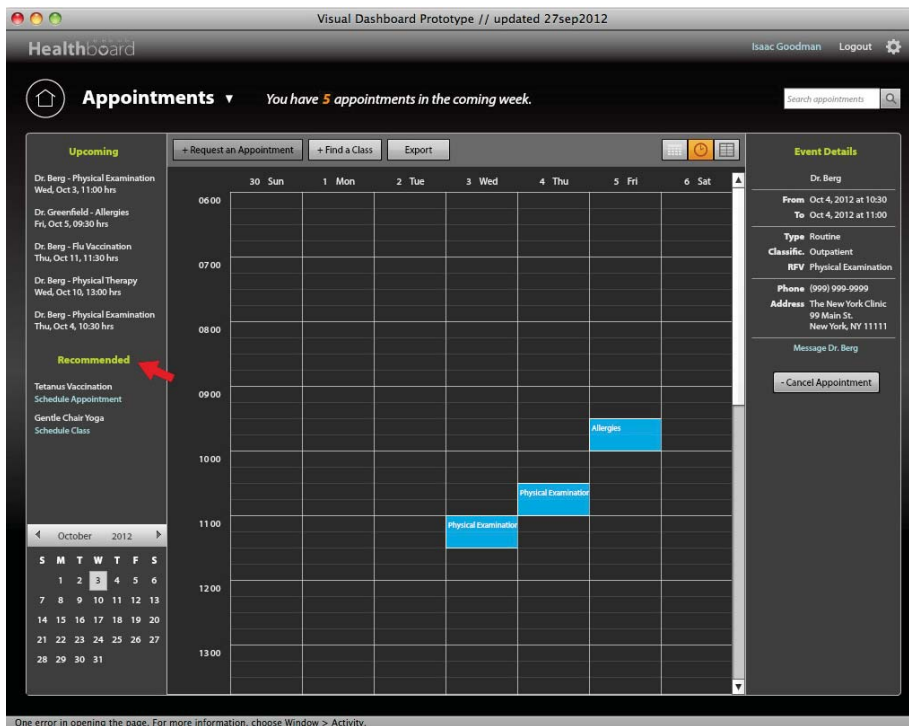


FIGURE 28A: *Before*

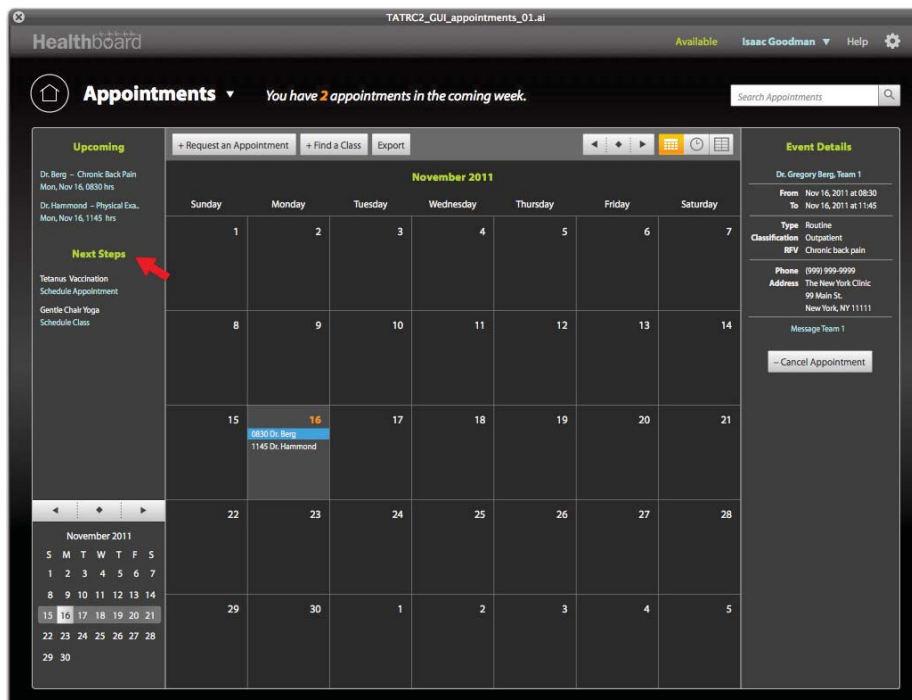


FIGURE 28B: *After*

## APPT05

Your doctor recommended a “chair yoga” class. How would you register?

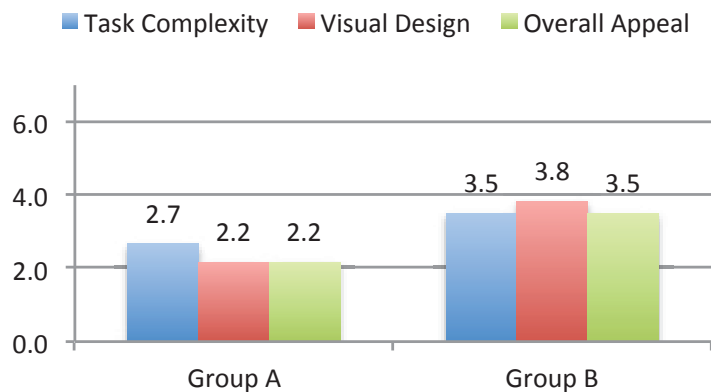
### GROUP A DETERMINATION:

No Issues

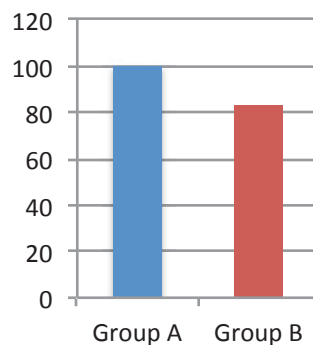
### TASK NOTE

- 17% decrease in task success, likely due to fall-out from failing the previous task.

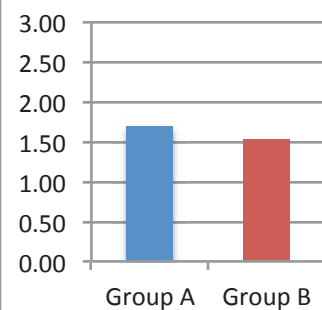
## APPT05: Mean Scorecard Return, Group A vs. B



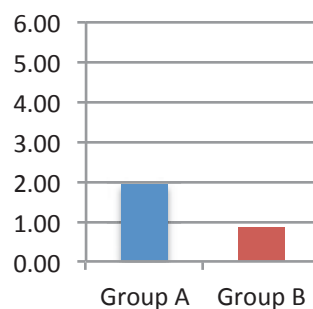
### Mean Success APPT05



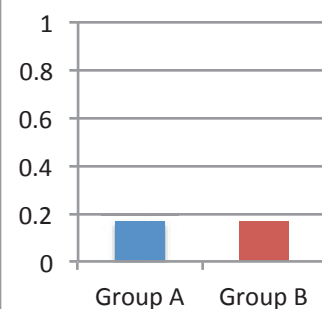
### Observed Time: Benchmark Time APPT05



### Observed Path: Benchmark Path APPT05



### Mean Number of Errors APPT05



## MEDREC02

How would you mark that Next Step as complete?

### GROUP A DETERMINATION:

#### Minimal Issues

- Marking a Next Step as complete just assigns a check mark; no other action happens.

### GROUP B VALIDATION:

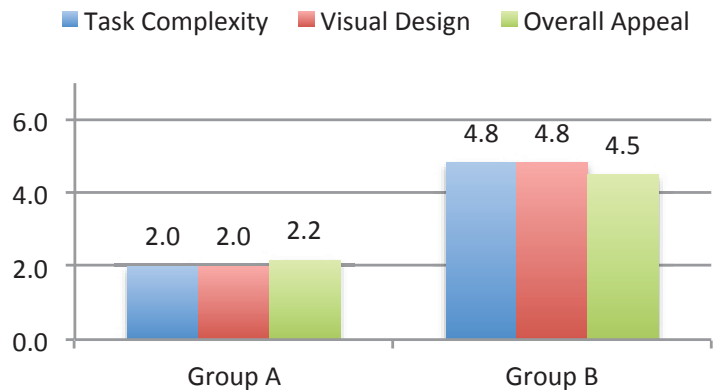
#### Revert or Revise

- Task Complexity:  
142% increase, from 2.0 to 4.8
- Visual Design:  
142% increase, from 2.0 to 4.8
- Overall Appeal:  
108% increase, from 2.2 to 4.5
- Successful Completion:  
67% decrease, from 100% to 33%
- Observed Time:  
Benchmark: 180% increase, from 0.61 to 1.71
- Observed Path:  
Benchmark: 276% increase, from 0.48 to 1.81
- Error Rate: 0.33, up from 0
- Completion of this task was dependent on a previous “next steps” task (MEDREC01). Because testers could not locate the *Next Steps* area, testers failed to complete this task.
- No *direct* usability issues were observed in those that successfully completed the task.

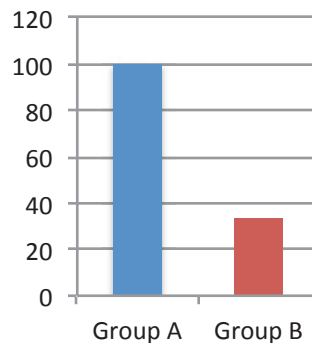
### RECOMMENDATIONS

See *Recommendations* under task MEDREC01.

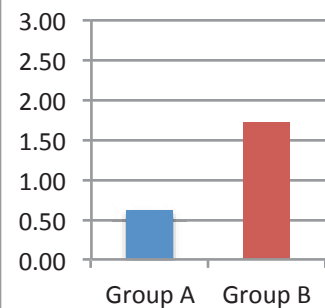
**MEDREC02: Mean Scorecard Return, Group A vs. B**



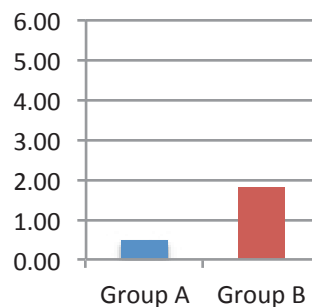
**Mean Success MEDREC02**



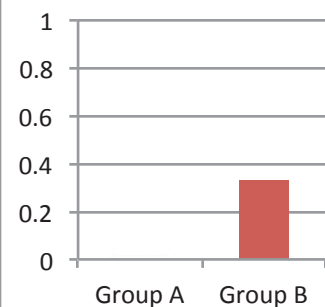
**Observed Time: Benchmark Time MEDREC02**



**Observed Path: Benchmark Path MEDREC02**



**Mean Number of Errors MEDREC02**





## ATTEMPTED FIXES

When marking a “Next Step” as complete, it should fade away or go to a completed state, perhaps accessible in History.

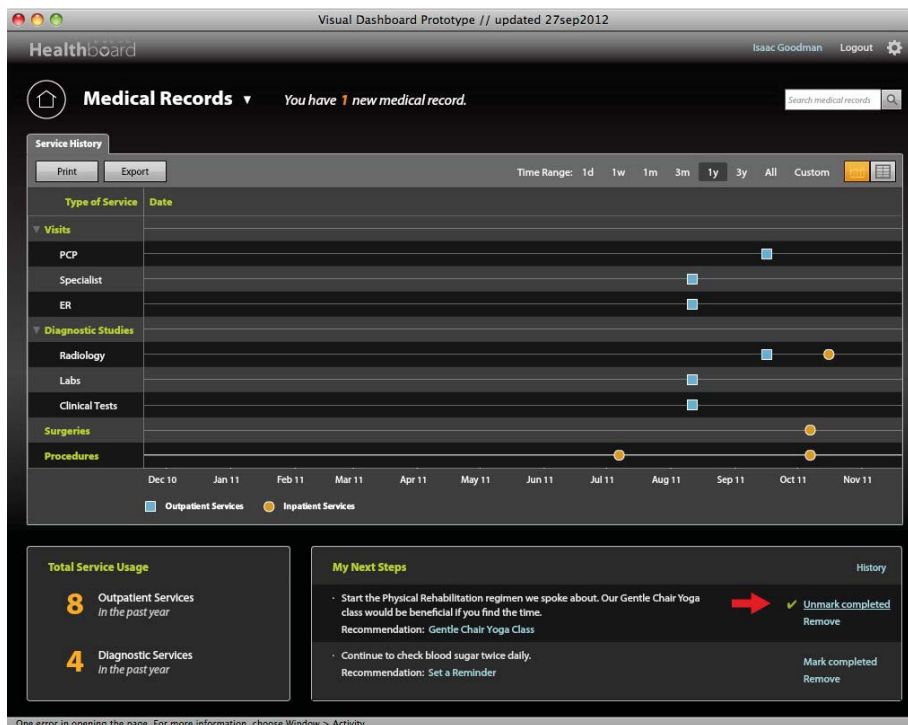


FIGURE 29A: Before

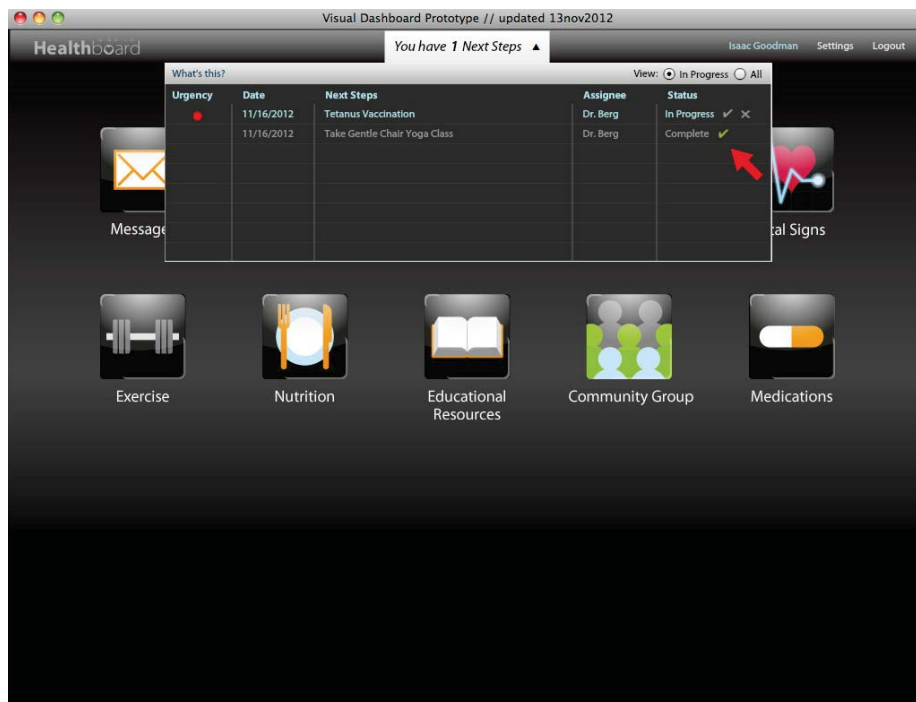


FIGURE 29B: After. When an item is marked as complete, it fades out after one second, and is then accessible by selecting View > All.

## MEDREC03

Where would you find a history of Next Steps?

### GROUP A DETERMINATION:

No Issues

### GROUP B VALIDATION:

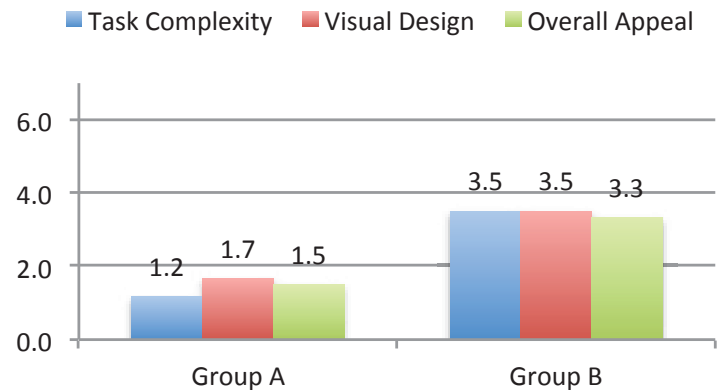
Revert or Revise

- Visual Design:  
110% increase, from 1.7 to 3.5
- Overall Appeal:  
122% increase, from 1.5 to 3.3
- Successful Completion:  
33% decrease, from 100% to 66.6%
- Observed Time:  
Benchmark: 174% increase, from 1.06 to 2.90, indicating testers had a hard identifying how to solve the task.
- Error Rate: 0.67, up from 0
- Completion of this task was dependent on a previous “next steps” task (MEDREC01). Because testers could not locate the *Next Steps* area, testers failed to complete this task.
- Given this, *Mean Success* did not drop as severe as other metrics. Testers found workaround ways to solve the task. By going into the *Appointments* module and changing to *Table View*, testers were able to find what amounted to a “history of next steps.” See FIGURE 29C.

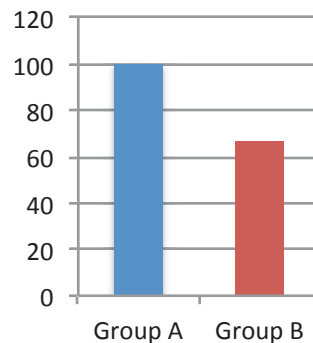
### RECOMMENDATIONS

See *Recommendations* under task MEDREC01.

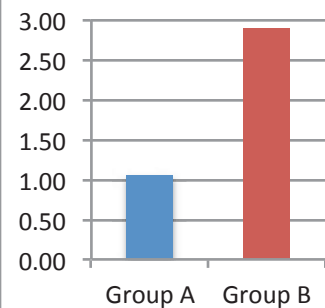
**MEDREC03: Mean Scorecard Return, Group A vs. B**



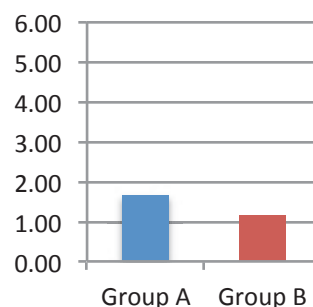
**Mean Success MEDREC03**



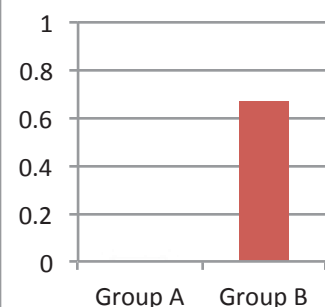
**Observed Time: Benchmark Time MEDREC03**



**Observed Path: Benchmark Path MEDREC03**



**Mean Number of Errors MEDREC03**



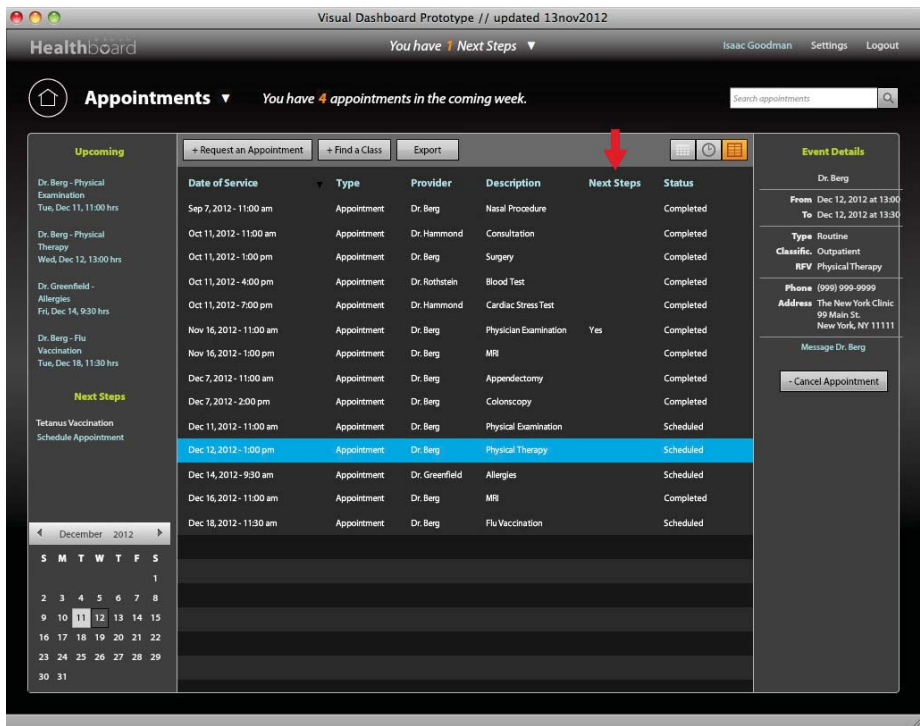


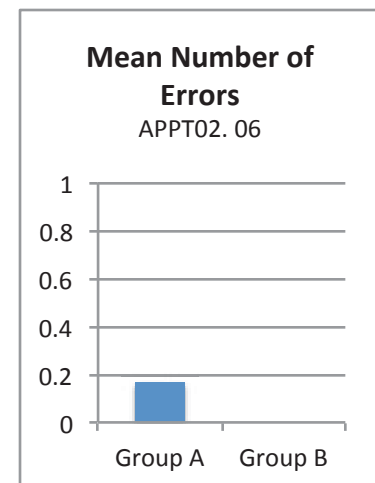
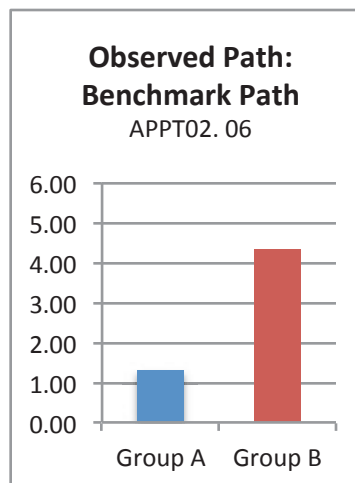
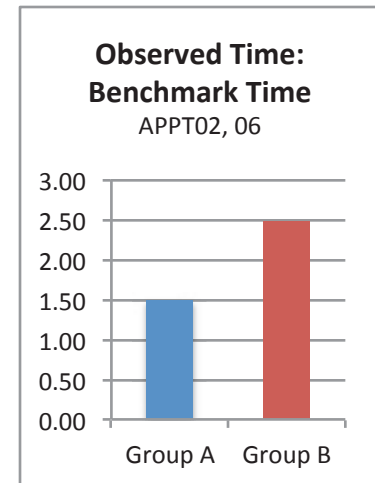
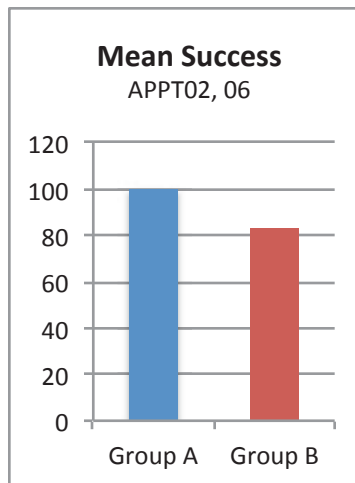
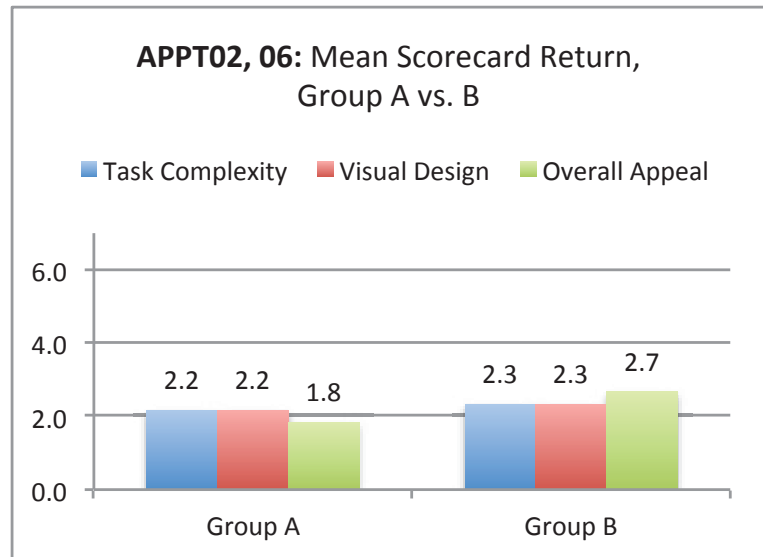
FIGURE 29C: Testers used this view to report a history of next steps.

## APPT02, 06

You just remembered you have an appointment with a new doctor coming up soon regarding your allergies. When is it?

### GROUP A DETERMINATION:

No Issues



## MEDS03

You want to show the new doctor a prescription medication you took last year related to the new appointment. How would you go about finding it? How would you find information on it?

### GROUP A DETERMINATION:

#### Moderate Issues

- Successful Completion:  
66.6% (Tied 4th Worst)
- Task Complexity:  
142% increase, from 2.0 to 4.8
- Visual Design:  
142% increase, from 2.0 to 4.8
- Overall Appeal:  
62.5% increase, from 2.2 to 4.5
- Observed Time:  
Benchmark: 2.07 (6th Worst)
- Testers had trouble grasping *All* versus *Inactive* medication.

### GROUP B VALIDATION:

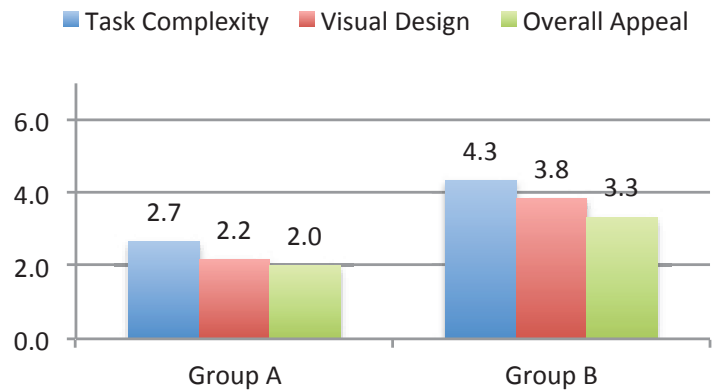
#### Improved

- Successful Completion:  
50% increase, from 66% to 100%

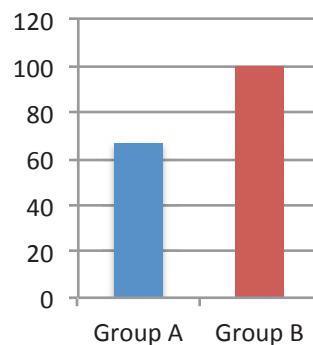
### RECOMMENDATIONS

- Because of negative scorecard results, another examination of verbiage and visual design might help mitigate negative perception.

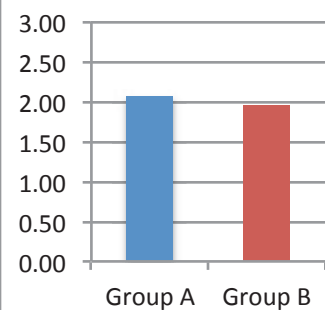
### MEDS03: Mean Scorecard Return, Group A vs. B



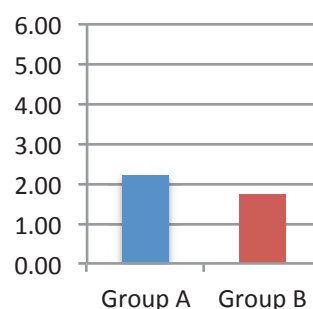
### Mean Success MEDS03



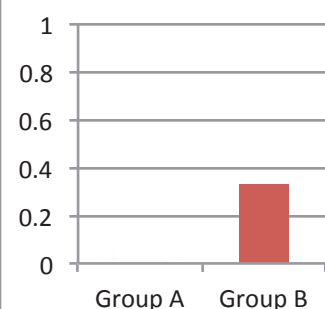
### Observed Time: Benchmark Time MEDS03



### Observed Path: Benchmark Path MEDS03



### Mean Number of Errors MEDS03



## ATTEMPTED FIXES

1. Change filter label to “View,” and new options are *Current Meds*, *Discontinued Meds*, and *All Meds*.

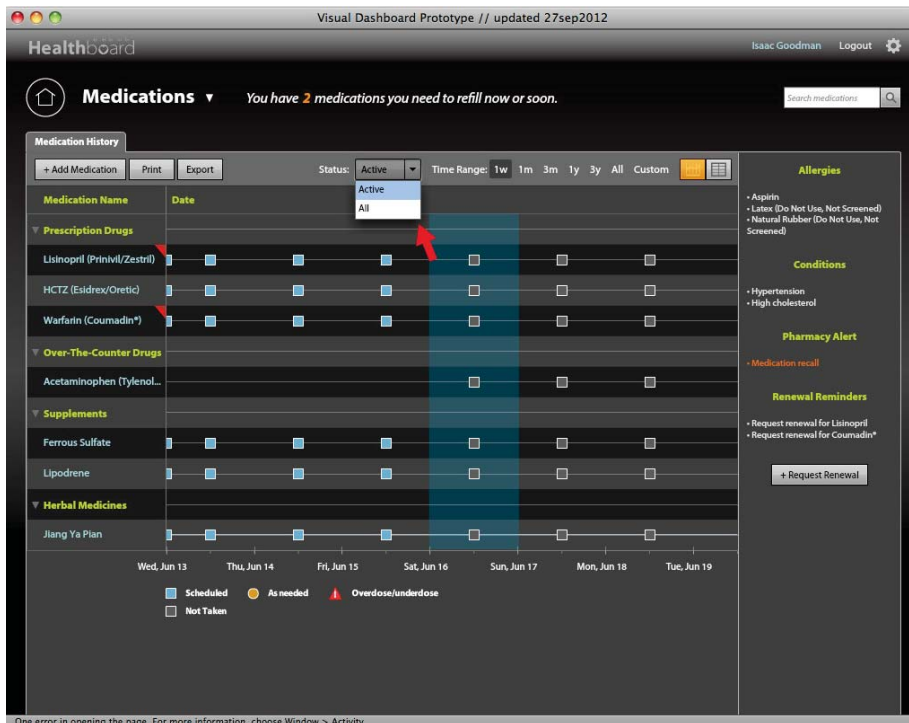


FIGURE 32A: *Before*

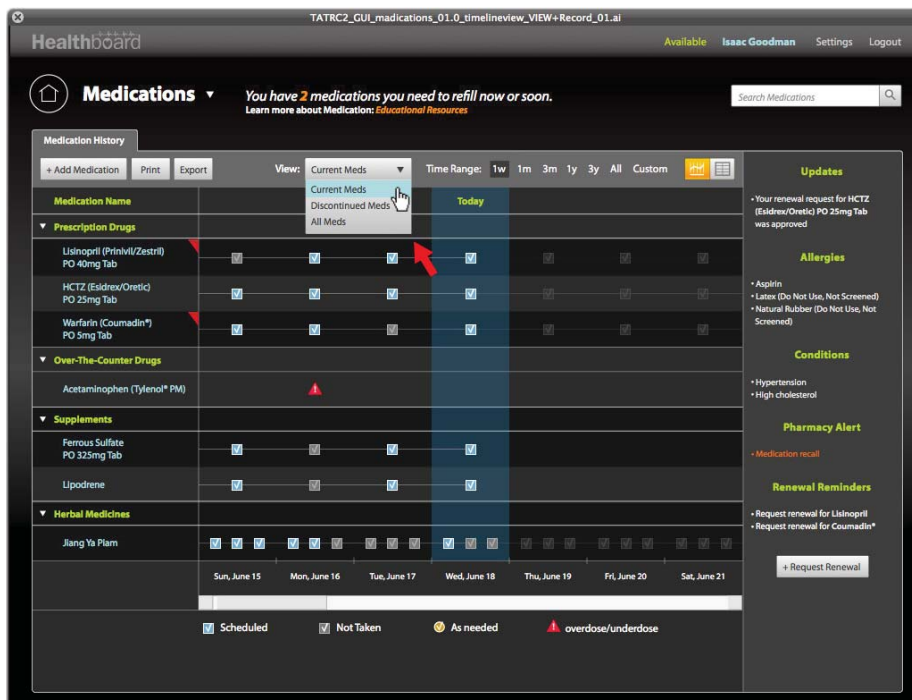


FIGURE 32B: *After*



## MEDREC06

Next, you want to show the new provider the results of a past blood test. Where would you find it?

### GROUP A DETERMINATION: Moderate Issues

- Visual Design: 3.0 (Tied 4th, Worst)
- Successful Completion: 83.3%
- Observed Time:  
Benchmark: 2.7 (3rd Worst)
- Observed Path:  
Benchmark: 5.44 (Worst)

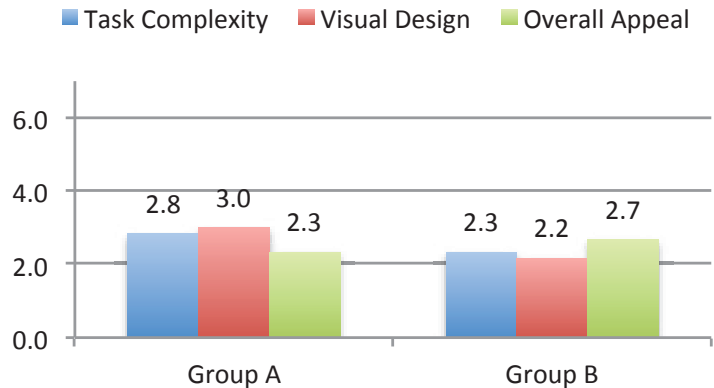
*Note: Upon investigation, PIIM determined this data was actually a false positive. Tester P-02 was a “heavy scroller.” Each action on the scroll wheel (mouse middle button) is counted as part of the user’s path.*

- Some testers tried to click on service sub-types (e.g. Labs), as well as other parts of the UI.

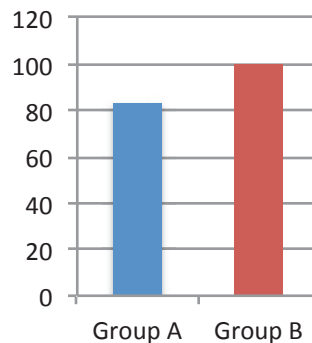
### GROUP B VALIDATION: Improved

- Successful Completion:  
20% increase, from 83% to 100%

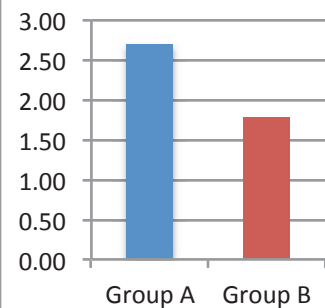
### MEDREC06: Mean Scorecard Return, Group A vs. B



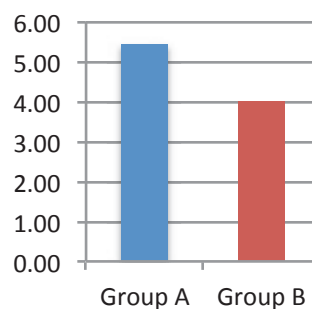
### Mean Success MEDREC06



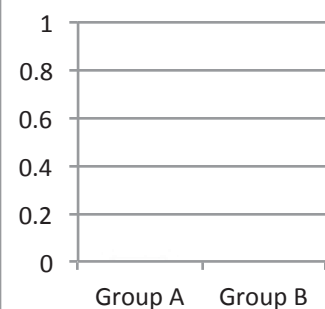
### Observed Time: Benchmark Time MEDREC06



### Observed Path: Benchmark Path MEDREC06



### Mean Number of Errors MEDREC06



## ATTEMPTED FIXES

For consistency, add the *Today* label on the timeline.

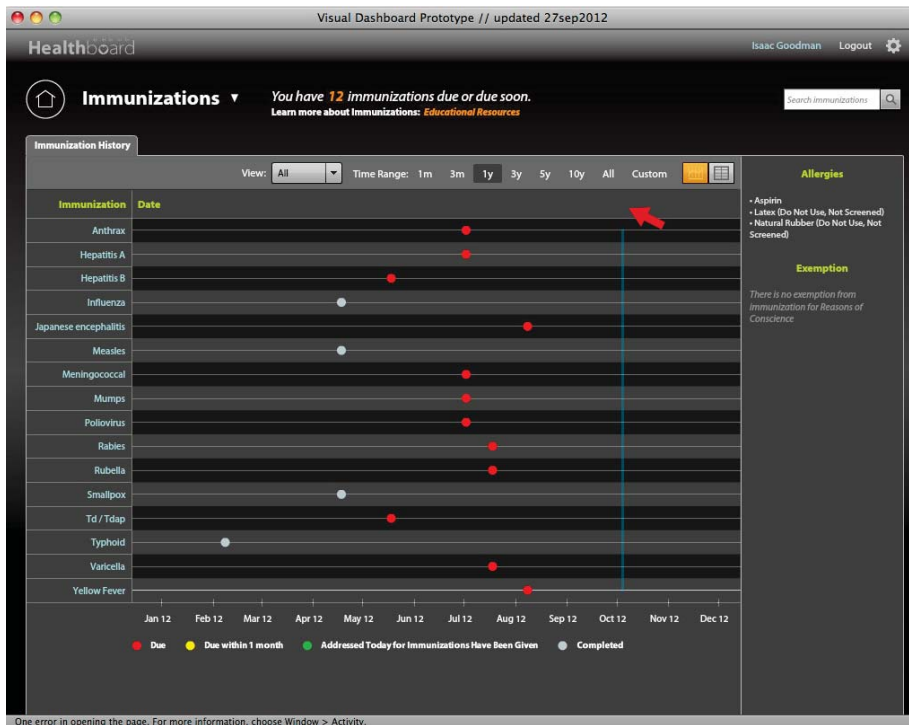


FIGURE 37A: Before

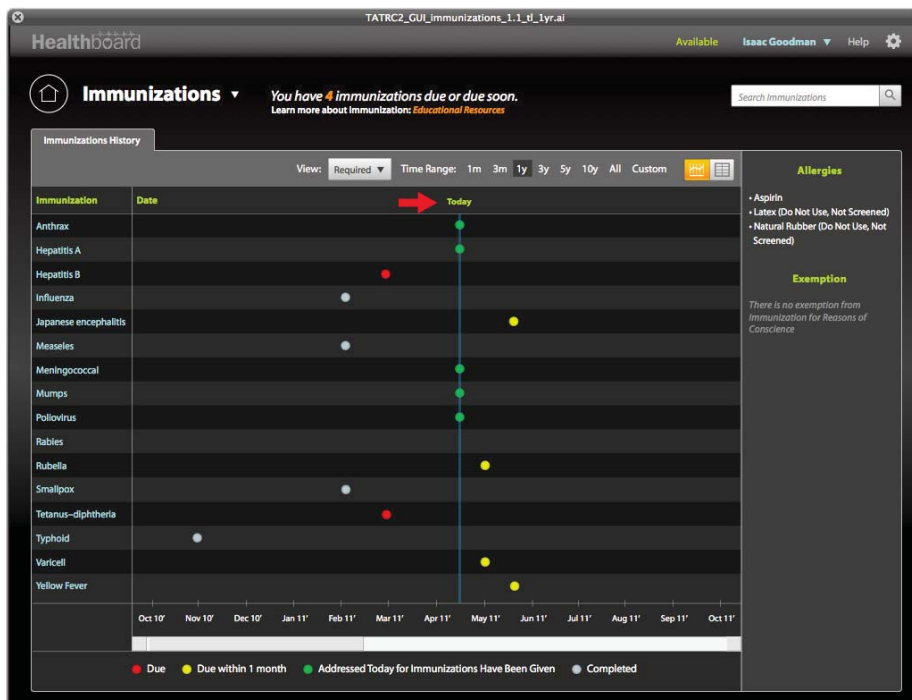


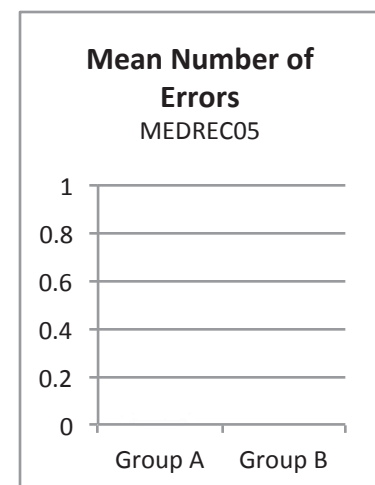
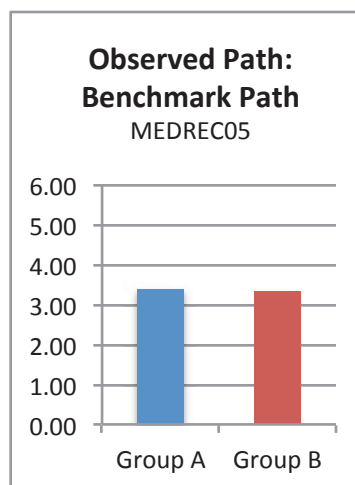
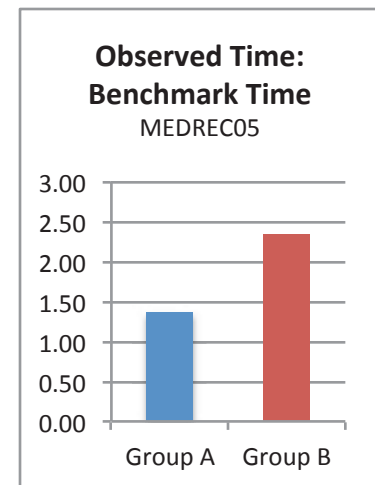
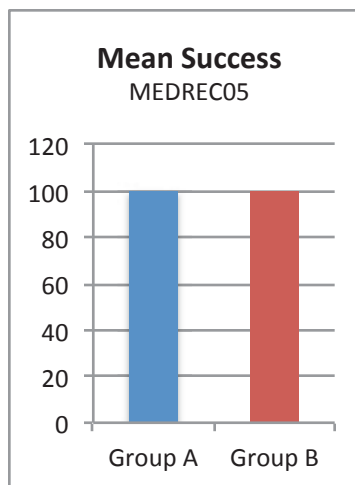
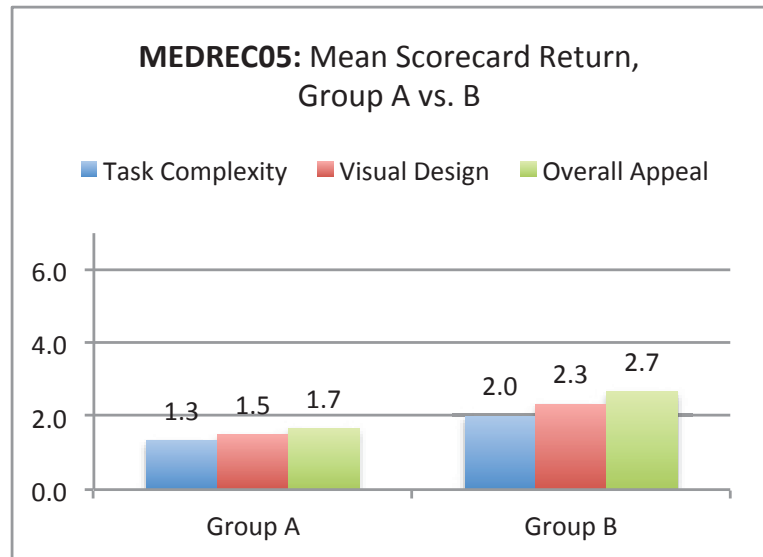
FIGURE 37B: After

## MEDREC05

How would you show the provider details about the nasal procedure you had?

### GROUP A DETERMINATION:

No Issues



## MEDREC07

You want to give your medical record to your new doctor. How would you do that?

### GROUP A DETERMINATION:

#### No Issues

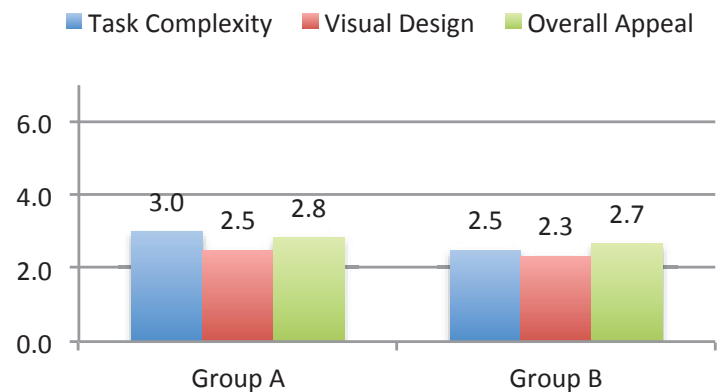
- Observed Time:  
Benchmark: 2.72 (2nd Worst) Note:  
This is another false positive caused by *Tester P1-02* exploration of around 3 minutes.
- *Export* button does not work. If the situation was appropriate, moderator asked: "What do you think would happen when you click the Export button?" Consistently, each tester responded with something like: "I'd be asked to choose my format, like PDF, then asked who to send it to..." This is a fairly powerful feature in a PHR, and might be worth mocking up.

### GROUP B VALIDATION:

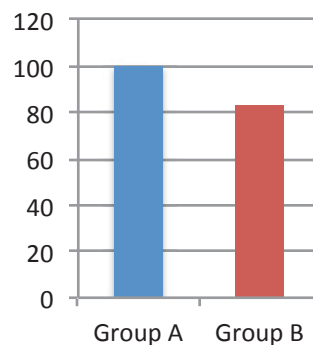
#### Improved

- Observed Time:  
Benchmark: 50% decrease, from 2.72 to 1.36
- Observed Path:  
Benchmark: 57% decrease, from 4.03 to 1.71
- These metrics are likely improved because of the addition of a confirmation message. Testers felt more comfortable announcing "Done!" See FIGURE 40A.

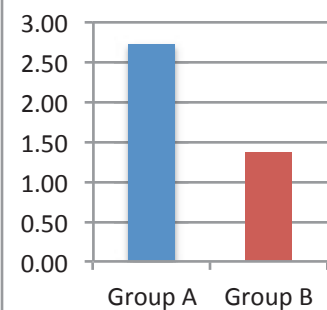
**MEDREC07: Mean Scorecard Return, Group A vs. B**



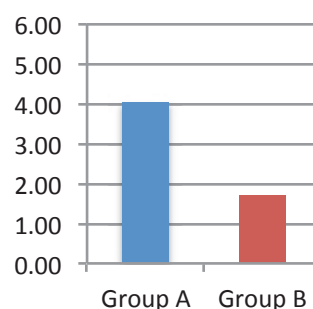
**Mean Success MEDREC07**



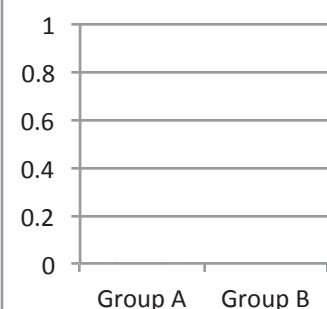
**Observed Time: Benchmark Time MEDREC07**



**Observed Path: Benchmark Path MEDREC07**



**Mean Number of Errors MEDREC07**



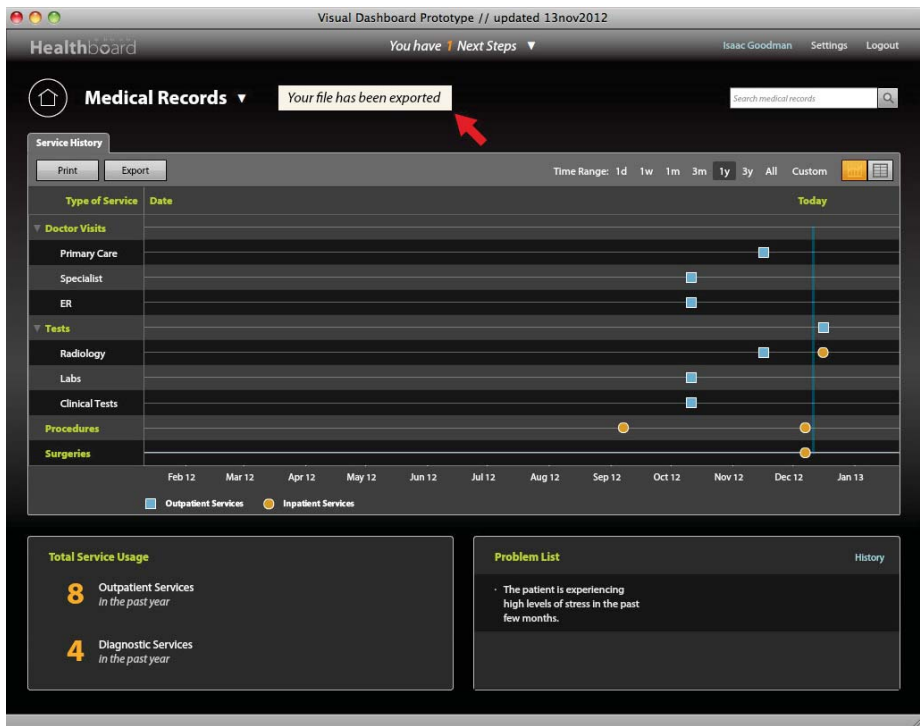


FIGURE 40A: *Export Confirmation Message*

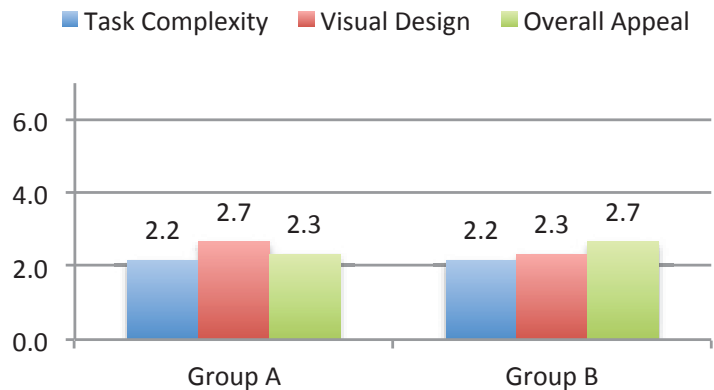
## MSG04

How would you send a new (urgent) message about Warafin (which is making you feel jittery)?

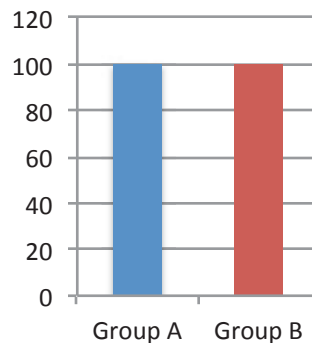
### GROUP A DETERMINATION:

No issues

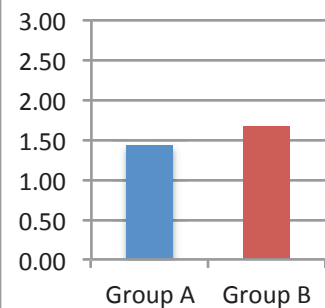
### MSG04: Mean Scorecard Return, Group A vs. B



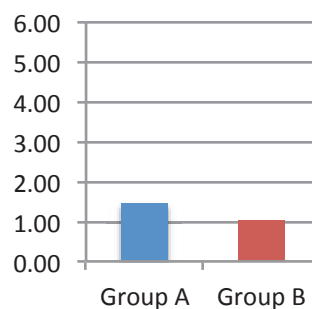
### Mean Success MSG04



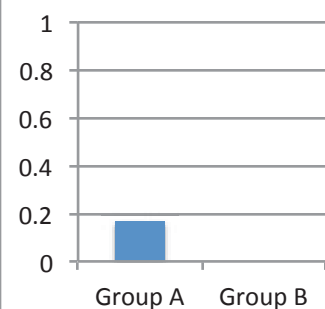
### Observed Time: Benchmark Time MSG04



### Observed Path: Benchmark Path MSG04



### Mean Number of Errors MSG04



## MSG05-08

You sent a message containing a sensitive image to your HealthBoard team a few weeks ago, and now you want to delete it. You know it's an e-mail about a "sinus surgery." How do you go about finding it, and permanently deleting it?

### GROUP A DETERMINATION:

#### Moderate issues

- Task Complexity: 3.3 (Tied 3rd Worst)
- Visual Design: 3.3 (2nd Worst)
- Overall Appeal: 3.2 (2nd Worst)
- Successful Completion: 33.3% (2nd Worst)
- Participants had a hard time recognizing the search bar. One reason for this could have been that some had tried to use it in other modules, and perhaps had it in their heads that the search was not functional *across* modules.
- Participants did not realize messages were not permanently deleted.

### GROUP B VALIDATION:

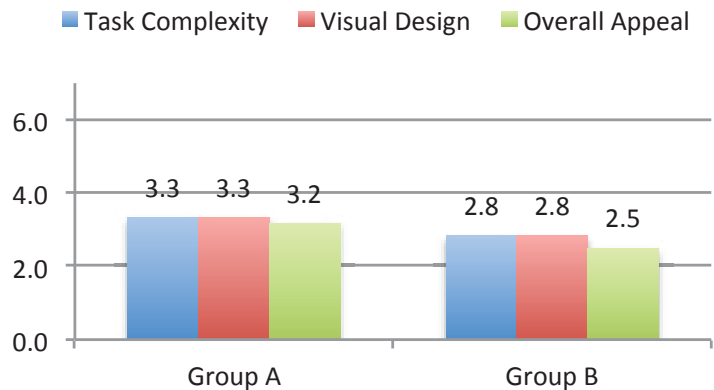
#### Indeterminate

- Data is unchanged or invalid. Errors in Group B were due to tester failure to permanently delete the message. This was not considered an error in Group A. *Path* data is anomalous.
- Users continued to fail to understand their messages were not *permanently* deleted when deleted from the Inbox.

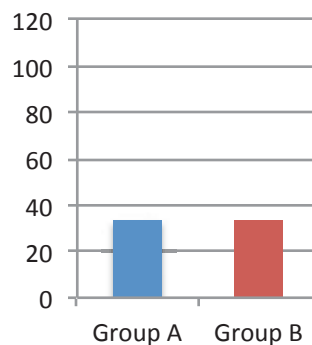
### RECOMMENDATIONS

- Tweak confirmation message verbiage: "Your message has been moved to *Trash*."

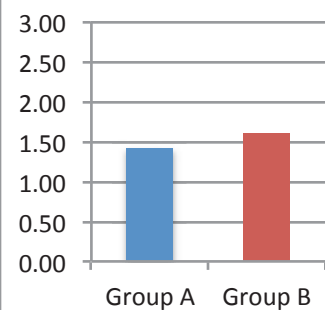
## MSG05-08: Mean Scorecard Return, Group A vs. B



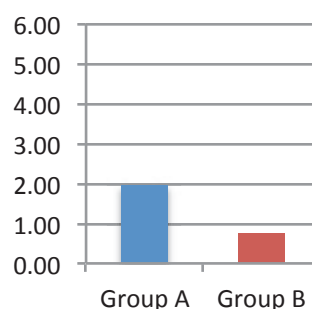
### Mean Success MSG05-08



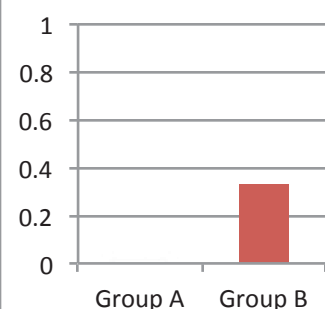
### Observed Time: Benchmark Time MSG05-08



### Observed Path: Benchmark Path MSG05-08



### Mean Number of Errors MSG05-08





## ATTEMPTED FIXES

Add confirmation messages to actions.

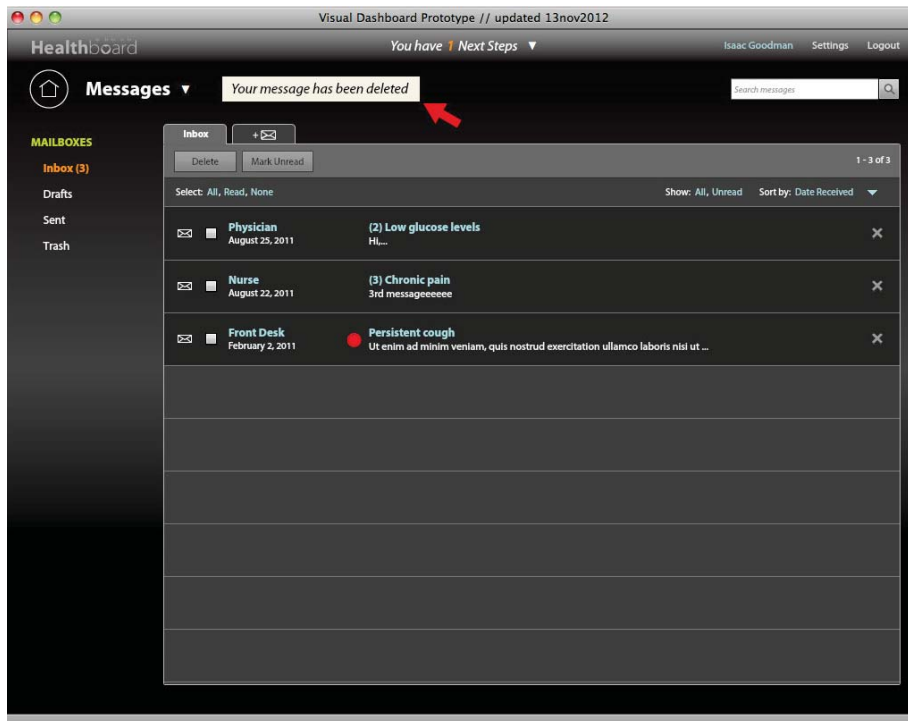


FIGURE 41A: Confirmation Message Template

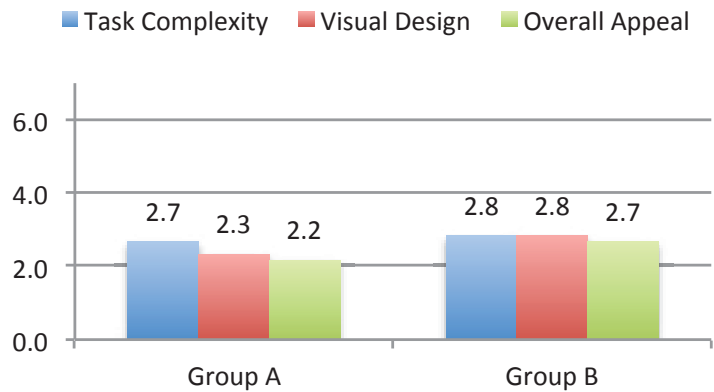
## GEN01

How would you go about changing your password?

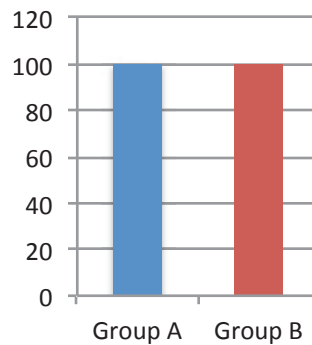
### GROUP A DETERMINATION:

No issues

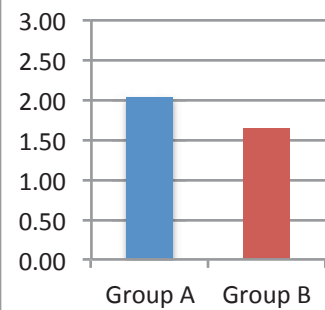
**GEN01: Mean Scorecard Return,  
Group A vs. B**



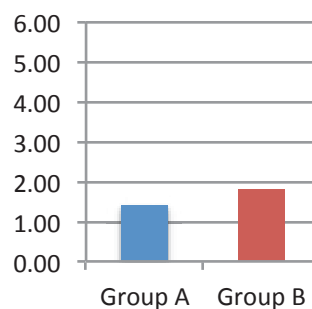
**Mean Success  
GEN01**



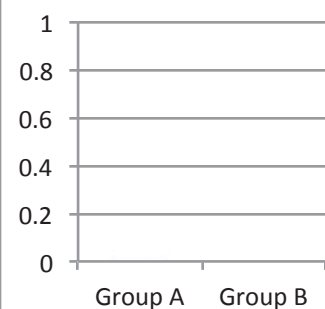
**Observed Time:  
Benchmark Time  
GEN01**



**Observed Path:  
Benchmark Path  
GEN01**



**Mean Number of  
Errors  
GEN01**



## GEN04

HealthBoard will e-mail you notifications and reminders, such as when you have any upcoming appointment. How would you adjust these notification settings?

### GROUP A DETERMINATION:

#### Severe issues

- Task Complexity: 4.5 (Worst)
- Visual Design: 3.7 (Worst)
- Overall Appeal: 3.7 (Worst)
- Successful Completion: 50% (3rd Worst)
- Error Rate: 0.17

### GROUP B VALIDATION:

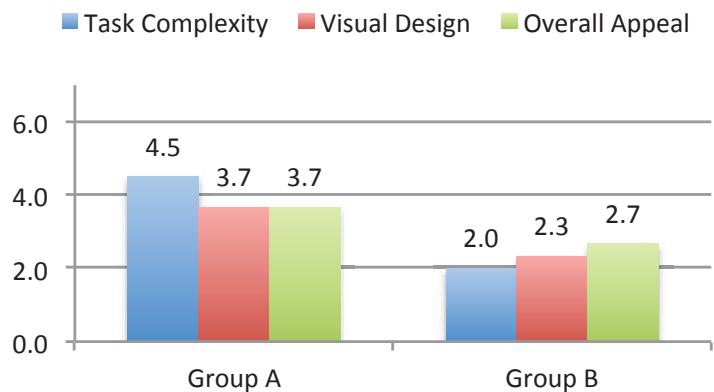
#### Improved

- Task Complexity: 56% decrease, from 4.5 to 2.0
- Visual Design: 36% decrease, from 3.7 to 2.3
- Overall Appeal: 27% decrease, from 3.7 to 2.7
- Successful Completion: 100% increase, from 50 to 100
- Error Rate: 0, down from 0.17
- Testers definitely understood *Settings* versus the previous gear icon.

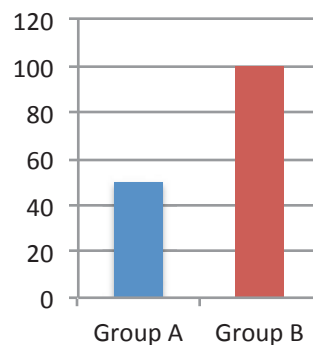
### RECOMMENDATIONS

- The changes were successful, showing increased user satisfaction and completion rate.

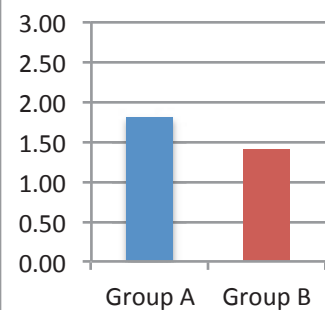
## GEN04: Mean Scorecard Return, Group A vs. B



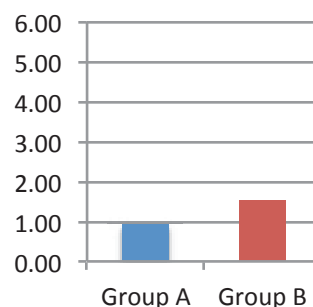
### Mean Success GEN04



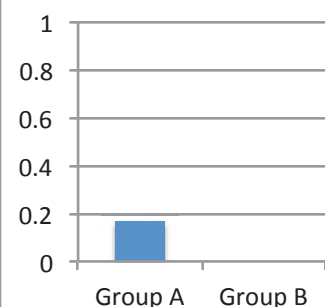
### Observed Time: Benchmark Time GEN04



### Observed Path: Benchmark Path GEN04



### Mean Number of Errors GEN04



## ATTEMPTED FIXES

Time and time again, users failed to identify the gear mean as *Settings*. Testers would navigate from module to module in search of it. PIIM changing the wheel icon to a link called *Settings*, and positioned it closer to the user's name.

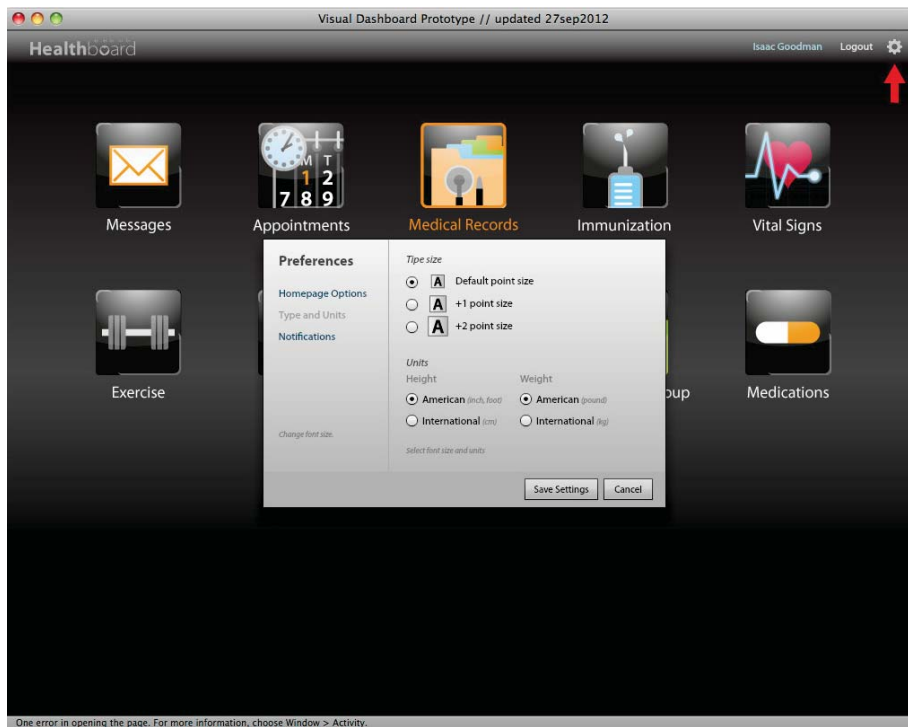


FIGURE 44A: *Before*

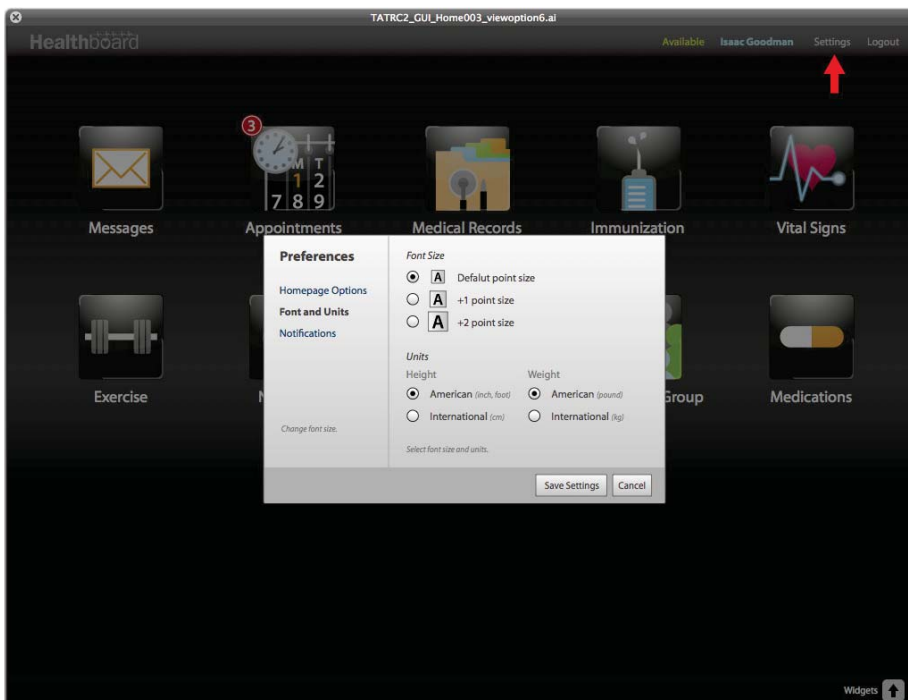


FIGURE 44B: *After*

## GEN05

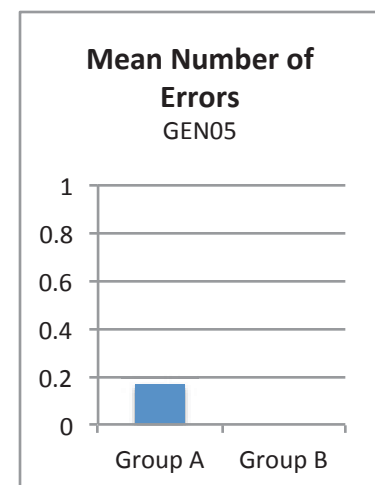
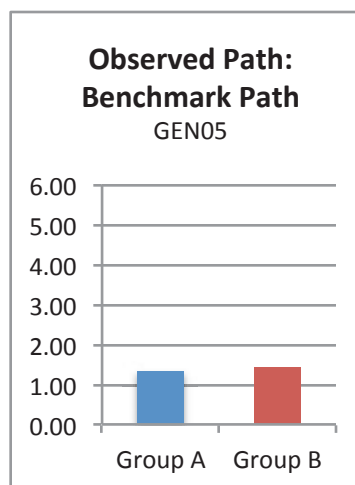
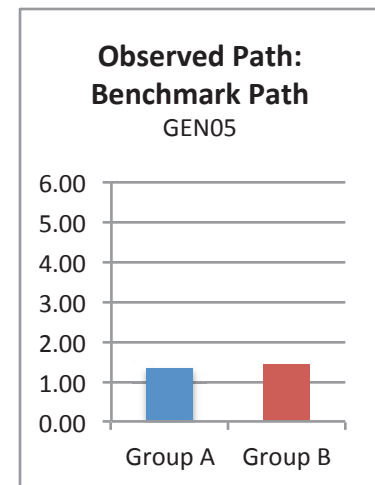
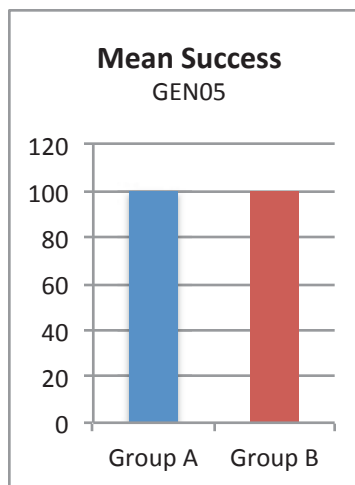
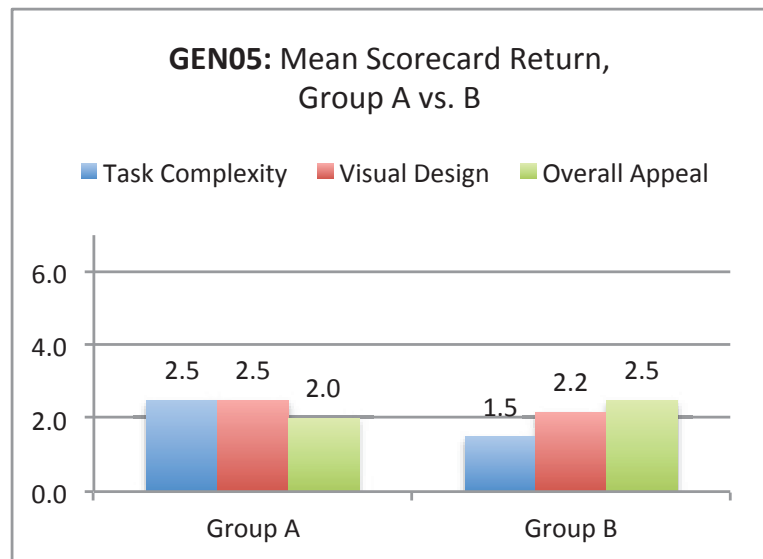
How would you make all the text on the screen bigger?

### GROUP A DETERMINATION: MINIMAL ISSUES

- Despite 100% successful completions, testers did not understand what "Type and Units" means. One tester commented, "That makes me think of 'blood type.'"

### GROUP B VALIDATION: Improved

- Observed Time:  
Benchmark: 20% decrease,  
from 1.75 to 1.40
- Testers completed the task with ease.



## ATTEMPTED FIXES

Change to “Font and Units.”

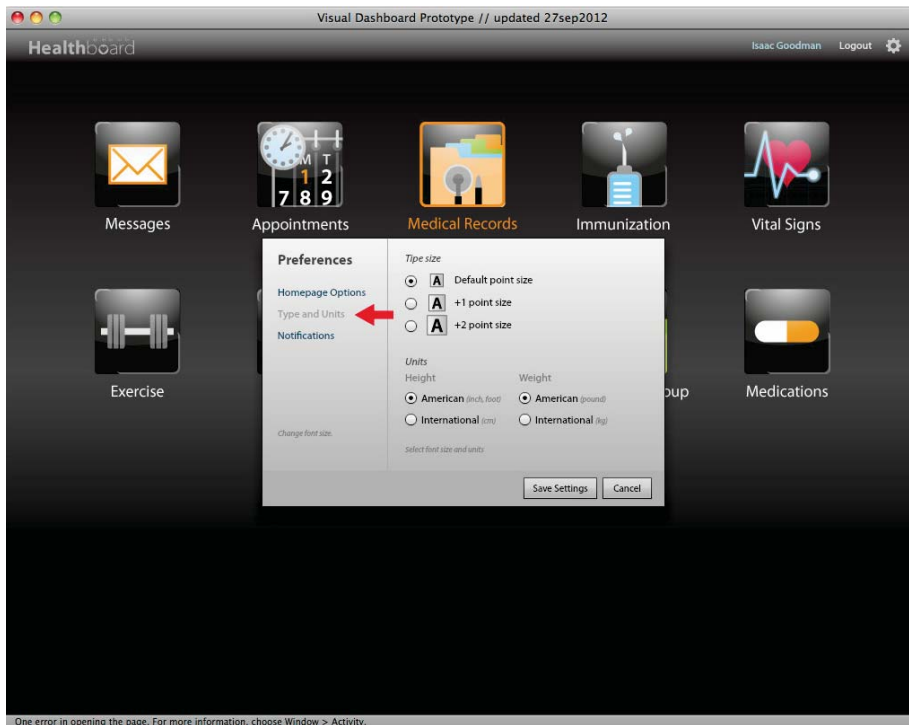


FIGURE 45A: *Before*

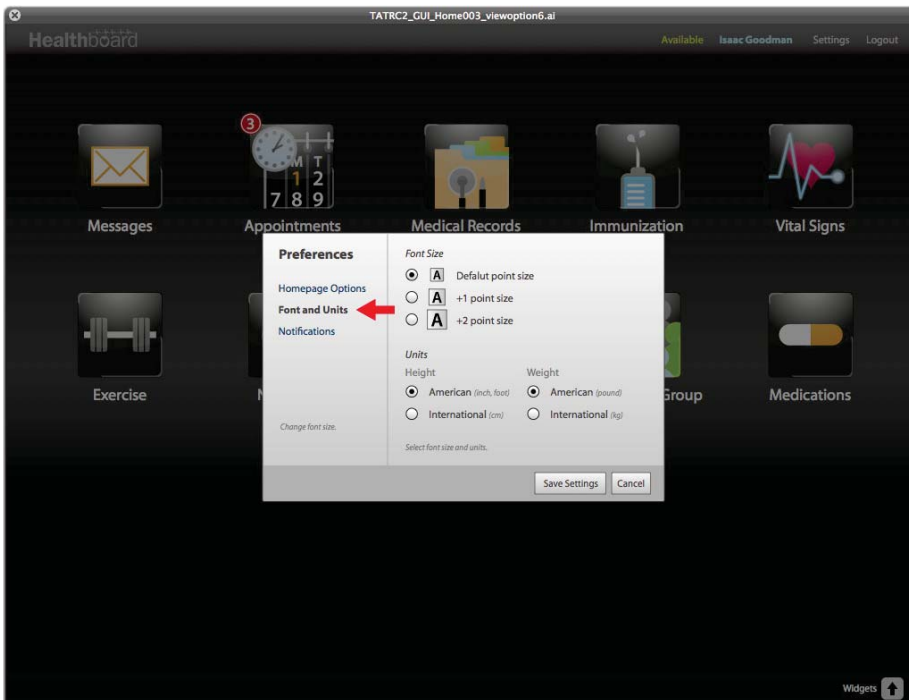


FIGURE 45B: *After*

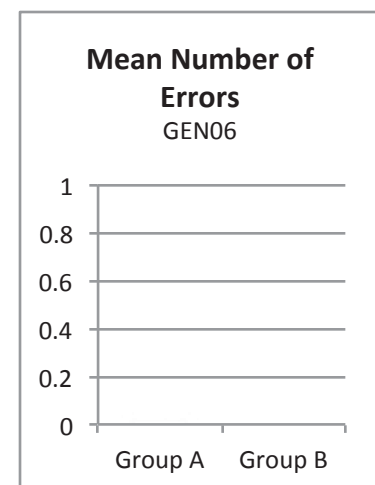
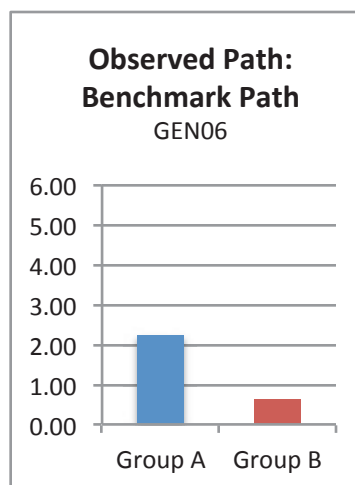
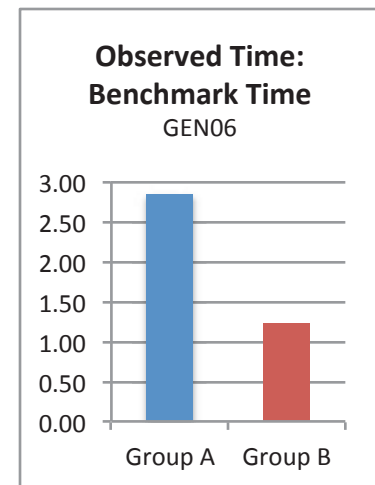
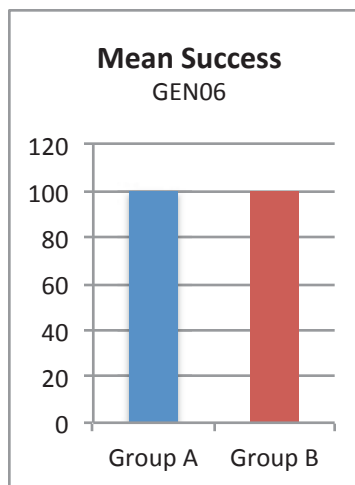
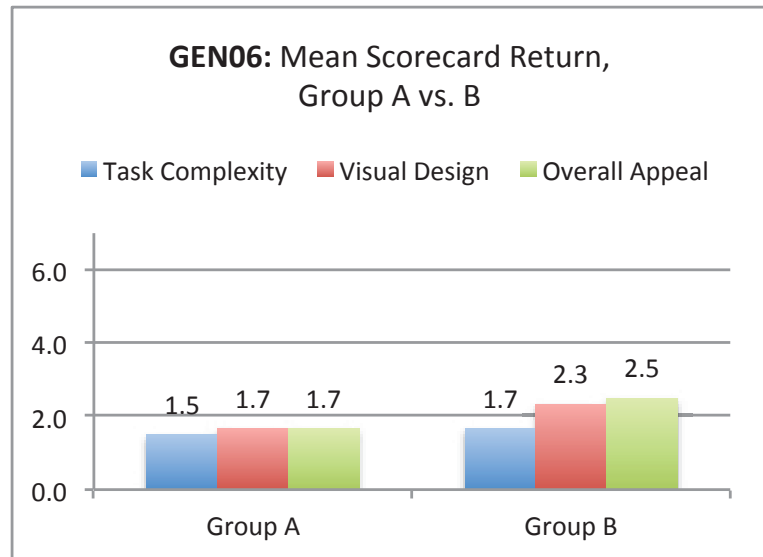
## GEN06

How would you change the homepage view of your HealthBoard?

### GROUP A DETERMINATION:

No issues

- Observed Time:  
Benchmark: 2.85 (Worst) Note:  
This is a false positive, as *Tester P1-06* accidentally logged out, and had to log back in.





## *Group 2 Task: Task Analysis*

- Vital Signs
- Exercise
- Nutrition
- Educational Resources

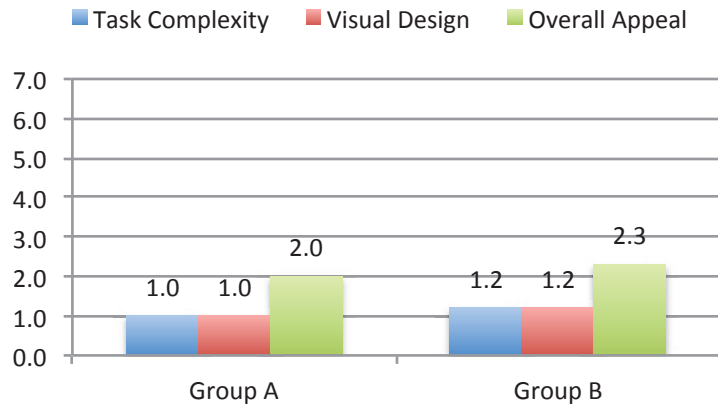
## GEN03

Please login with the persona you've been provided.

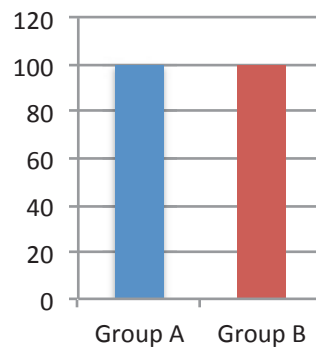
### GROUP A DETERMINATION:

No issues

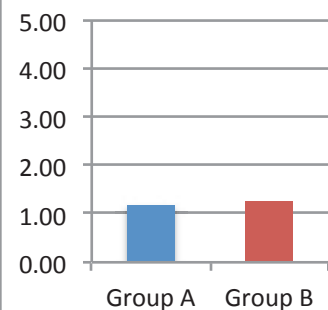
**GEN03: Mean Scorecard Return,  
Group A vs. B**



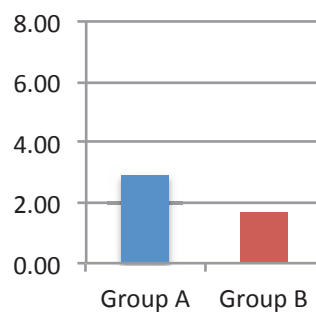
**Mean Success  
GEN03**



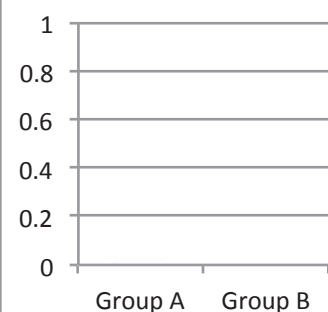
**Obv. : Benchmark  
Time  
GEN03**



**Obv. : Benchmark  
Path  
GEN03**



**Mean Number of  
Errors  
GEN03**



## NUTR01

For the last six months, you've been using HealthBoard to maintain a healthy weight through diet and exercise. Report eating a grilled cheese sandwich with tomato for lunch.

### GROUP A DETERMINATION:

#### No issues

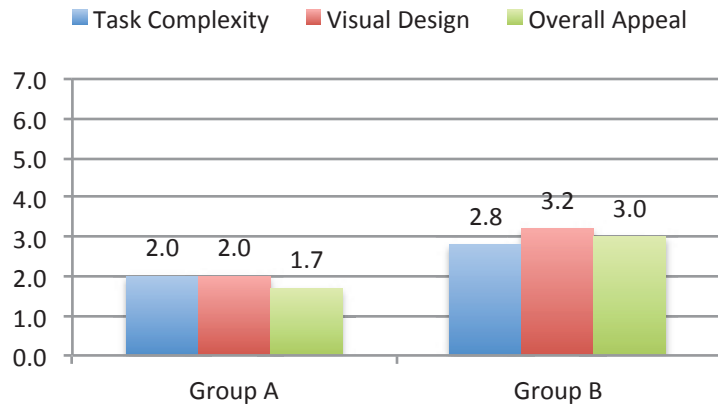
- Most testers by-passed the help pop-up; consider making available on demand.
- Testers seem confused after completing the task, wondering where their meal went.
- Users seem confused by the *What portion?* input. For a sandwich, it's hard to tell which option is relevant.

### GROUP B VALIDATION:

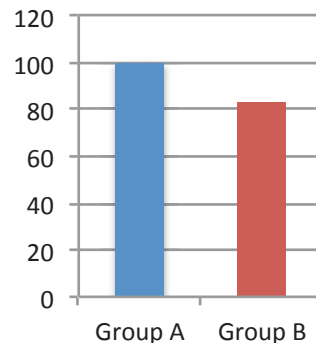
#### Revert or Revise

- Task Complexity:  
40% increase, from 2.0 to 2.8
- Visual Design:  
60% increase, from 2.0 to 3.2
- Overall Appeal:  
76% increase, from 1.7 to 3.0
- Successful Completion:  
17% decrease, from 100% to 83.33%
- Observed Time:  
Benchmark: 89% increase, from 1.58 to 2.99
- Observed Path:  
Benchmark: 60% increase, from 1.31 to 2.10
- Error Rate: 0.17, up from 0
- No participant used the *Other* field.
- All participants seem confused by the *Add a favorite meal* dropdown. Consider a different treatment that

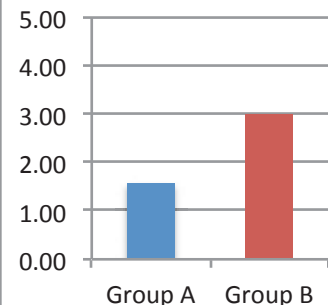
**NUTR01: Mean Scorecard Return, Group A vs. B**



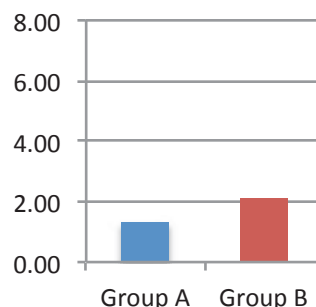
**Mean Success NUTR01**



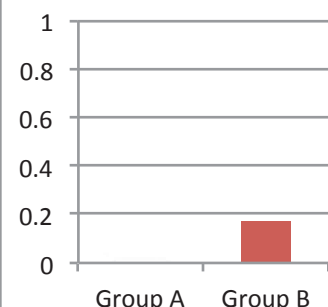
**Obsv. : Benchmark Time NUTR01**



**Obsv. : Benchmark Path NUTR01**



**Mean Number of Errors NUTR01**



removes the drop-down from the screen.

- Consider a different treatment for *What Portion?* Each tester entered in a different unit (e.g. plates, servings, etc.); one tester ignored the option completely. Maybe a more vernacular reference like “palm(s) of my hand” can be used. The goal should be to communicate the record to the dietician as accurate as possible.
- There may also be a different treatment of the meal type (e.g. breakfast, dinner) that could improve efficiency and reduce error. Showing these options on screen may accomplish this.
- Generally, users will not enter any notes. Perhaps hide this field to reduce confusion, or only make it available on-click.

## ATTEMPTED FIXES

1. Add an Other field for the use to create a custom unit.

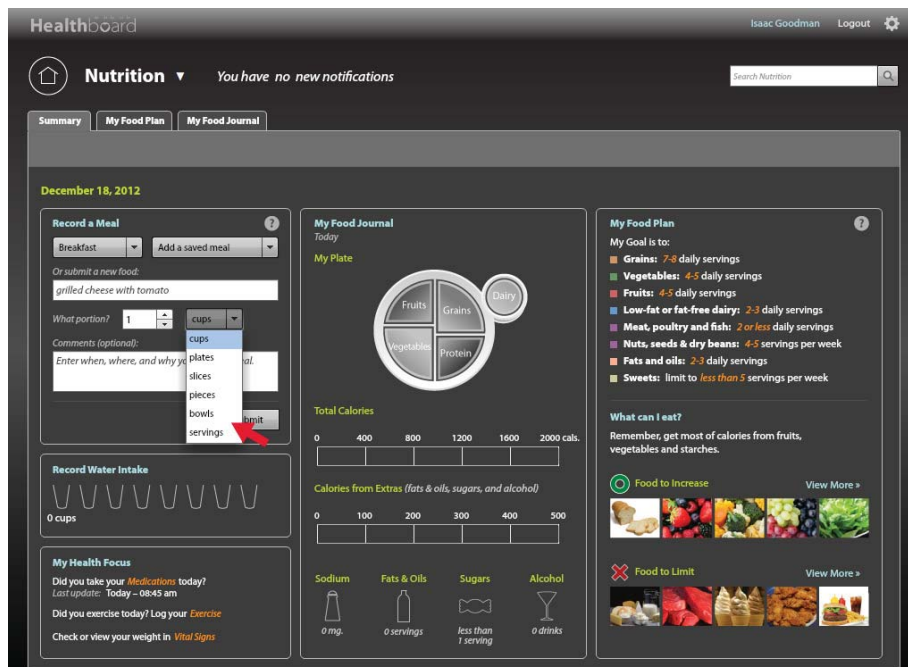


FIGURE 47A: Before: No “Other” option exists.

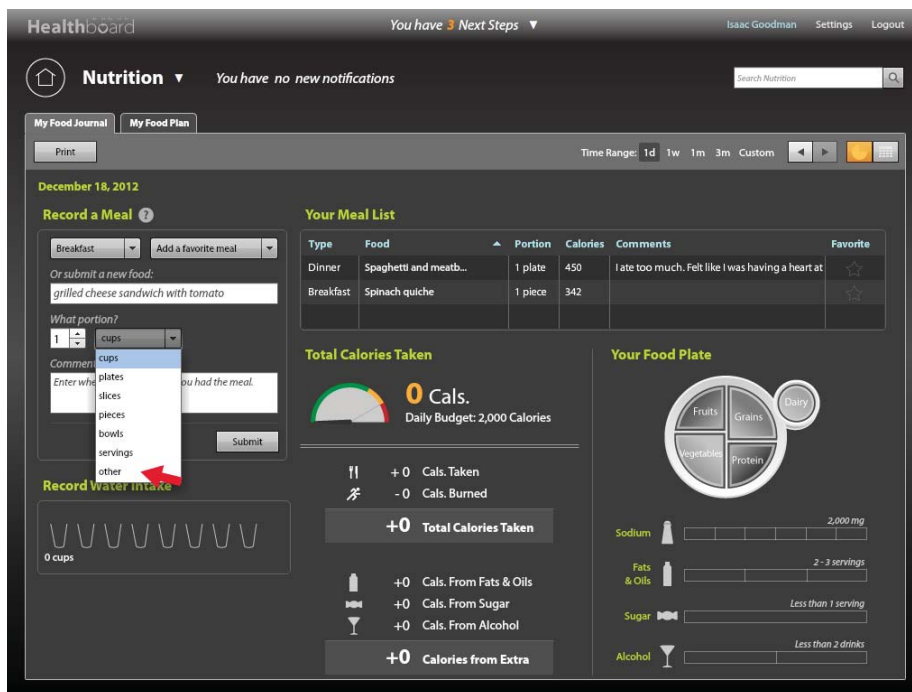


FIGURE 47B: After: PIIM added an “Other” option.

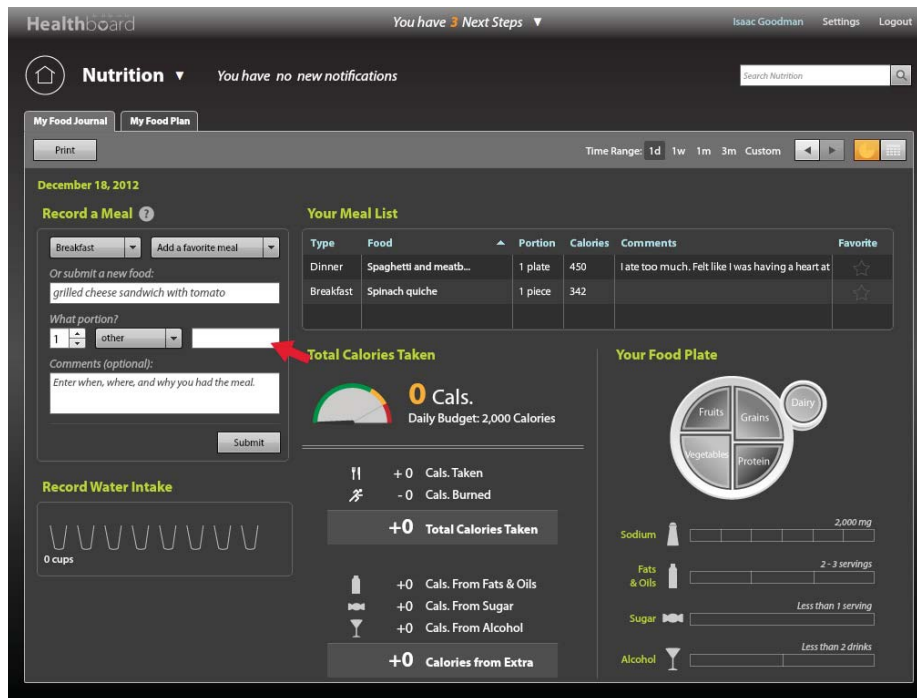


FIGURE 47C: After: Selecting the “Other” option reveals a text box for the user to create their own unit.

## GEN02

HealthBoard is in “button view” by default. Please change the “home screen” to “widget view.”

### GROUP A DETERMINATION:

No issues

- Observed Time:  
Benchmark: 3.38 (3rd Worst)
- Per Phase1A, PIIM adjusted the “cog” icon to be a *Settings* link. This change occurred for the last two participants of Phase2A, and is anecdotally validated by comparing the time improvements of the last two testers, seen below.

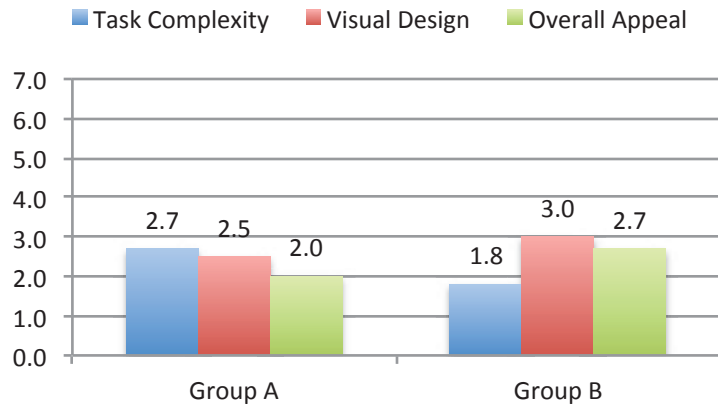
### Time on Task (Seconds)

- P2-01 167.99
- P2-02 47.2
- P2-03 29.81
- P2-04 50.19
- P2-05 22.21
- P2-06 12.17
- Regarding the Dashboard, Tester P2-04 stated “my initial reaction is... wow, all this data!”
- After changing the widget view back to button view, Tester P2-02 said it was “just easier and [I] wasn’t sure where to be looking [in the widget view].” “[The button view is] a little less cluttered, I think.”

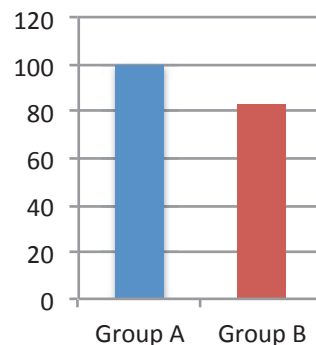
### GROUP A DETERMINATION:

- For widget view, the arrow should expand and collapse the block, while the text (e.g. Weight) should go to detail page. For example, when a user clicks on Blood Pressure from the widget view, it should lead them directly to that page in the module.

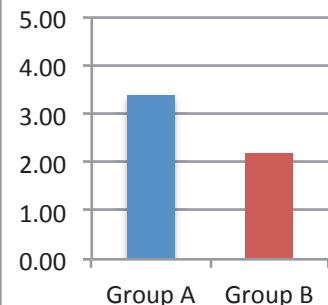
**GEN02: Mean Scorecard Return, Group A vs. B**



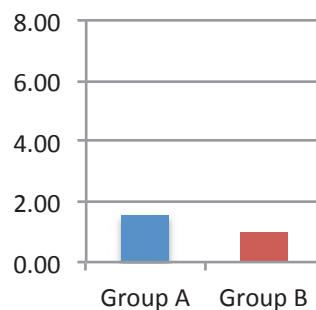
**Mean Success GEN02**



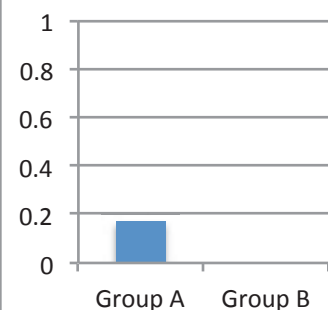
**Obv. : Benchmark Time GEN02**



**Obv. : Benchmark Path GEN02**



**Mean Number of Errors GEN02**



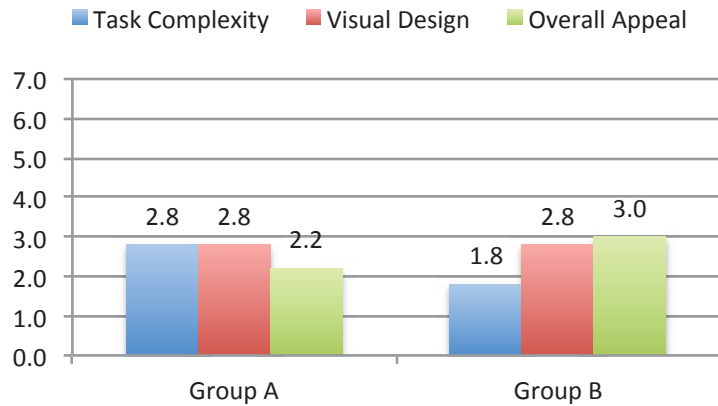
## VITALS01

This morning you weighed yourself: 182 lbs.  
Enter that into HealthBoard.

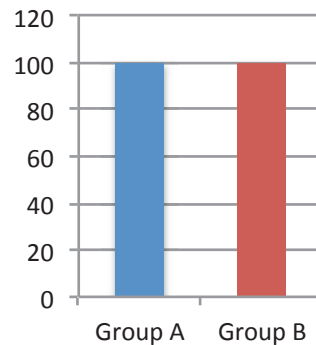
### GROUP A DETERMINATION:

No issues

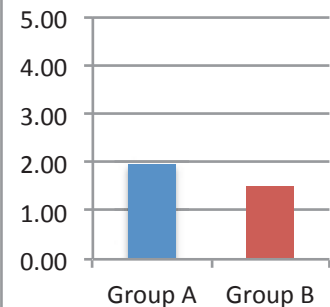
### VITALS01: Mean Scorecard Return, Group A vs. B



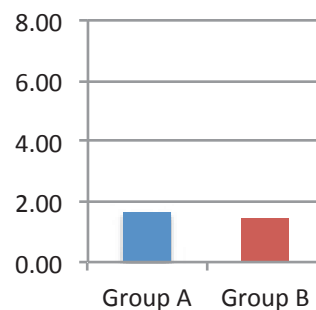
### Mean Success VITALS01



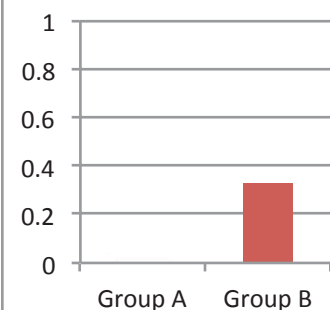
### Obv. : Benchmark Time VITALS01



### Obv. : Benchmark Path VITALS01



### Mean Number of Errors VITALS01





## VITALS02

How much did you weigh around this time last year?

### GROUP A DETERMINATION:

#### Minor issues

- Observed Time:  
Benchmark: 4.12 (2nd Worst)
- Observed Path:  
Benchmark: 4.64 (2nd Worst)

### GROUP B VALIDATION:

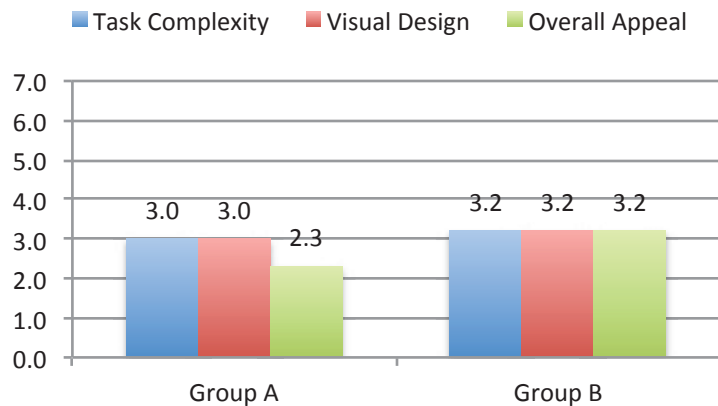
#### Indeterminate

- Successful Completion:  
33% decrease, from 100% to 66%
- Observed Time:  
Benchmark: 42% decrease, indicating the tool tips may have an effect on the tester's ability to seek information.
- Observed Path:  
Benchmark: 17% decrease, from 4.64 to 3.87, again indicating the tool tips may have an effect on the tester's ability to seek information.

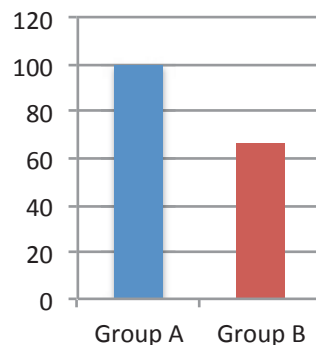
### RECOMMENDATIONS

- Perhaps adding a designation between years in the bottom timeline would help understand the graph's scope?

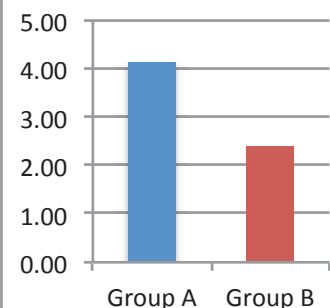
## VITALS02: Mean Scorecard Return, Group A vs. B



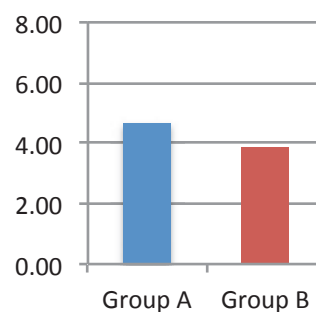
### Mean Success VITALS02



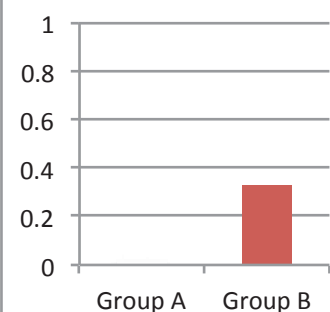
### Obv. : Benchmark Time VITALS02



### Obv. : Benchmark Path VITALS02



### Mean Number of Errors VITALS02



## ATTEMPTED FIXES

When mousing-over a data point on a chart, add a popover which tells the user its values (e.g. “October 3, 2011; 195 lbs.”).



FIGURE 48A: Before: No “tool tip” appears for data.

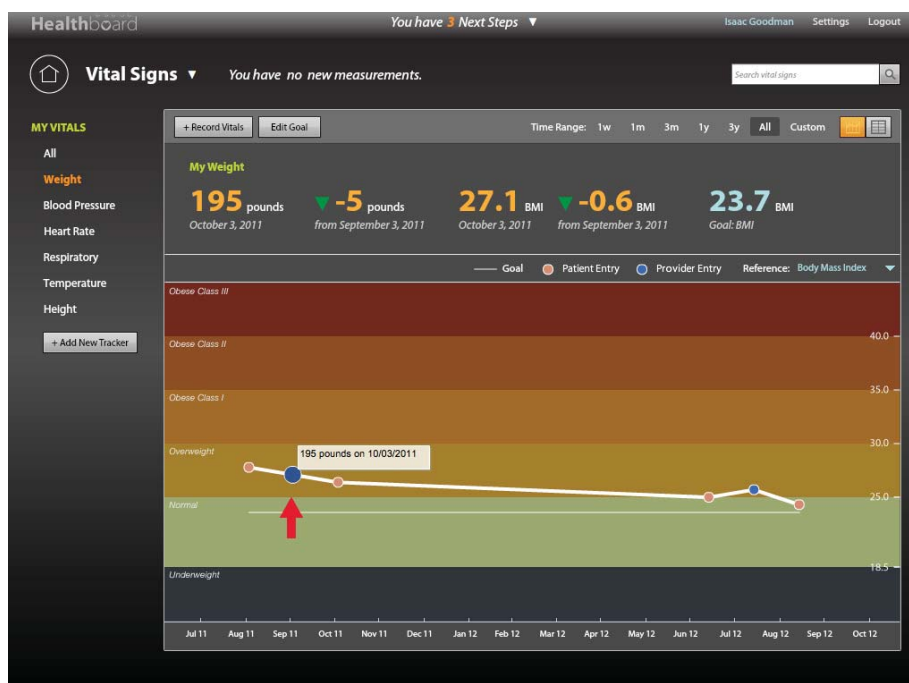


FIGURE 48B: After: Tool tip with “node” value appears when hovering over the graph.

## VITALS06

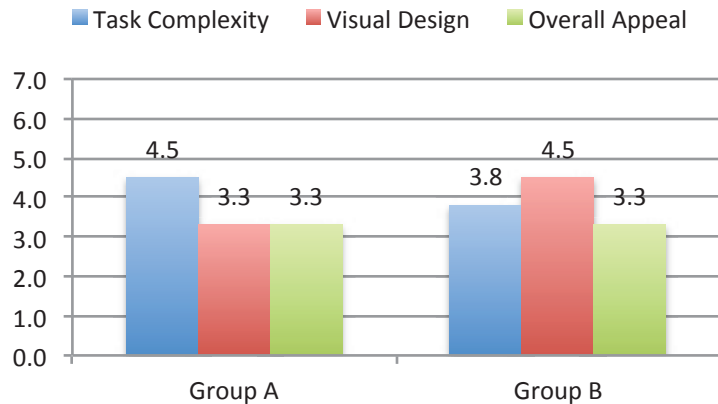
You last reported that your weight was 175 lbs. and temperature 103°. Go back and add a comment that you “had the flu.”

### GROUP A DETERMINATION:

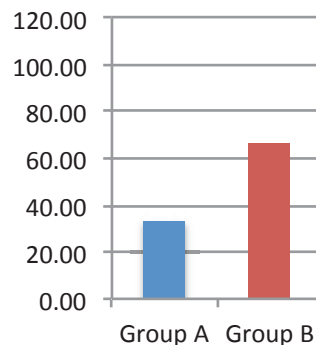
#### Severe issues

- Task Complexity: 4.5 (2nd Worst)
- Overall Appeal: 3.3 (Tie, 3rd Worst)
- Successful Completion: 33% (Tie x3, Worst)
- Observed Time: Benchmark: 2.56 (6th Worst)
- Observed Path: Benchmark: 2.85 (5th Worst)
- The test called for testers to find the task's values, and add a comment. Perhaps due to the absence of the “universal rule” specified in the design, testers appeared to not associate the Comment section (on bottom) with the values in the sparklines.
- Most participants did not scroll to see the Comment section.
- For those that did, the relevant comment would display incorrect information. This did not interfere with the one tester who completed the task this way.
- A common “attempted completion” of this task was to click the *Record Vitals* button, and add a new record. Augmenting an existing record could be an alternate solution, but testers forgot to back-date the record, making the task a failure.
- Tester P2-05: “The only option is Record Vitals...Ah, I think I found it. I am not seeing an easy way to edit. I can add, but not edit easily. There

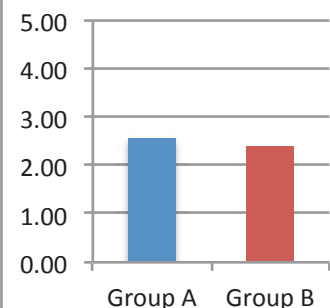
### VITALS06: Mean Scorecard Return, Group A vs. B



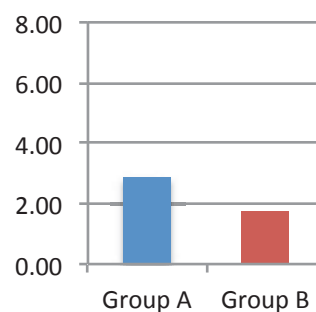
### Mean Success VITALS06



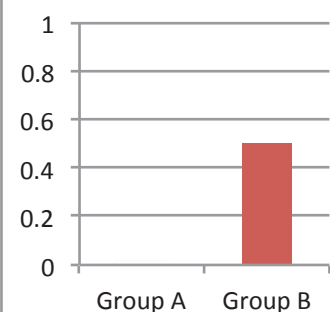
### Obv. : Benchmark Time VITALS06



### Obv. : Benchmark Path VITALS06



### Mean Number of Errors VITALS06



is no edit option visible. In the table view, I can see the dates and I can see the list, but I cannot select to edit.”

- Tester P2-06: “I see what the comments are, but I don’t see where I can record comments.”
- To navigate to a detail page, testers would frequently click title in the middle section of all vitals (e.g., *Temperature*). The “block” then closes, and testers appear to be surprised.

## GROUP B VALIDATION: Improved

- Successful Completion:  
100% increase, from 33% to 66%
- Observed Path:  
Benchmark: 39% decrease,  
from 2.85 to 1.74
- Error Rate: 0.5, up from 0

## RECOMMENDATIONS

- See FIGURE 49D: The high Error Rate is caused by confusion between the *Submit* link, which commits the comment, and the *Close* button. Due to its placement, most users thought the *Close* button was the *Submit* button. Consider a different treatment, such as making *Submit* a button instead of a link. Also, *Close* could save whatever comment was entered.

## ATTEMPTED FIXES

1. From the Vital detail screen (e.g. Weight), when a tester clicks a data point on the chart, show the Record Vitals popup. Repeat on Table View when user clicks a row. Apply this click-to-edit change to the UI pattern across the app. Change the cursor to pointer on hover over a data point. In *Edit Record* popup, add text area below any existing comment so user can easily add a comment. Remove “Add Comment” link.



FIGURE 49A: Before: Clicking on a data point makes no action, creating a dead-end for testers. The cursor remains an arrow, not a pointer (not visible below).

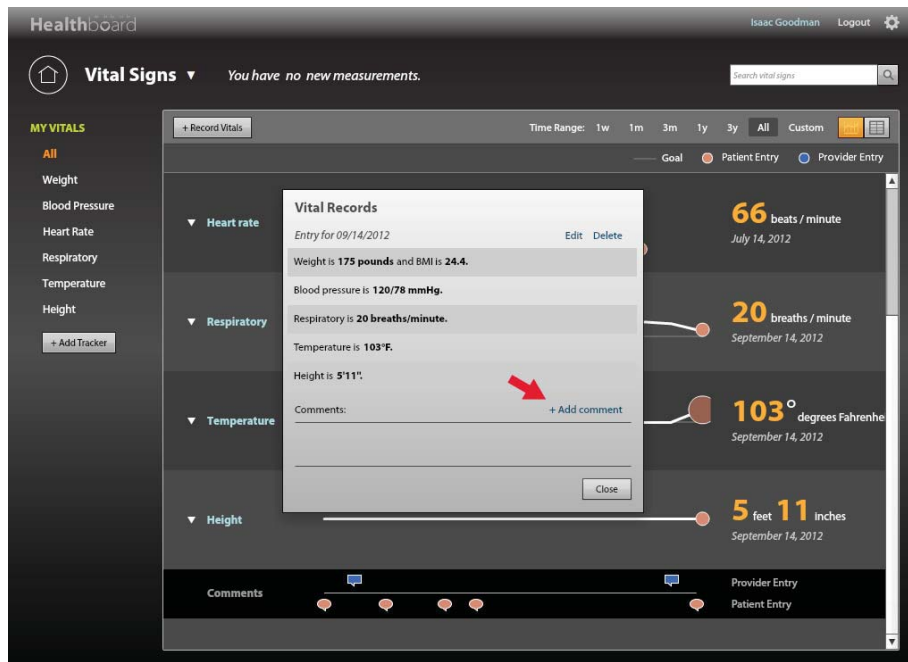


FIGURE 49AA: Before: Under All, clicking on a data point would reveal the entry. The user would then have to click Add comment to continue.



FIGURE 49B: After: Cursor shows as a pointer (not visible below).

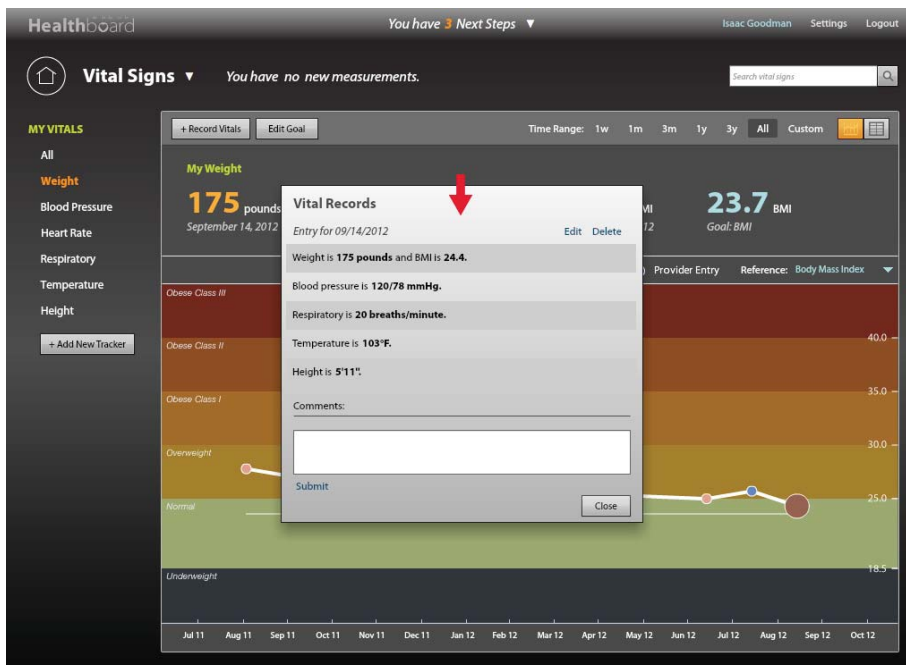


FIGURE 49C: After: When the user clicks, the revised pop-up appears.

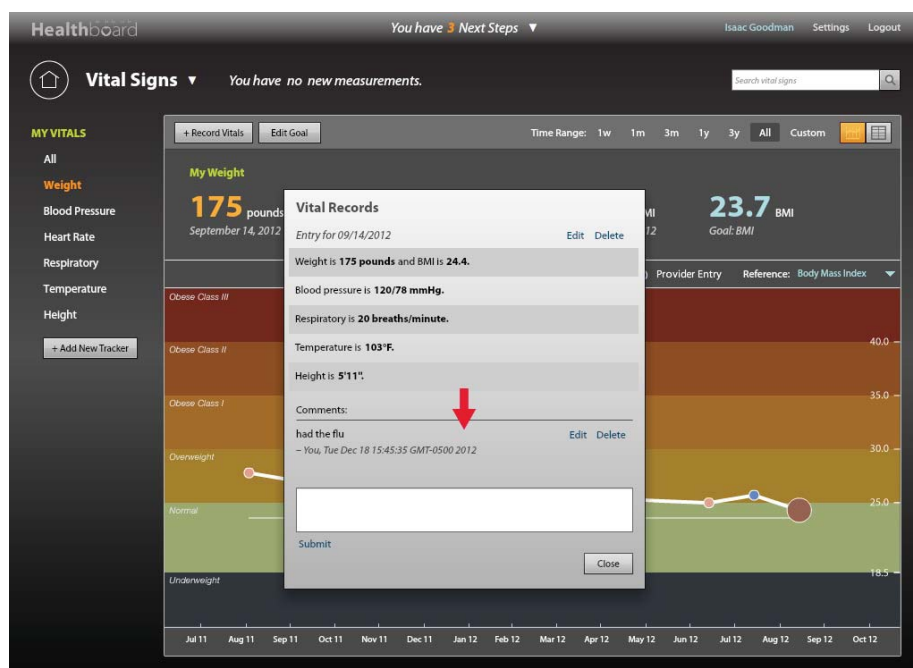


FIGURE 49D After: User types a comment, and clicks Submit.

2. For the blocks in the middle of the *All* vitals section, the arrow should expand and collapse the block, and the text (e.g. Weight) should go to detail page. Apply this rule wherever this UI pattern exists, including the dashboard. For example, when a user clicks on *Blood Pressure* from the widget view, it should lead them directly to that page in the module.

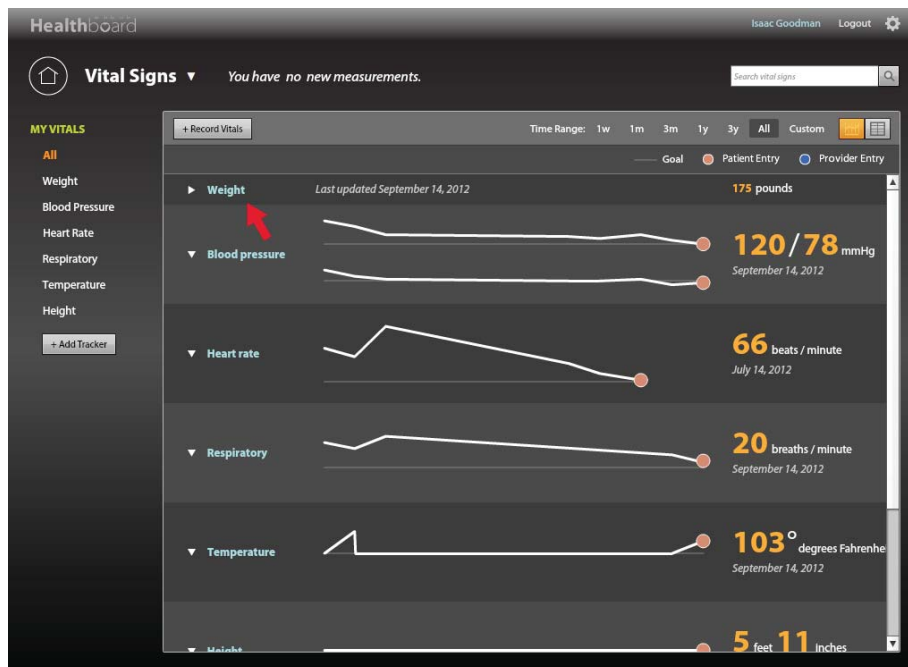


FIGURE 49E: Before: Clicking the text *Weight* would collapse the block.



FIGURE 49F: After: In the revision, clicking the text goes to the detail view.



## VITALS10-11

Where would you view other past comments?  
Has your doctor left any comments recently?

### GROUP A DETERMINATION: Moderate issues

- Task Complexity: 3.8 (4th Worst)
- Successful Completion: 67% (Tie, 3rd Worst)
- Observed Time: Benchmark: 4.61 (Worst)
- Observed Path: Benchmark: 7.31 (Worst)
- Testers had to spend a lot of time exploring to find the Comments section.

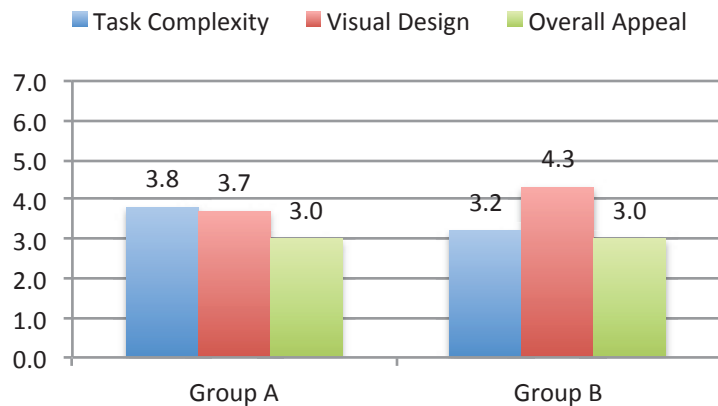
### GROUP B VALIDATION: Improved

- Successful Completion: 25% increase, from 66% to 83%
- Observed Time: Benchmark: 27% decrease, from 4.61 to 3.38
- Observed Path: Benchmark: 15% decrease, from 7.31 to 6.18

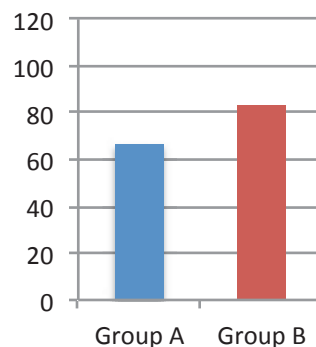
### RECOMMENDATIONS

- Consider leaving the comments box open. It is easy to understand when it is open, plus it is consistent with the rest of the items in the block.

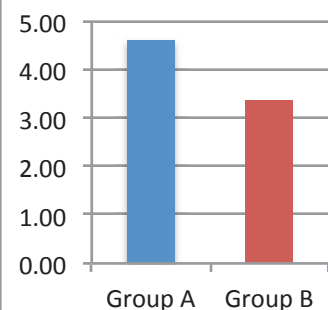
### VITALS10-11: Mean Scorecard Return, Group A vs. B



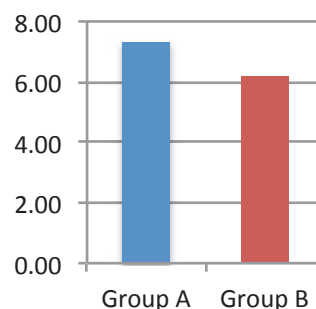
### Mean Success VITALS10-11



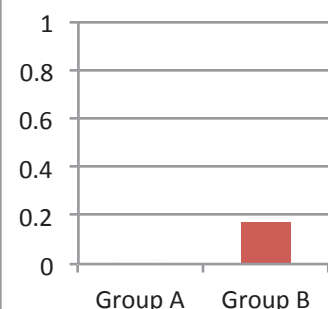
### Obv. : Benchmark Time VITALS10-11



### Obv. : Benchmark Path VITALS10-11



### Mean Number of Errors VITALS10-11



## ATTEMPTED FIXES

PIIM moved the comment block to the top of the *All* area, but collapsed. Revised block says “14 total comments, 3 provider comments.”



FIGURE 50A: Before: Comments lived at the bottom of the scrolling area, making them difficult to find.

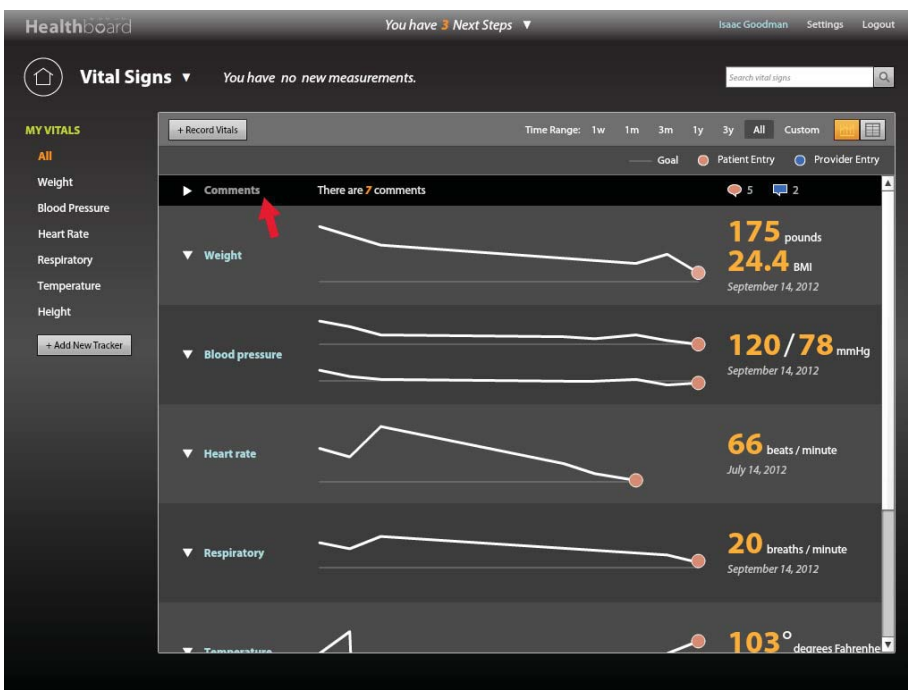


FIGURE 50B: After: The new solution moves the Comments to the top, but collapsed.

## VITALS13

Next, you want to review your weight history. Where would you find details? What is your weight goal? When were you overweight? How are you doing now?

### GROUP A DETERMINATION:

#### Minimal issues

- To determine the goal, most users clicked the Edit Goal button, even though the information was present on the screen.

### GROUP B VALIDATION:

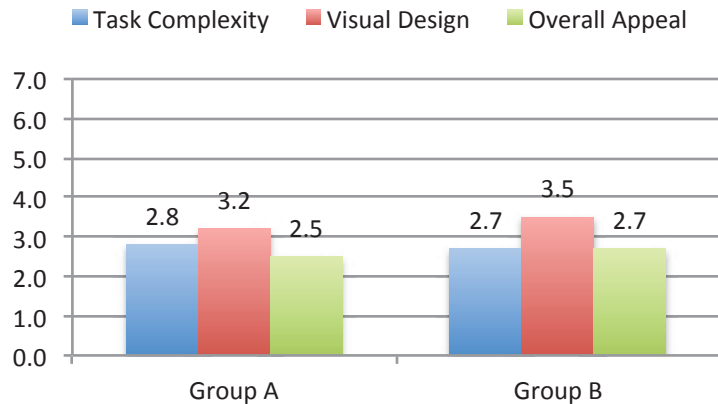
#### Indeterminate

- Successful Completion:  
33% decrease, from 100% to 66%

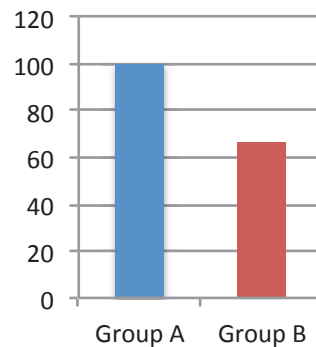
### RECOMMENDATIONS

- The *Goal* information may be somewhat of a blind spot. Consider an alternate treatment. Testers do not seem to have any trouble finding the “goal line” from the legend. Perhaps a rollover on the line displaying the Goal value would be a meaningful improvement.
- Consider making the Goal (in blue text) section clickable (3 testers attempted to click).
- If a user rolls over Goal in the legend, show a tool tip which informs the goal value.

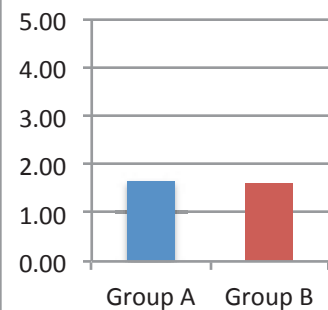
**VITALS13: Mean Scorecard Return, Group A vs. B**



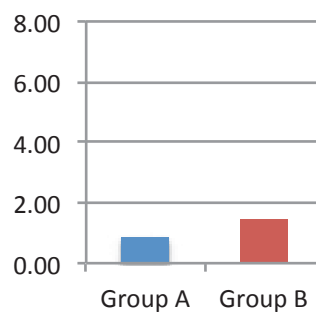
**Mean Success VITALS13**



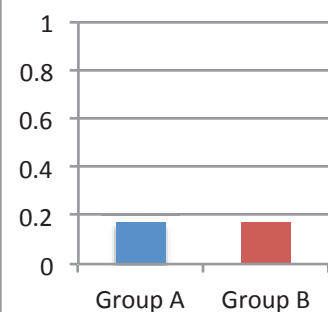
**Obv. : Benchmark Time VITALS13**



**Obv. : Benchmark Path VITALS13**



**Mean Number of Errors VITALS13**



## ATTEMPTED FIXES

Change text “Target BMI” to “Goal: BMI”



FIGURE 51A: Before: Reads “Target BMI,” inconsistent with the Edit Goal button.



FIGURE 51B: After: Reads “Goal: BMI.”

## VITALS14-15

Change your goal from 170 pounds to 165 pounds.

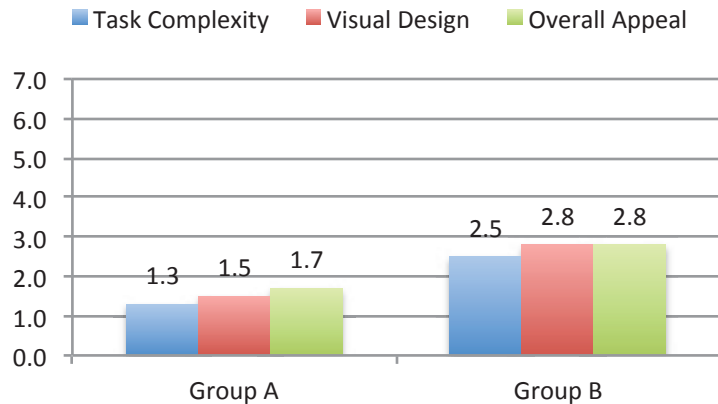
### GROUP A DETERMINATION:

No issues

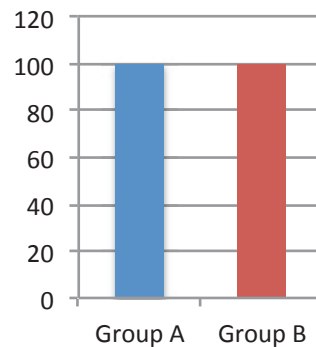
### RECOMMENDATIONS

- Consider making the Goal (in blue text) section clickable (3 testers attempted to click).
- If a user rolls over Goal in the legend, show a tool tip which informs the goal value.

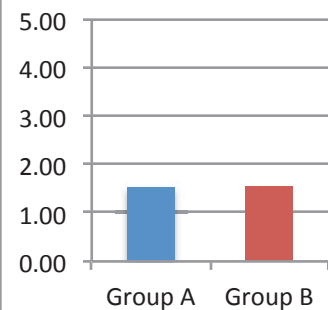
## VITALS14-15: Mean Scorecard Return, Group A vs. B



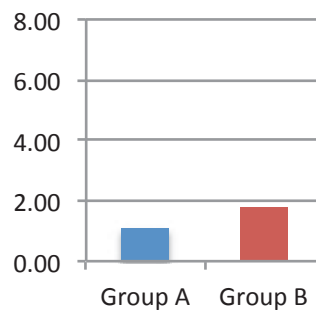
### Mean Success VITALS14-15



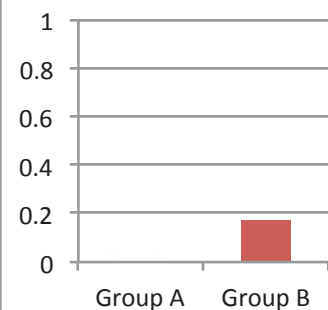
### Obv. : Benchmark Time VITALS14-15



### Obv. : Benchmark Path VITALS14-15



### Mean Number of Errors VITALS14-15



## EXER01

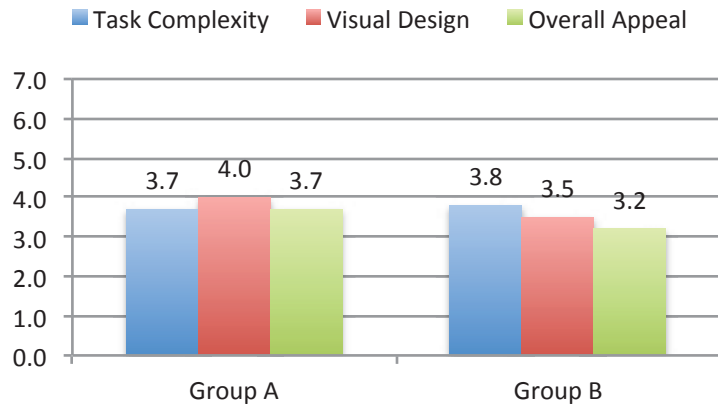
Next we're going to think about Exercise. Active Duty personnel are required to maintain their physical condition, and must take regular Physical Readiness Tests. The test consists of curl-ups, push-ups, and a 1.5 mile run. Personnel are given a score from Failure (less than 45 points) to Maximum (100 points). Based on this, in what area have you most improved? In what area are you struggling?

### GROUP A DETERMINATION:

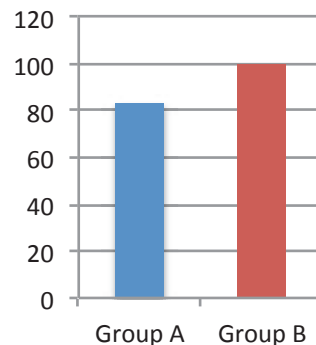
#### Minor issues

- Visual Design: 4.0 (Tie, 4th Worst)
- Overall Appeal: 3.7 (2nd Worst)
- Observed Time:  
Benchmark: 3.03 (4th Worst)
- Observed Path:  
Benchmark: 3.17 (4th Worst)
- Testers appeared to be confused by the spider chart. All acknowledged and played with it, but few reported answers from it.
- The excess information—smiling faces, scores, improvements or declines indicated with plus/minus symbols (e.g. +10)—appeared to confuse people. Tester P2-02: "Oops, it's because the number is higher...but the happy face isn't too happy." Tester P2-04: "I'm looking at where it says +16, +15. I'm thinking those are the areas I've improved. It looks like I improved in the 1.5 Mile Run, and I'm not doing too well with push-up... wait, if I actually go by the icons, I'm not doing well in weight but by points, I'm not doing well in push-ups."

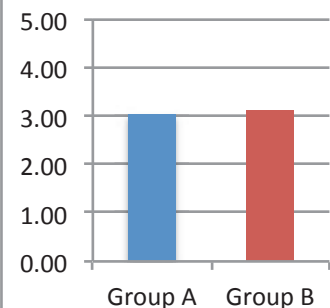
### EXER01: Mean Scorecard Return, Group A vs. B



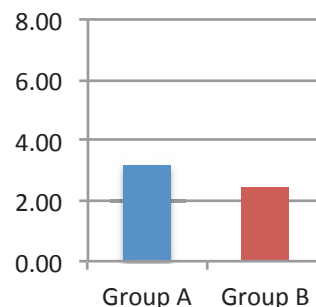
### Mean Success EXER01



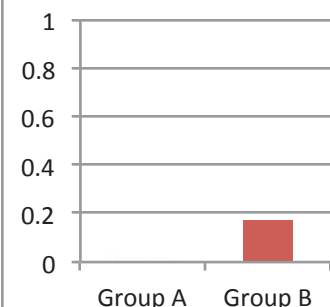
### Obv. : Benchmark Time EXER01



### Obv. : Benchmark Path EXER01



### Mean Number of Errors EXER01



## GROUP B VALIDATION:

### Improved

- Successful Completion:  
20% increase, from 83% to 100%
- Observed Path:  
Benchmark: 23% decrease,  
from 3.17 to 2.45

## RECOMMENDATIONS

- Add “Last Test (Practice)”:  
before the mm/dd/yyyy.
- Testers seemed confused by the comment bubbles in the right column.  
Consider removal.

## ATTEMPTED FIXES

Remove spider chart. Remove timeline. Apply easy to understand gauge graphics representing current measure with references: bad, good, excellent, etc. Hint at how scoring works. Fix *Physician Assigned Exercise* information to be consistent with the *Physician Assigned* tab.

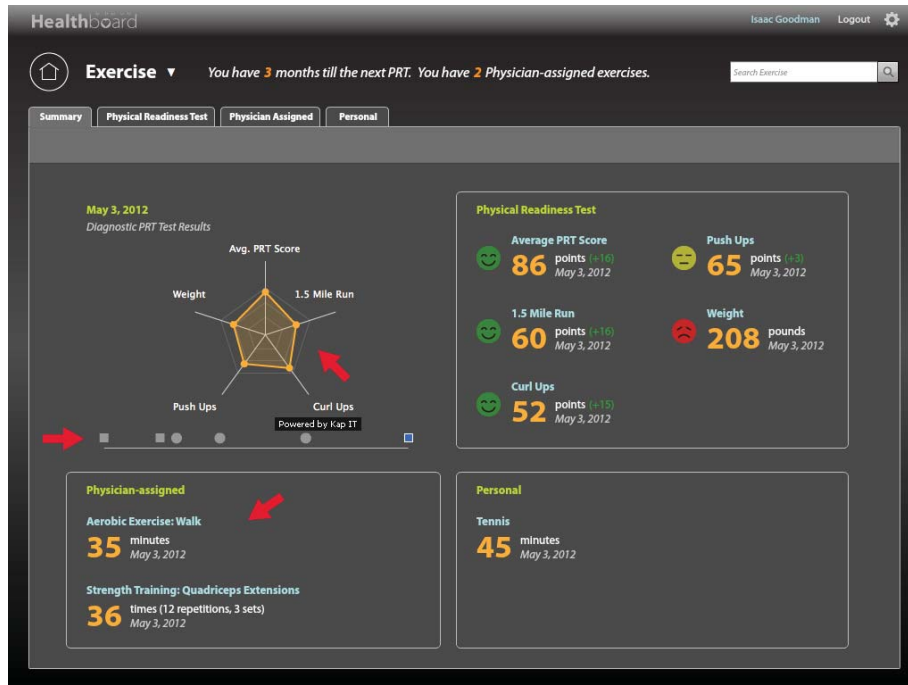


FIGURE 52A: *Before*

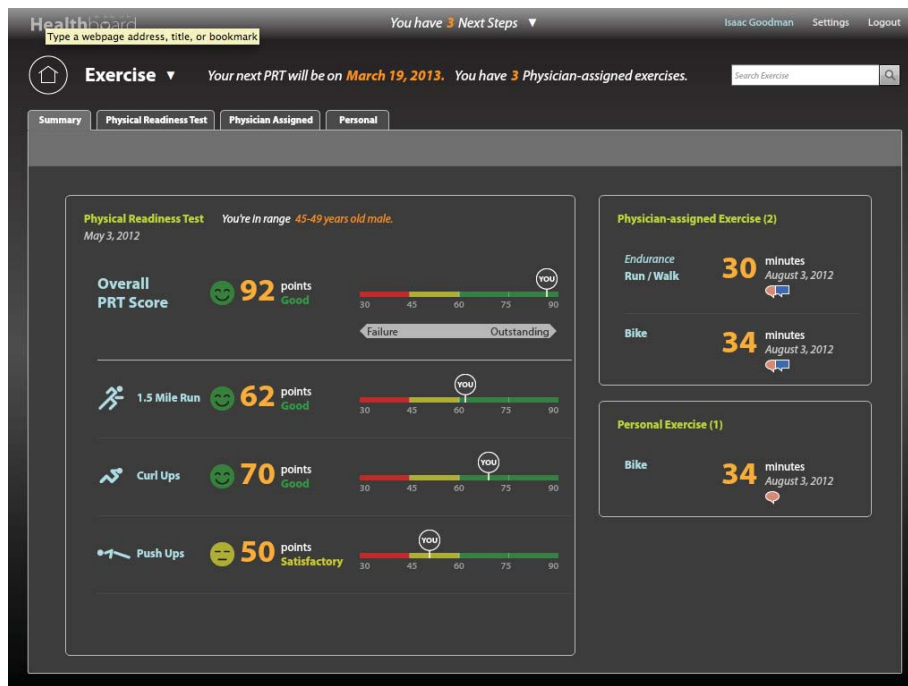


FIGURE 52B: *After: Gauge design included, information refactored.*



## EXER02B

How much time until your next PRT?

### GROUP A DETERMINATION:

#### Minimal issues

- Visual Design: 4.0 (Tie, 4th Worst)
- Overall Appeal: 3.3 (Tie, 3rd Worst)
- Testers likely rated poorly because of an “oh silly me” moment, as the information was front and center on the screen.

### GROUP B VALIDATION:

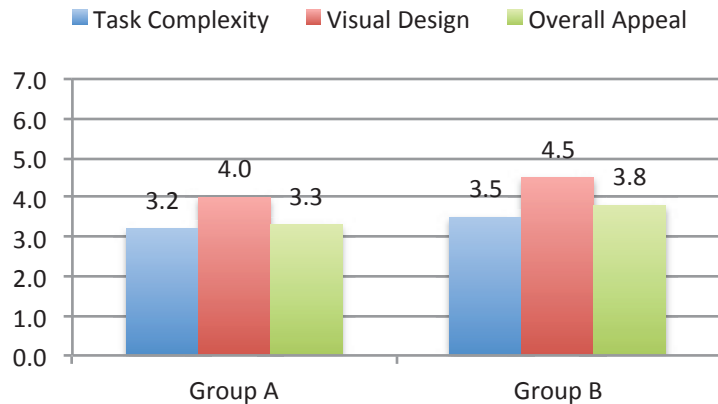
#### Revert or Revise

- Observed Time:  
Benchmark: 196% increase, from 1.35 to 4.01
- Observed Path:  
Benchmark: 965% increase, from 2.43 to 25.83.: Upon investigation, PIIM determined this data was actually a false positive. *Tester P2B-10* was a “heavy scroller.” Each action on the scroll wheel (mouse middle button) is counted as part of the user’s path.

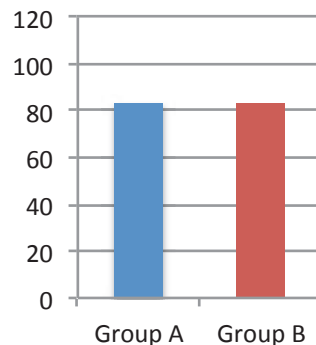
### RECOMMENDATIONS

- Displaying the *time till next PRT* (e.g. “3 months”) is likely a more effective communication.

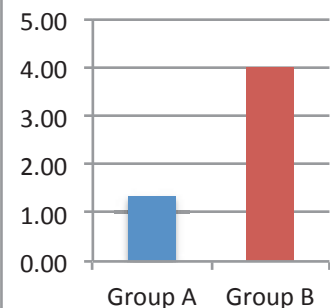
**EXER02B: Mean Scorecard Return, Group A vs. B**



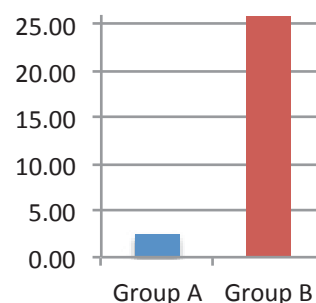
**Mean Success EXER02B**



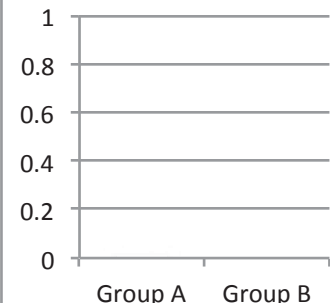
**Obv. : Benchmark Time EXER02B**



**Obv. : Benchmark Path EXER02B**



**Mean Number of Errors EXER02B**



## ATTEMPTED FIXES

Change to read: “Your next PRT is on mm/dd/yyyy.”

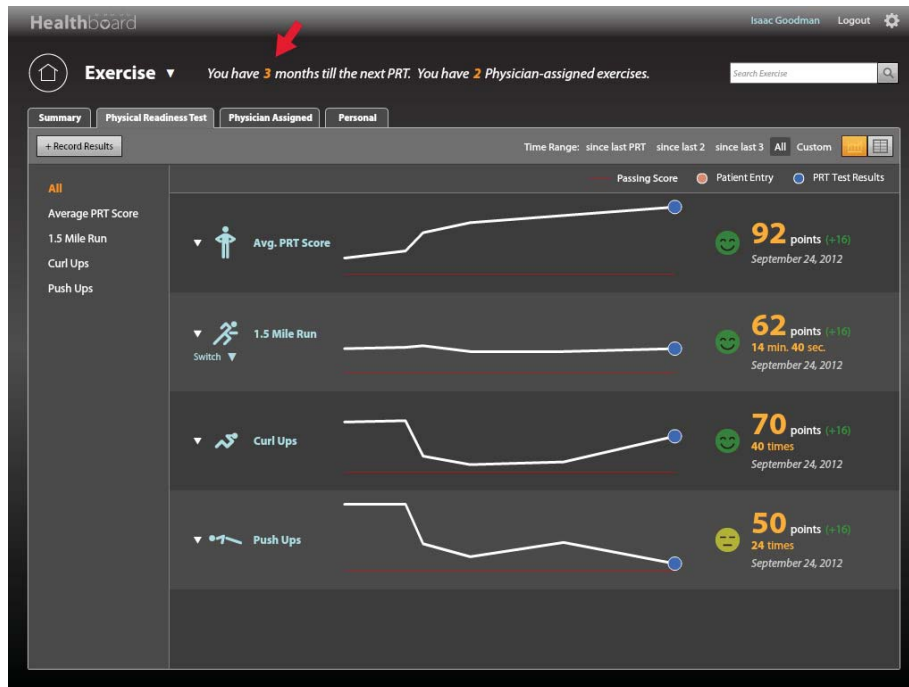


FIGURE 53A: *Before*

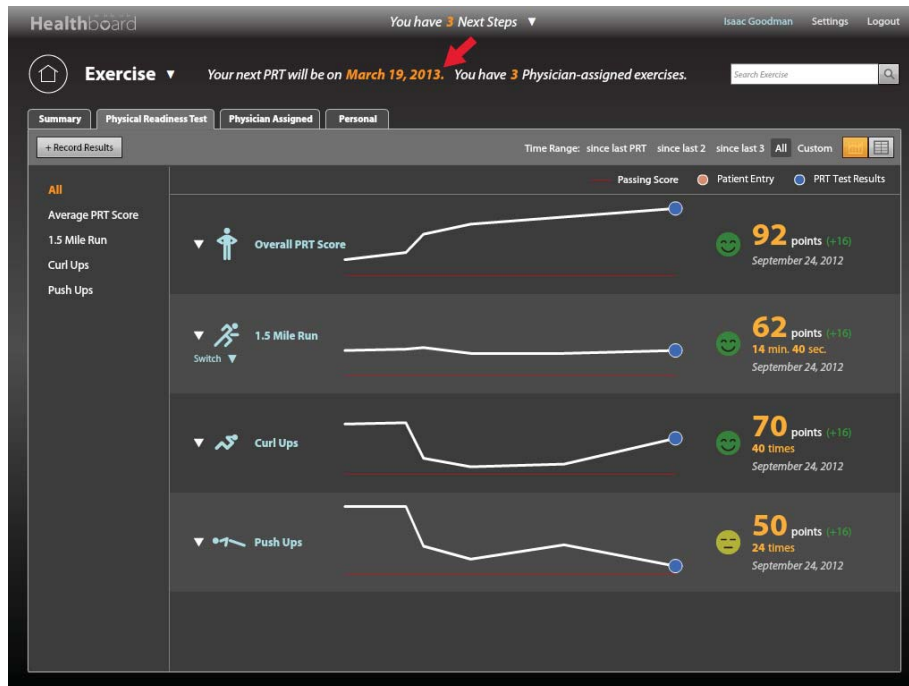


FIGURE 53B: *After*

## EXER06, 09

What is your PRT goal for the run?

### GROUP A DETERMINATION:

#### Moderate issues

- Task Complexity: 3.8 (5th Worst)
- Visual Design: 4.3 (2nd Worst)
- Overall Appeal: 3.0 (2nd Worst)
- Successful Completion: 50% (Tie, 2nd Worst)
- Users who successfully completed this task clicked the *Edit Goal* button to get the actual value, which is suboptimal considering the information was on the screen.

### GROUP B VALIDATION:

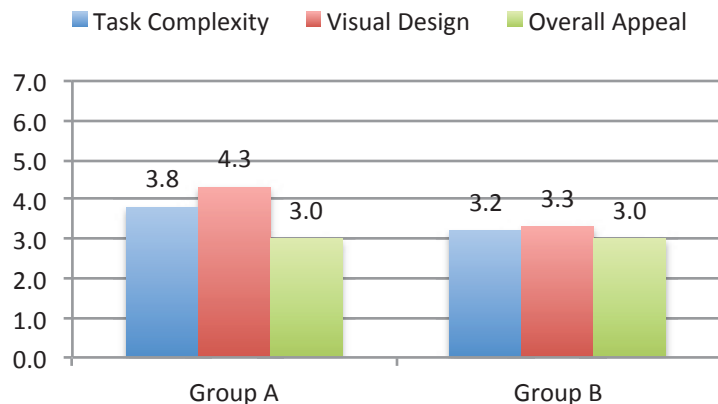
#### Indeterminate

- Observed Path:  
Benchmark: 142% increase, from 1.13 to 2.73. Insufficient data for conclusion.
- Error Rate:  
0.5, up from 0. This was due to a PIIM observer marking failed tasks as errors.

### RECOMMENDATIONS

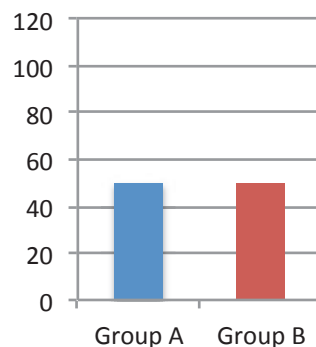
- Consider making the Goal (in blue text) section clickable (3 testers attempted to click).
- If a user rolls over Goal in the legend, show a tool tip which informs the goal value.

**EXER06, 09: Mean Scorecard Return, Group A vs. B**



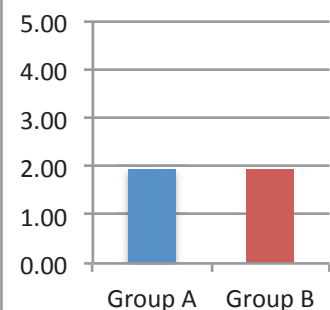
**Mean Success**

EXER06, 09



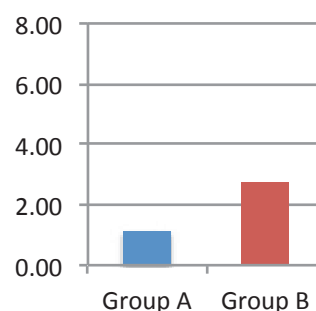
**Obv. : Benchmark Time**

EXER06, 09



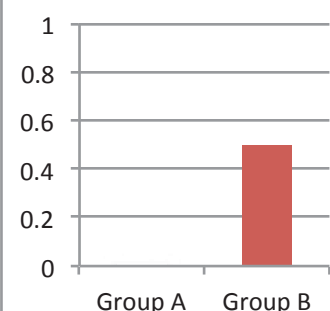
**Obv. : Benchmark Path**

EXER06, 09



**Mean Number of Errors**

EXER06, 09



## ATTEMPTED FIXES

Change text “Target Points and Time” to “Goal: Points and Time”

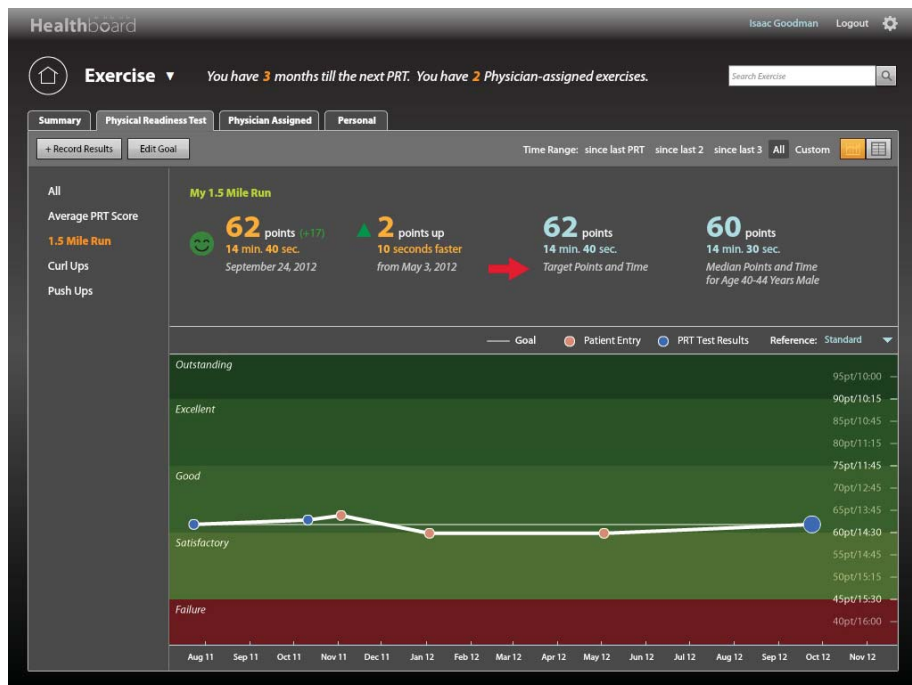


FIGURE 54A: *Before*



FIGURE 54B: *After*

## EXER10

You want to challenge yourself by the new year. Change your PRT goal from Satisfactory to Excellent, which is a time less than or equal to 11 minutes 30 seconds.

### GROUP A DETERMINATION:

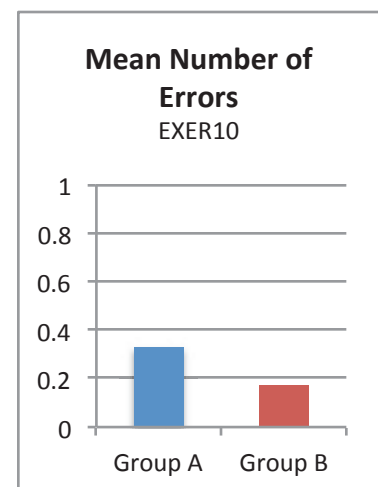
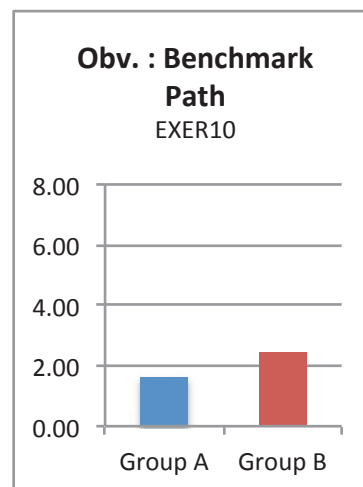
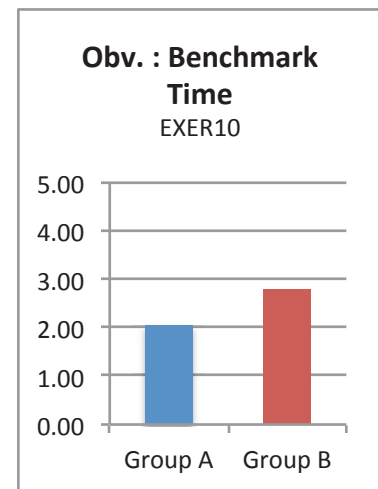
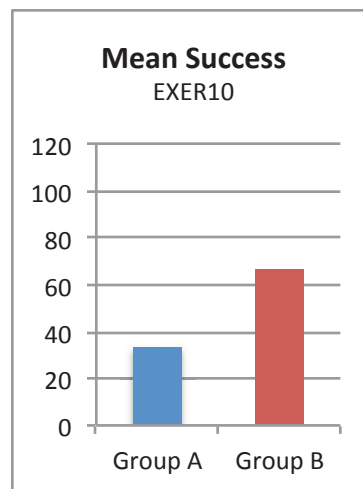
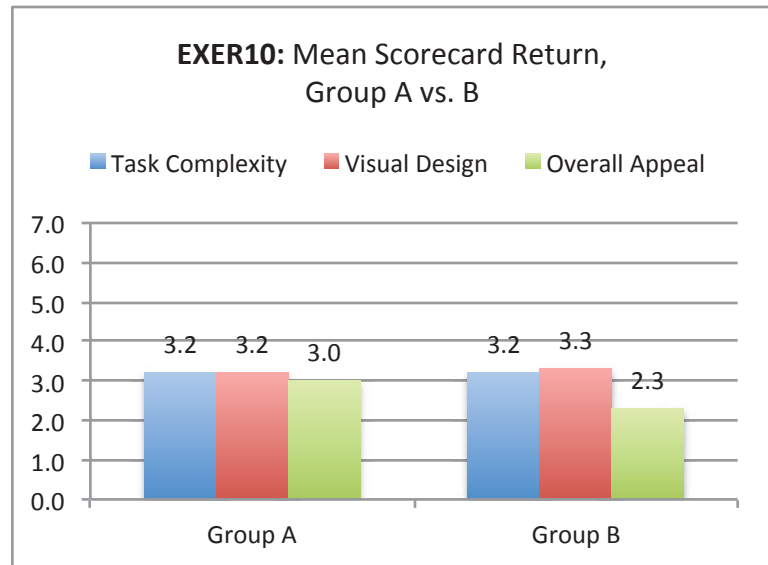
#### Moderate issues

- Successful Completion: 33% (Tie x3, Worst)
- Error Rate: 0.33 (Tie, 3rd Worst)
- Incomplete tasks were generally the result of testers failing to set the *Achieve* the goal by: calendar option.

### GROUP B VALIDATION:

#### Improved

- Successful Completion: 100% increase, from 33% to 66%
- Error Rate: 0.17, down from 0.33



## ATTEMPTED FIXES

Eliminate Next PRT as a default choice, force users to make the selection. Calculate the date of the next PRT, and display it in the option (e.g., Next PRT: 02/02/2013).

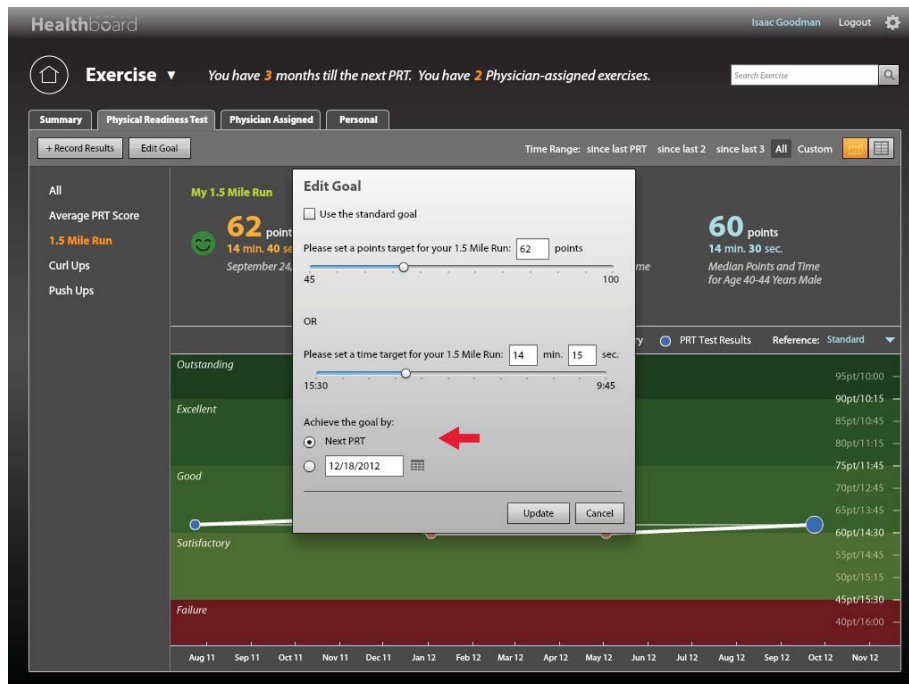


FIGURE 55A: Before: Has default selected.

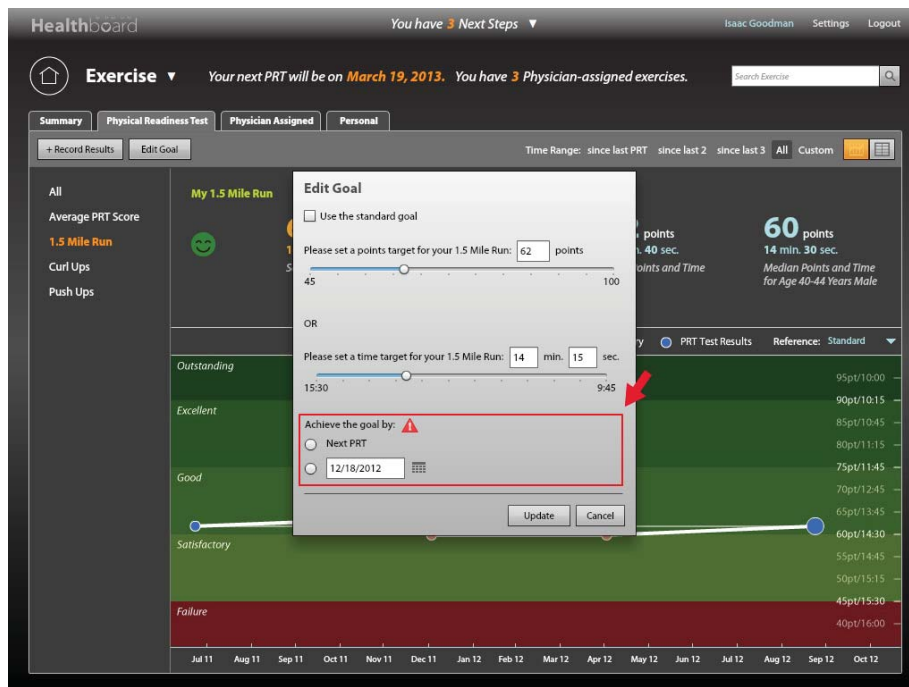


FIGURE 55B: After: No default selected, error shown below.

## EXER14, 15

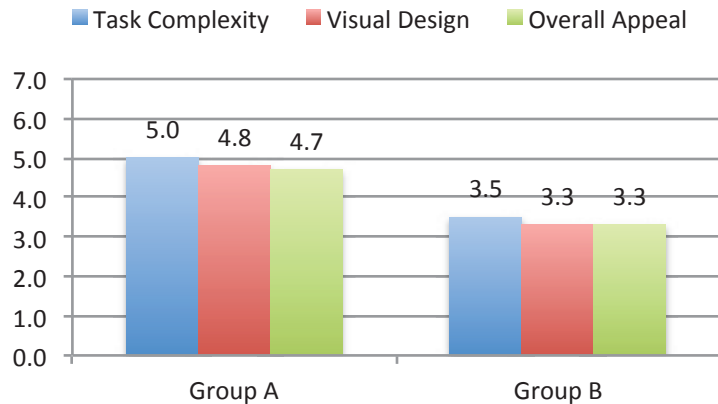
Your doctor has recommended a few exercises for you. What are they? What reason did the doctor provide? How many calories did you burn on your last exercise? How much weight have you lost since you started?

### GROUP A DETERMINATION:

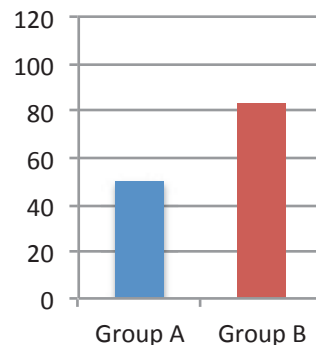
#### Moderate issues

- Task Complexity: 5.0 (Worst)
- Visual Design: 4.8 (Worst)
- Overall Appeal: 4.7 (Worst)
- Successful Completion: 50% (Tie, 2nd Worst)
- Observed Time: Benchmark: 2.89 (5th Worst)
- Observed Path: Benchmark: 4.01 (3rd Worst)
- In this task, the tester's perception of the information was studied. The causation of the poor scorecard marks may result from the absence of clear answers; a sense of completion.
- If a participant failed to answer all the questions correctly, the task was marked as incomplete. Not finding the correct page was the reason testers failed this task.
- Despite being the same layout as *Vital Signs*, testers did not think to click on *Run / Walk* and *Bike* in the left column. This could be because it is a shorter list, or perhaps the absence of an *Add Tracker* button draws less attention to it.
- Instead, testers would click on *Run / Walk* and *Bike* links in the middle section, with the expectation of going to the detail page. The block would collapse, leading to confusion.

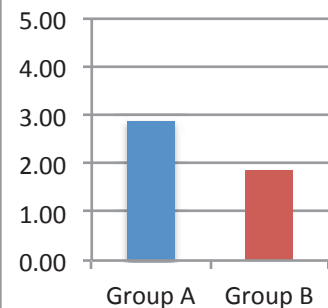
### EXER14, 15: Mean Scorecard Return, Group A vs. B



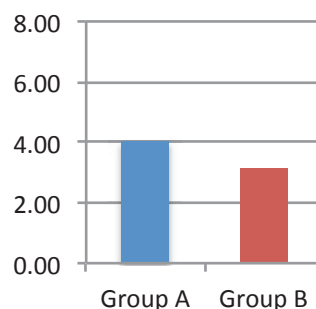
### Mean Success EXER14, 15



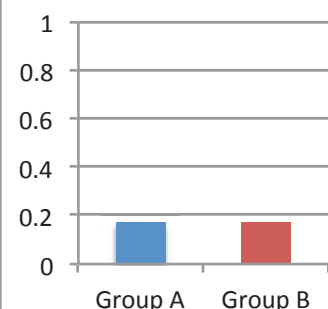
### Obv. : Benchmark Time EXER14, 15



### Obv. : Benchmark Path EXER14, 15



### Mean Number of Errors EXER14, 15



## GROUP B VALIDATION:

### Improved

- Task Complexity:  
43% decrease, from 5.0 to 3.5
- Visual Design:  
45% decrease, from 4.8 to 3.3
- Overall Appeal:  
42% decrease, from 4.7 to 3.7
- Successful Completion:  
67% increase, from 50% to 83%
- Observed Time:  
Benchmark: 35% decrease, from  
2.89 to 1.87, indicating testers had  
a much easier time finding the  
information.
- Observed Path: Benchmark:  
22% decrease, from 4.01 to 3.15

## RECOMMENDATIONS

- The Physician Assigned and Personal  
exercises on the Summary tab should  
link their respective detail pages.



## ATTEMPTED FIXES

Putting the expand-and-collapse action on the down arrow, and setting the text (e.g., Run/Walk) as a link to the detail page would eliminate a lot of confusion.

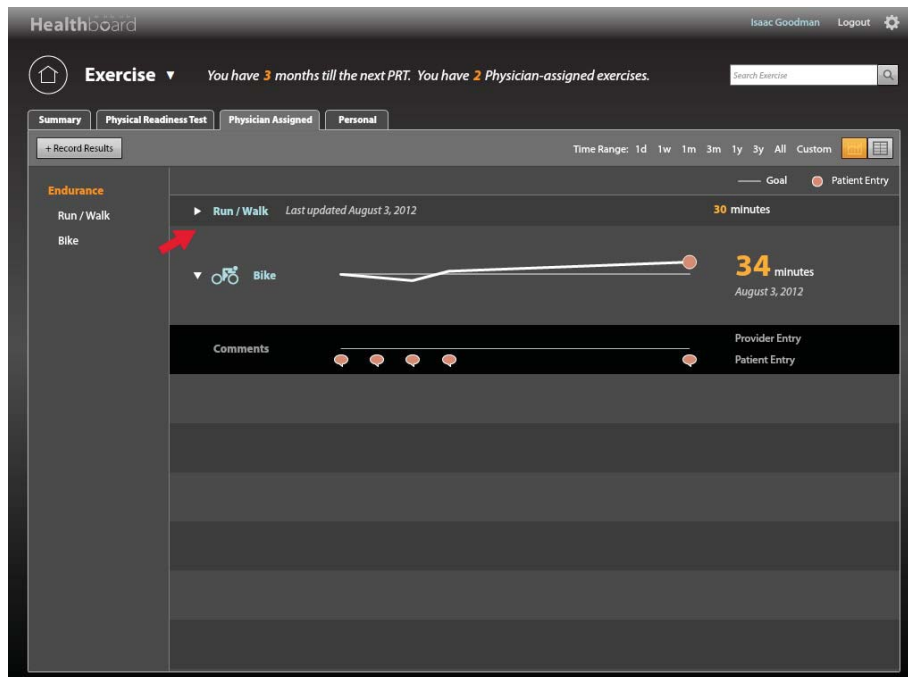


FIGURE 56A: Before: Clicking on the text would collapse the section.

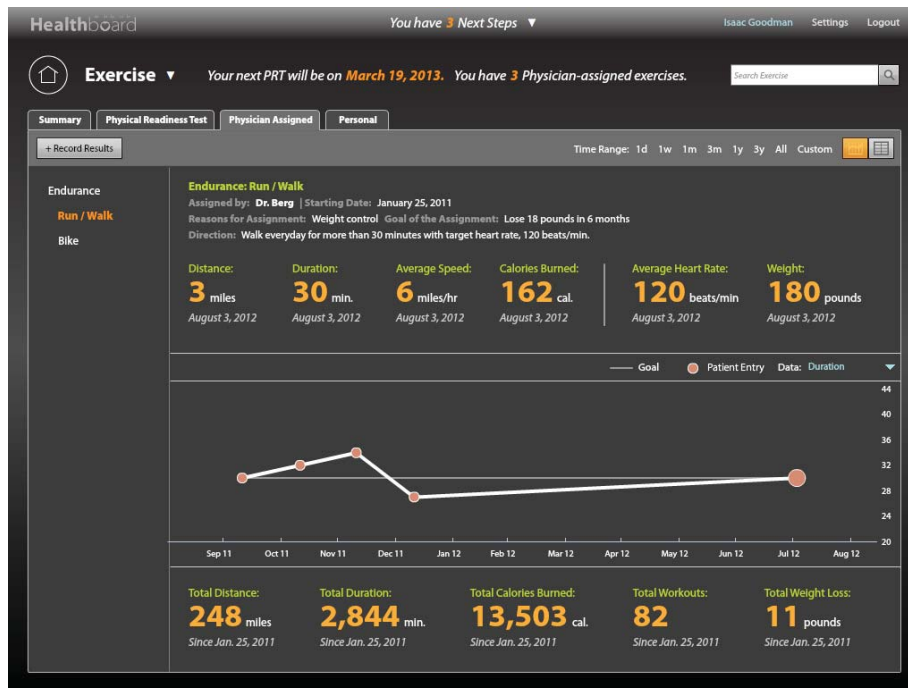


FIGURE 56B: After: Clicking on the test goes to the detailed view.

## EXER11

Record that you walked 2 miles in 45 minutes yesterday, and cycled 10 miles for 90 minutes the day before (two days ago).

### GROUP A DETERMINATION:

#### Moderate issues

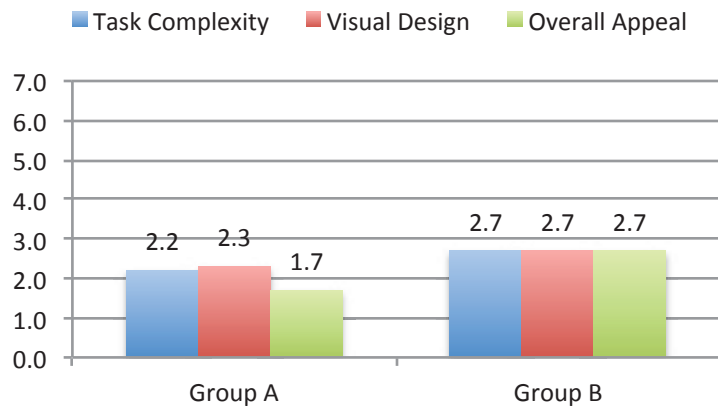
- Successful Completion: 50% (Tie, 2nd Worst)
- Error Rate: 0.67 (Worst)
- Overall Appeal: 4.7 (Worst)
- The task required users to make two entries: one for yesterday, the other for 2 days ago. Testers failed because they put in a single entry, ignoring the Date issue.

### GROUP B VALIDATION:

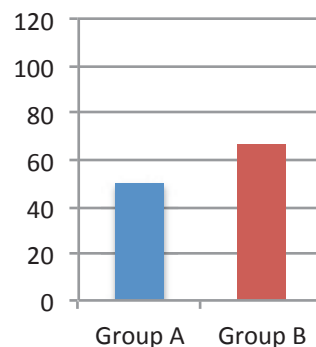
#### Improved

- Successful Completion: 33% increase, from 50% to 67%
- Observed Time: Benchmark: 37% increase, from 1.56 to 2.14, perhaps because more testers were able to successfully complete the task.
- Observed Path: Benchmark: 33% increase, from 1.45 to 1.92, again, perhaps because more testers were able to successfully complete the task.
- Error Rate: 0.33, down from 0.67

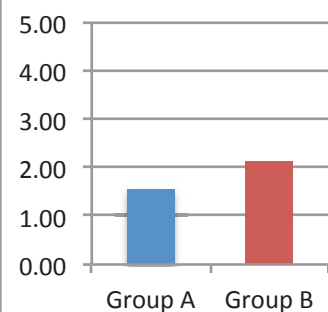
**EXER11: Mean Scorecard Return, Group A vs. B**



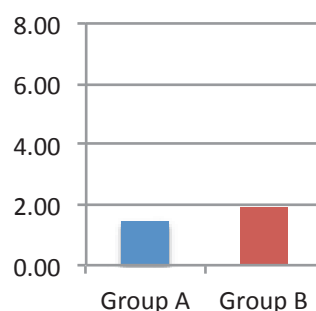
**Mean Success EXER11**



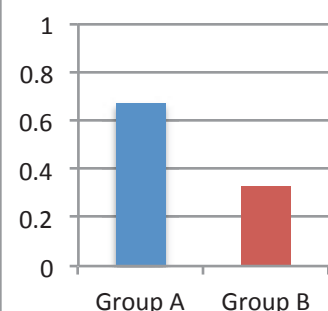
**Obv. : Benchmark Time EXER11**



**Obv. : Benchmark Path EXER11**



**Mean Number of Errors EXER11**



## ATTEMPTED FIXES

PIIM moved the date selection to the top of the popup for added attention.

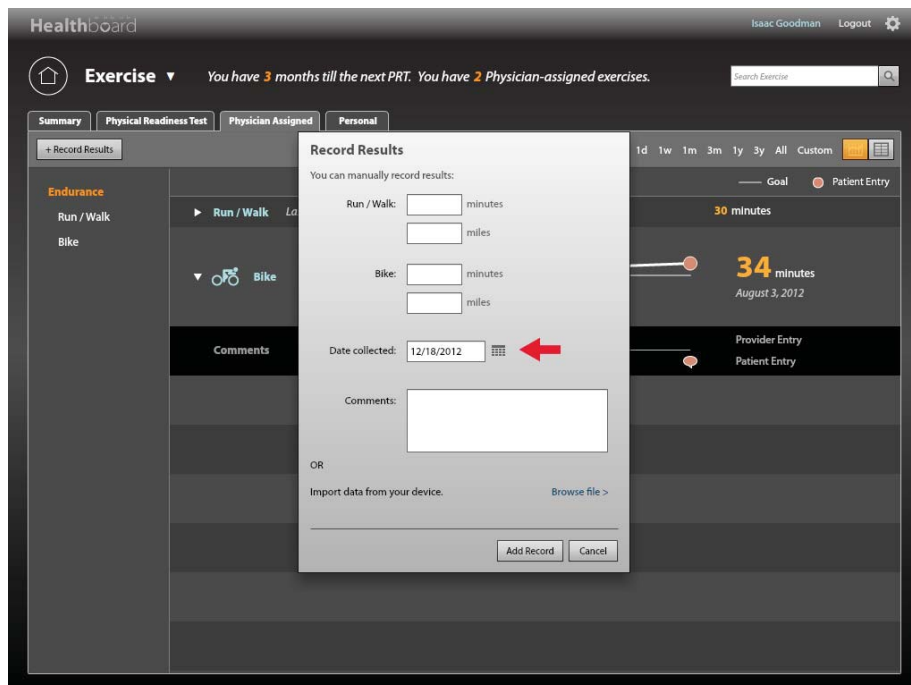


FIGURE 57A: *Before*

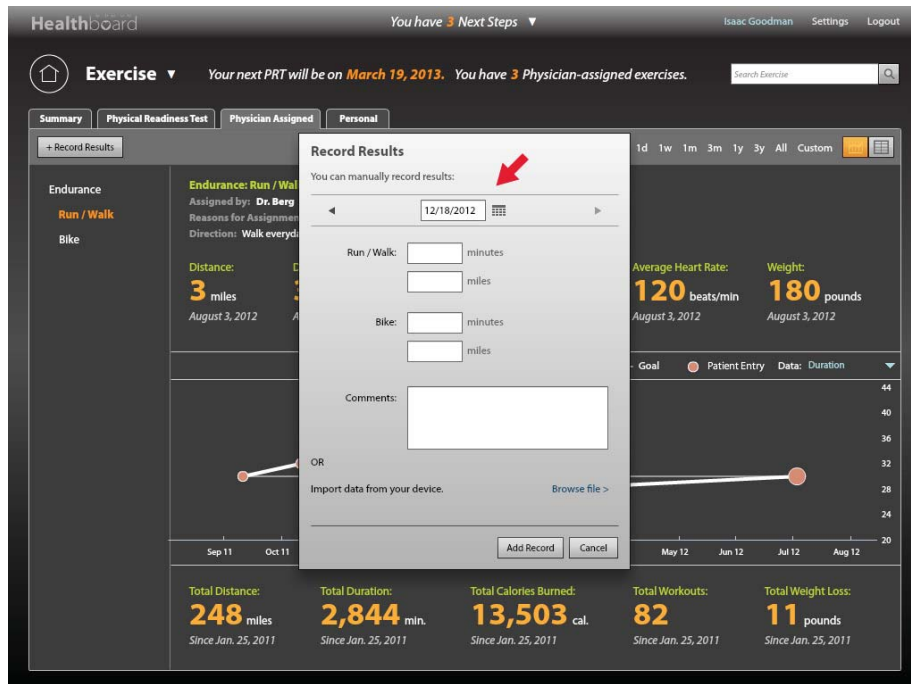


FIGURE 57B: *After*

## NUTR07-09

Speaking of calories, tell me about your food plan. What should you be eating? What should you avoid? What's the reason for this plan? How many calories a day should you have?

### GROUP A DETERMINATION:

#### Minimal issues

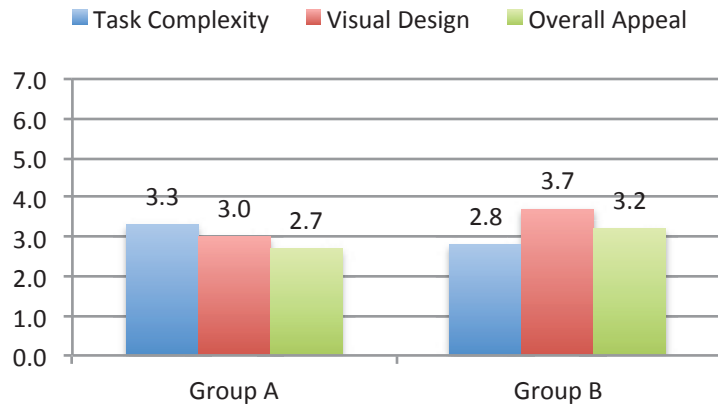
- Testers would click through to *Educational Resources* module, feel a bit lost, and have to navigate back to *Nutrition* via the homescreen.
- Testers commented the photos of foods to take/avoid are small and difficult to decipher.
- Tester P2-02 thought the 1,700 calories listed under *Total Calories* in the middle column was her calorie budget.

### GROUP B VALIDATION:

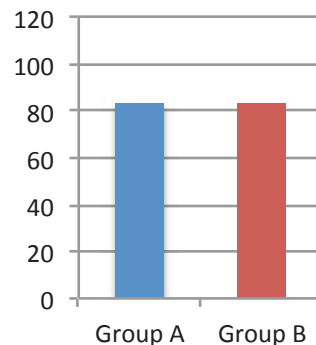
#### Indeterminate

- Task Complexity:  
15% decrease, from 3.3 to 2.8
- Visual Design:  
23% increase, from 3.0 to 3.7
- Overall Appeal:  
19% increase, from 2.7 to 3.2
- Successful Completion:  
83%, No Change
- Observed Time:  
Benchmark: 16% increase, from 2.03 to 2.35
- Observed Path:  
Benchmark: 40% increase, from 1.39 to 1.94, this may have been caused by Tester PB2-10's heavy use of the mouse scroll wheel.
- Error Rate: 0.33, up from 0.17

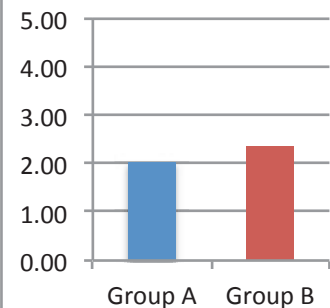
### NUTR07-09: Mean Scorecard Return, Group A vs. B



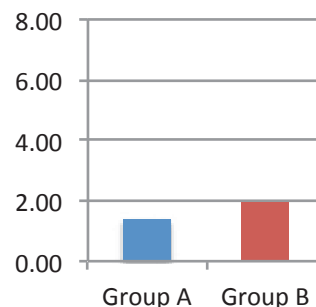
### Mean Success NUTR07-09



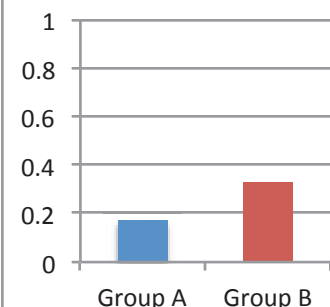
### Obv. : Benchmark Time NUTR07-09



### Obv. : Benchmark Path NUTR07-09



### Mean Number of Errors NUTR07-09



## ATTEMPTED FIXES

1. Eliminate the *Summary* tab, and have only *My Food Journal* (default) and *My Food Plan* tabs. Refactoring to the design to eliminate redundant information.

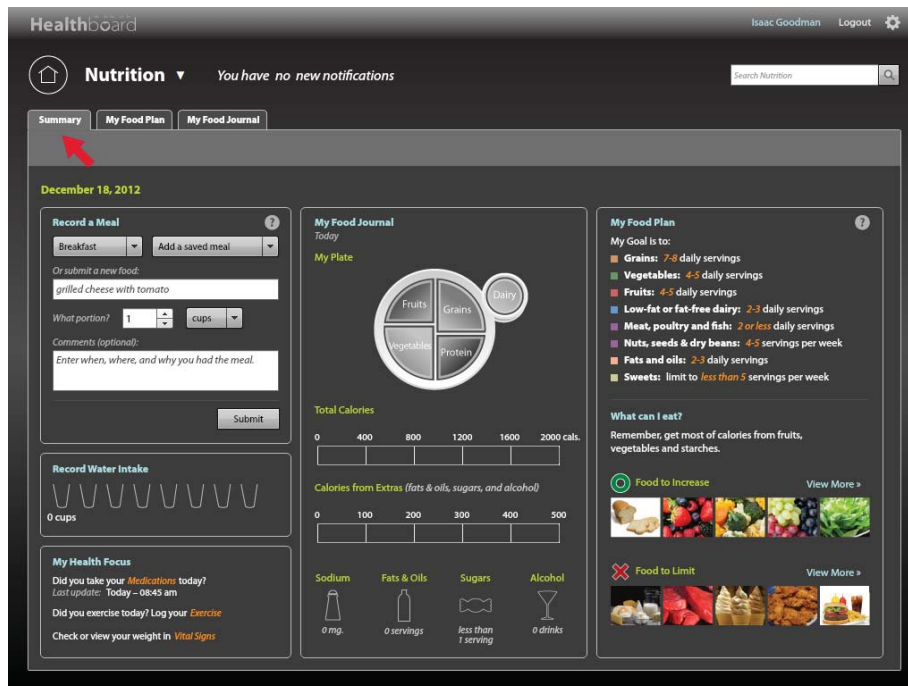


FIGURE 58A: Before: Shows the *Summary* tab with a lot of the same information as the two other tabs.



FIGURE 58B: After: Shows the *My Food Journal* tab as the default tab, along with the re-factored layout. See additional attempted fixed below for more color.

2. User should enter food, then see it appear in the adjacent table. Remove the *Record Food Journal* button.

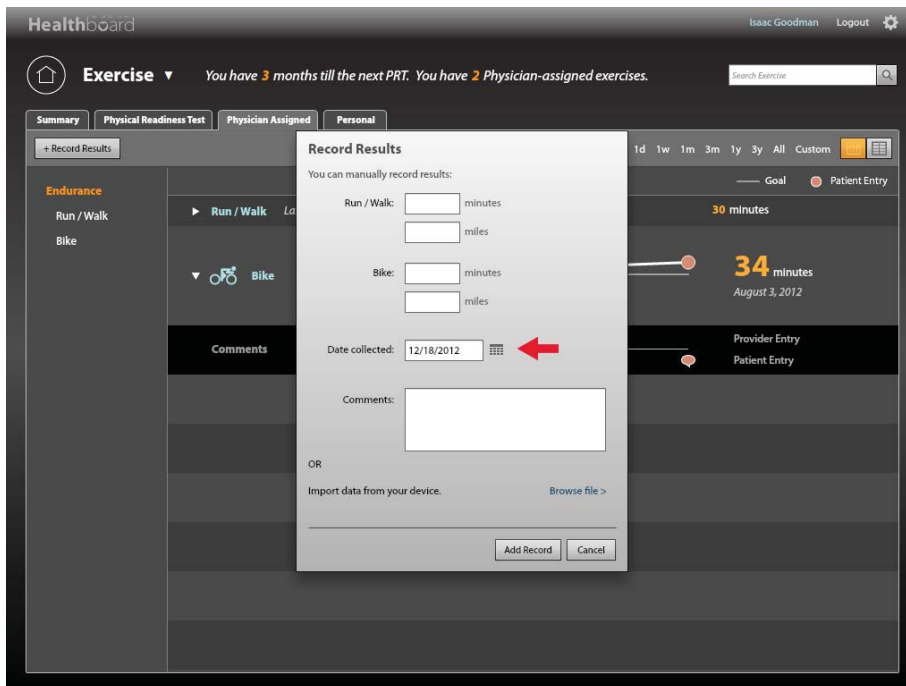


FIGURE 59A: Before: A user would enter food into the Record a Meal form...

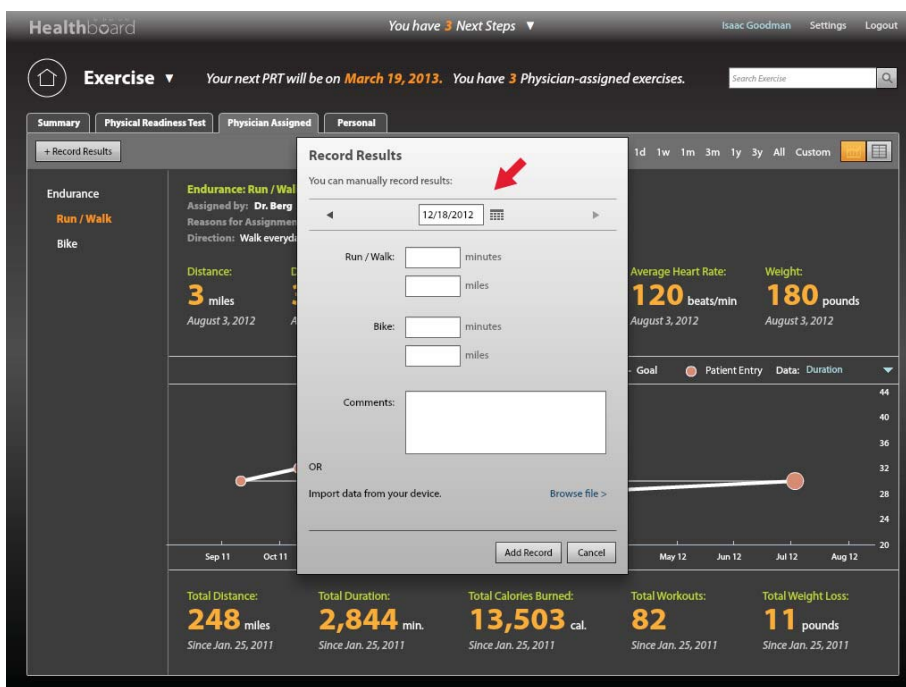


FIGURE 59B: Before: ...and it would appear on the bottom of the My Food Journal tab. PIIM found that after entering a meal, most users went looking for their entry to make sure it was saved.

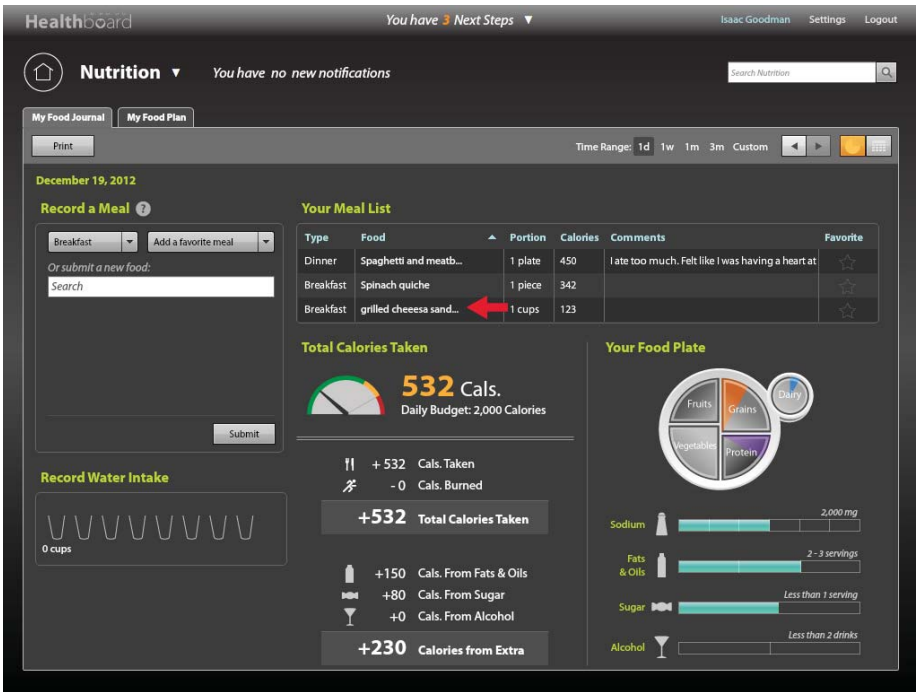


FIGURE 59C: After: Entered meals appear directly next to the form.



3. Add “title text” on rollover of photos in *My Food Plan* (e.g. “Fried Foods”).

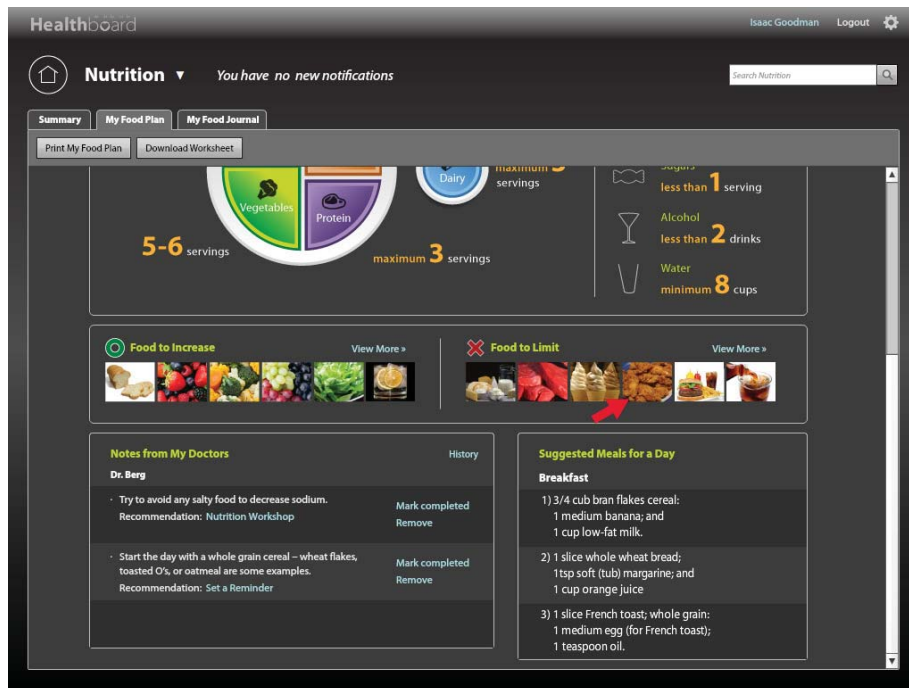


FIGURE 60A: *Before: No information is offered on hover.*

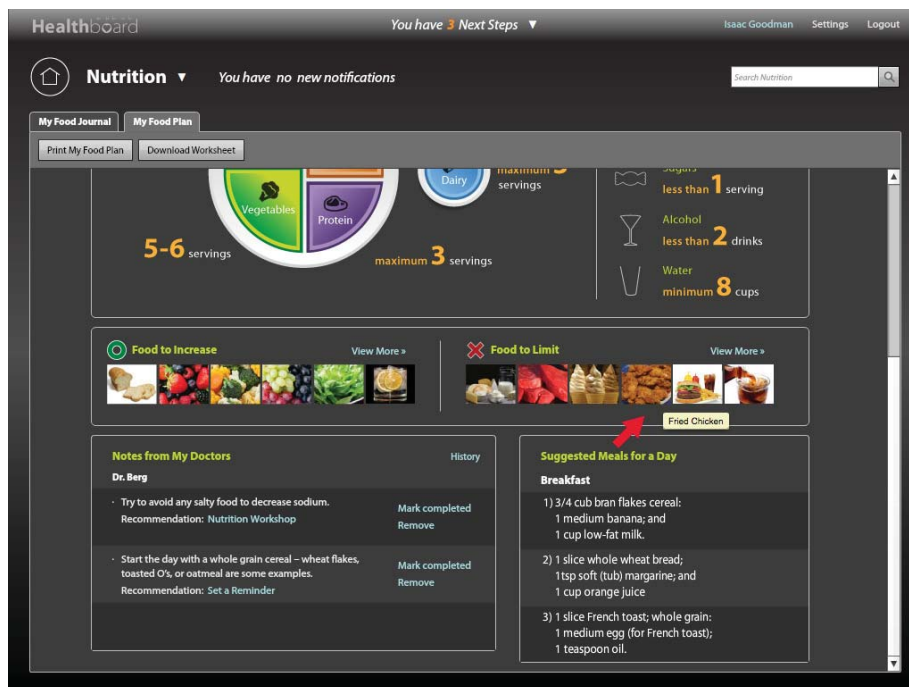


FIGURE 60B: *After: A “title text” appears offer that this photo is “Fried Chicken.”*



4. Remove the yellow area on bar graphs. Improve communication around 1,700 calories consumed.

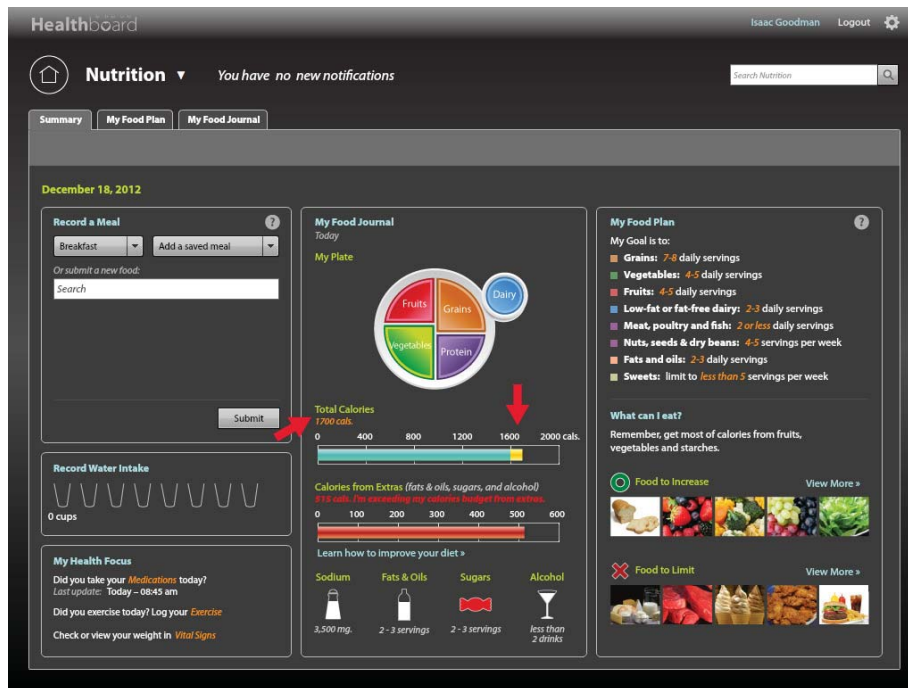


FIGURE 61A: Before: Testers were confused by the “Total Calories: 1,700 calories” text. Testers also failed to recognize the yellow color in the bar graphs indicates caution.



FIGURE 61B: After: PIIM refactored the design to improve the content communication.

## NUTR18

How have you been doing on your Food Plan over the last week? Over the last month? Did you ever exceed your calorie budget? What nutritional recommendations did you fail to follow?

### GROUP A DETERMINATION:

#### Moderate issues

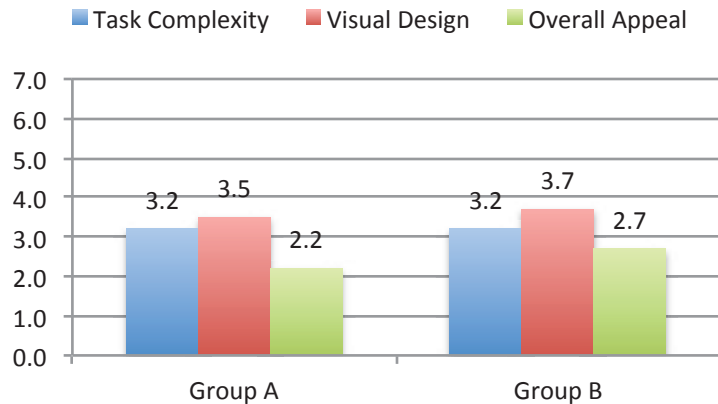
- Successful Completion: 67% (Tie, 3rd Worst)
- Testers did not have any issues finding the reporting, adjusting the dates, or interpreting the information.
- Tasks were marked as incomplete because of failure to answer the last question regarding nutritional recommendations. Testers had difficulty identifying or understanding the indicators for *Sodium, Fats & Oils, Sugars, Alcohol* and *Water*.

### GROUP B VALIDATION:

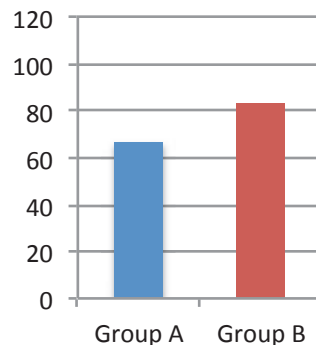
#### Improved

- Successful Completion: 25% increase, from 67% to 83%
- Observed Time: Benchmark: 44% increase, from 1.77 to 2.56
- Observed Path: Benchmark: 103% increase, from 1.32 to 2.69, this may have been caused by Tester PB2-10's heavy use of the mouse scroll wheel.
- Error Rate: 0, down from 0.17

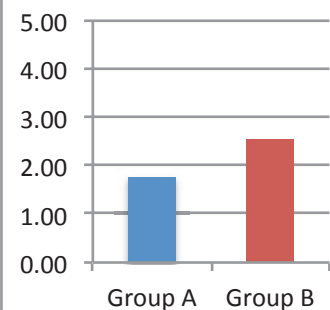
**NUTR18: Mean Scorecard Return, Group A vs. B**



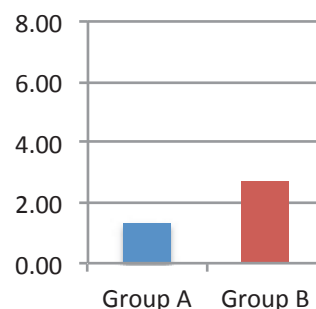
**Mean Success NUTR18**



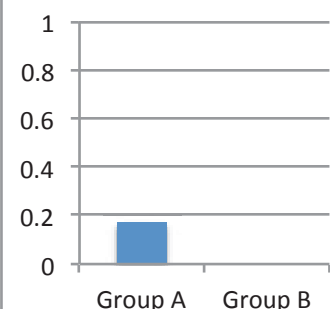
**Obv. : Benchmark Time NUTR18**



**Obv. : Benchmark Path NUTR18**



**Mean Number of Errors NUTR18**



## ATTEMPTED FIXES

Redesign the indicators to improve the communication. Instead of turning red, perhaps indicate by how much the recommendation was exceeded. Consider using the bar graph in other part of the module.

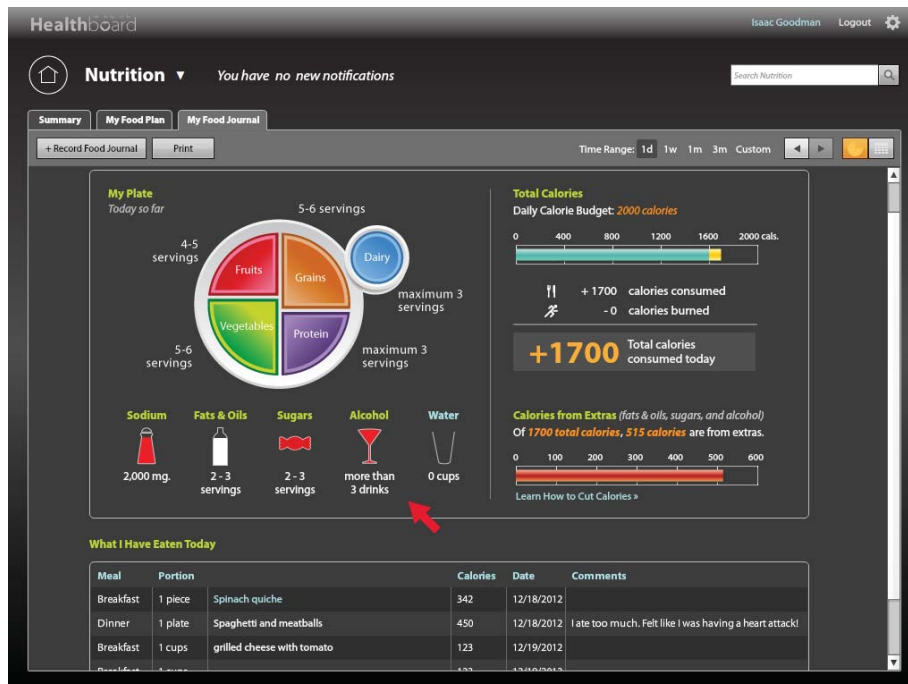


FIGURE 62A: Before: The icons “fill up” and turn red when a user exceeds the recommendation.



FIGURE 62B: After: PIIM used a bar chart to communicate status and overages.

## NUTR15

What did you eat for breakfast today? How do you find nutritional information on it?

### GROUP A DETERMINATION:

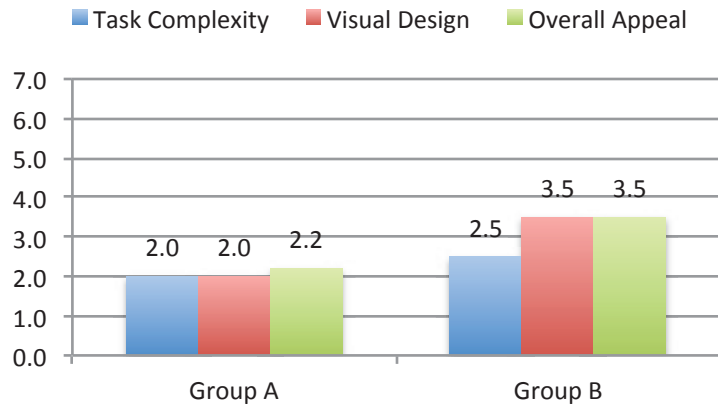
#### Minimal issues

- Testers had a minor issue discovering the location of the food journal (indicated by higher-than-normal Observed Path: Benchmark of 2.29) as it's on the bottom of the screen and partially off-screen.
- Nutritional information was shown on hover, which "flickered" and frustrated some testers.
- Impressively, testers realized it was necessary to change the date to "1d."

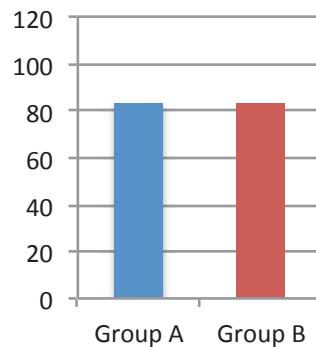
### RECOMMENDATIONS

- Make the help icon available on-click, provide a way to close it. Most testers who successfully completed the task attempted to first click on the information icon.
- To find information on past meals, 3 testers clicked on the View History link on My Food Plan tab and even in the Notes from My Doctor section. Consider removing these links.

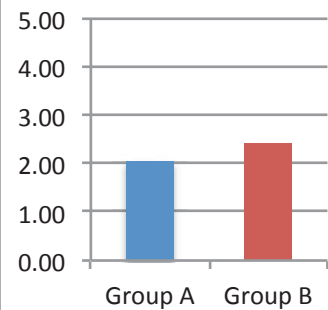
**NUTR15: Mean Scorecard Return, Group A vs. B**



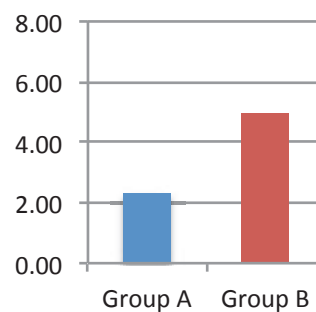
**Mean Success NUTR15**



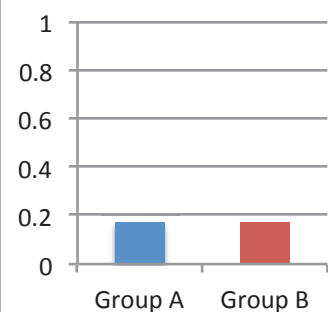
**Obv. : Benchmark Time NUTR15**



**Obv. : Benchmark Path NUTR15**



**Mean Number of Errors NUTR15**



## NUTR06

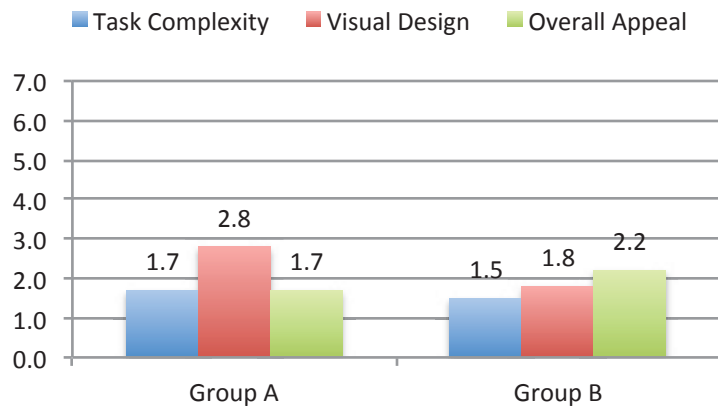
Report that you consumed 5 cups of water today.

### GROUP A DETERMINATION:

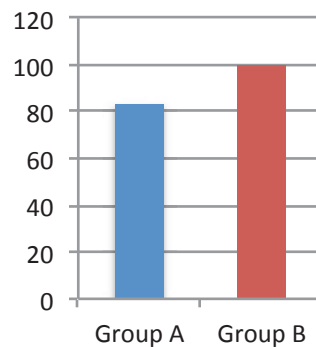
#### Minimal issues

- Most participants attempted to solve this by clicking on the *Water* indicator on the *My Food Journal* page.
- Some users expected a Save button to commit the water section.

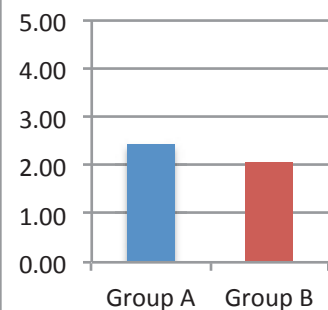
**NUTR06: Mean Scorecard Return, Group A vs. B**



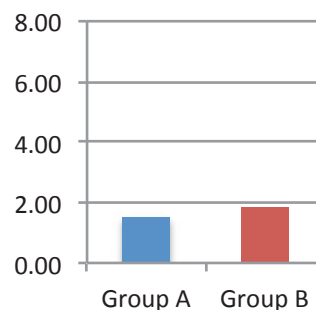
**Mean Success NUTR06**



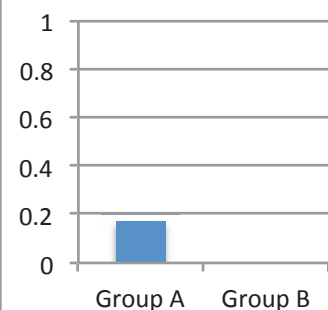
**Obv. : Benchmark Time NUTR06**



**Obv. : Benchmark Path NUTR06**



**Mean Number of Errors NUTR06**



## NUTR04

HealtBoard allows you to save frequent meals for quick entry. You eat a peanut butter and jelly sandwich for a snack at least once a week, and have saved it. Record you ate a peanut butter and jelly sandwich for a snack today.

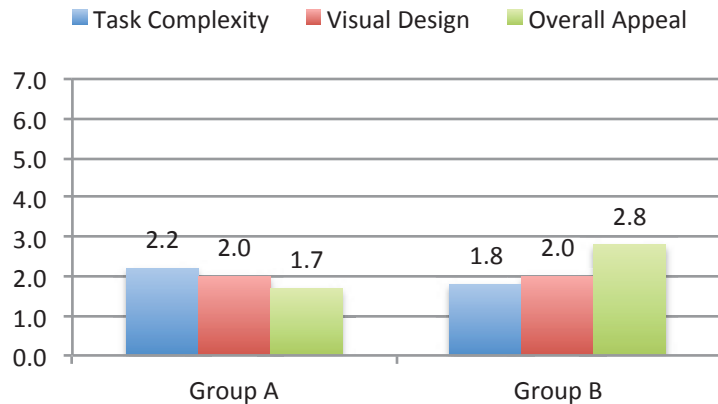
### GROUP A DETERMINATION:

No issues

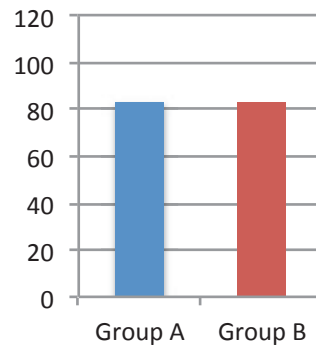
### NOTE

See recommendations under task NUTR01.

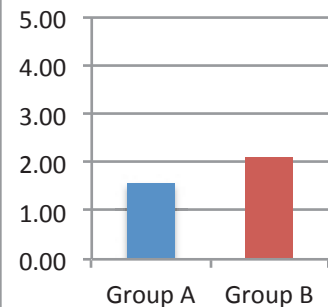
**NUTR04: Mean Scorecard Return, Group A vs. B**



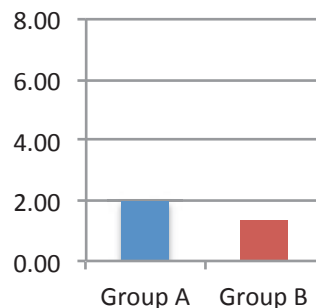
**Mean Success NUTR04**



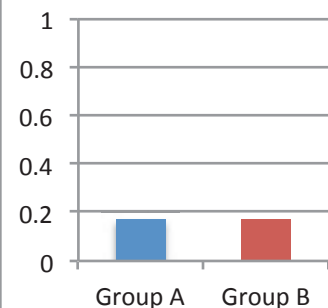
**Obv. : Benchmark Time NUTR04**



**Obv. : Benchmark Path NUTR04**



**Mean Number of Errors NUTR04**



## NUTR16

Say you've already entered today's dinner into HealthBoard. It's something you eat frequently. Save it for quick entry.

### GROUP A DETERMINATION:

#### Moderate issues

- Successful Completion:  
50% (Tie, 2nd Worst)
- Error Rate: 0.33 (Tie, 3rd Worst)
- Some testers had issues locating or understanding the idea of saving a meal.

### GROUP B VALIDATION:

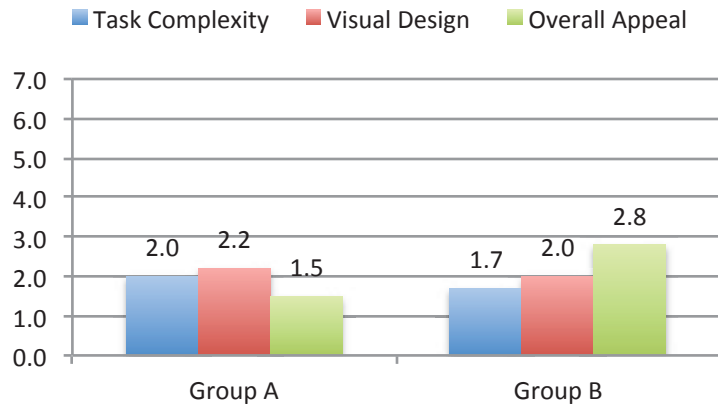
#### Improved

- Successful Completion:  
67% increase, from 50% to 83%
- Observed Time:  
Benchmark: 88% increase, from 1.15 to 2.16
- Observed Path:  
Benchmark: 103% increase, from 0.72 to 2.22 this may have been caused by Tester PB2-10's heavy use of the mouse scroll wheel.
- Error Rate: 0.17, down from 0.33

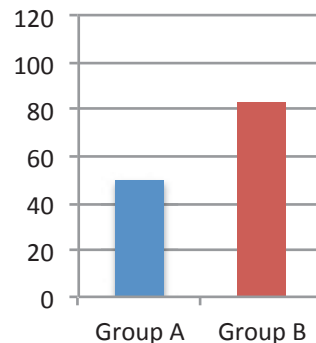
### RECOMMENDATIONS

- No improvement on the time and path. Consider removing the unnecessary prompt after saving: "Are you sure you want to save this meal?"
- Consider moving the *Favorites* column to the left side of the table, making for a slightly more natural position and proximity to the entry form.

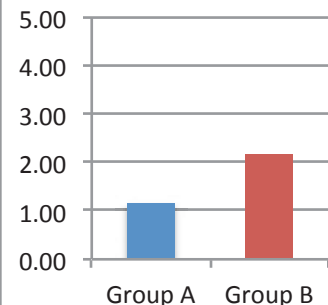
## NUTR16: Mean Scorecard Return, Group A vs. B



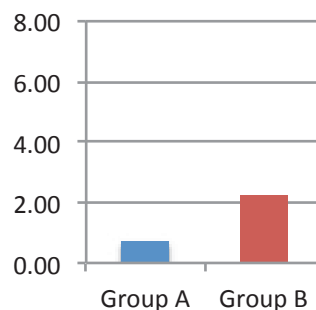
## Mean Success NUTR16



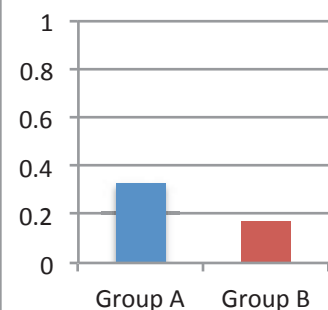
## Obv. : Benchmark Time NUTR16



## Obv. : Benchmark Path NUTR16



## Mean Number of Errors NUTR16



## ATTEMPTED FIXES

1. Remove *Health Focus* block, as it has little value and adds noise



FIGURE 63A: Before: The arrow indicates the Health Focus block.



FIGURE 63B: After: The refactored design removes the Health Focus block.



2. Instead of having a Save function, instead use a star to “favorite” a meal.

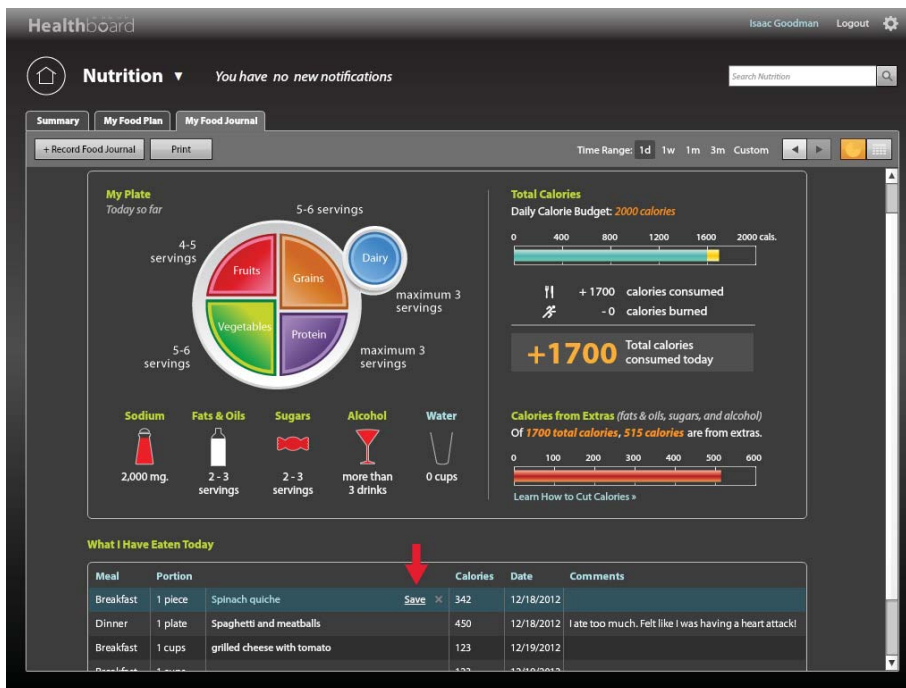


FIGURE 64A: Before: The user would have to mouse-over a row to reveal the Save link.



FIGURE 64B: After: The favorite column exists on the right. User just clicks the star to favorite.

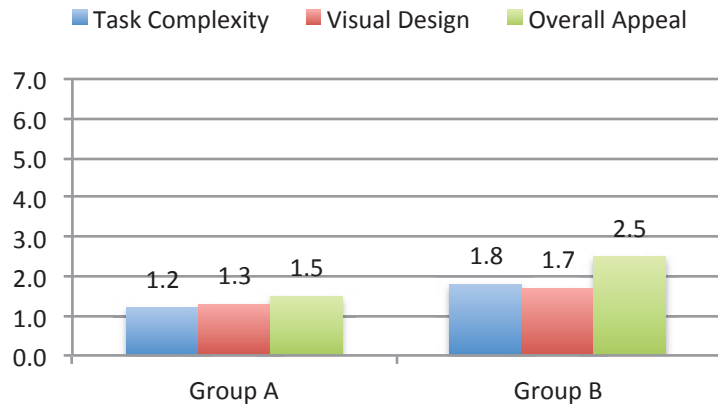
## NUTR10

How much sodium should you have daily?

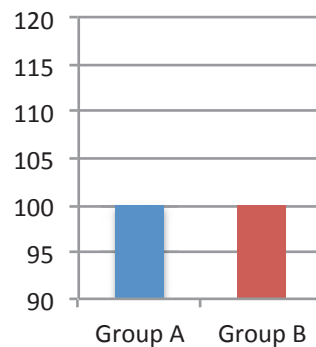
### GROUP A DETERMINATION:

No issues

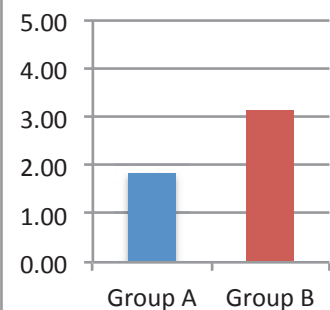
**NUTR10: Mean Scorecard Return,  
Group A vs. B**



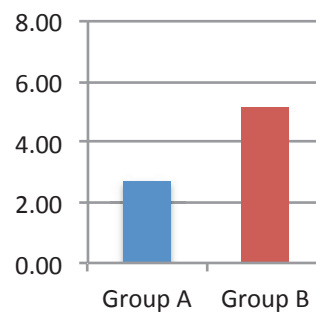
**Mean Success  
NUTR10**



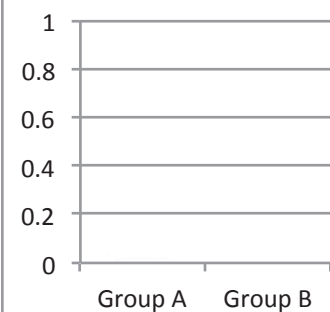
**Obv. : Benchmark  
Time  
NUTR10**



**Obv. : Benchmark  
Path  
NUTR10**



**Mean Number of  
Errors  
NUTR10**



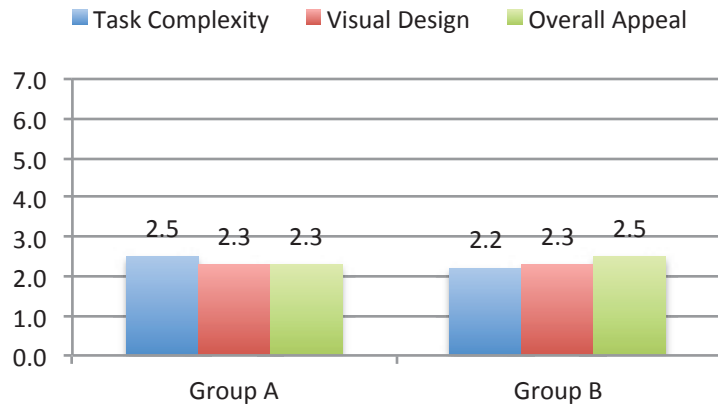
## NUTR19

Speaking of sodium, does your most recent blood pressure check indicate any hypertension (a.k.a. high blood pressure)?

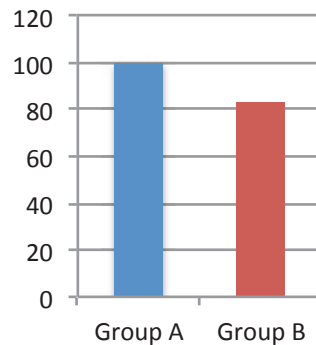
### GROUP A DETERMINATION:

No issues

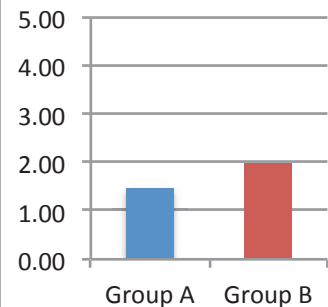
**VITALS19: Mean Scorecard Return, Group A vs. B**



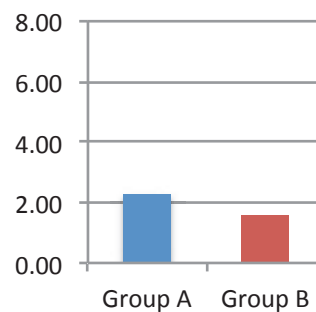
**Mean Success VITALS19**



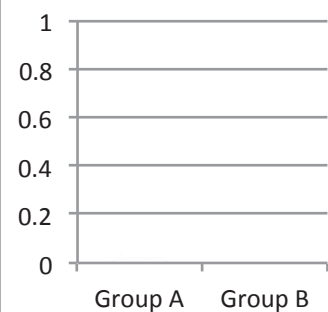
**Obv. : Benchmark Time VITALS19**



**Obv. : Benchmark Path VITALS19**



**Mean Number of Errors VITALS19**



## VITALS20

You smoke an occasional cigarette, and want to quit. Add a tracker to help you remember how much you've been smoking.

### GROUP A DETERMINATION:

#### Moderate issues

- Task Complexity: 4.3 (3rd Worst)
- Visual Design: 4.2 (3rd Worst)
- Overall Appeal: 3.3 (Tie, 3rd Worst)
- Successful Completion: 67% (Tie, 3rd Worst)
- Error Rate: 0.5 (2nd Worst)
- Testers had trouble identifying which module a *Tracker* would be in.
- Labels were confusing to Tester P2-02, and testers were generally confused by the *Tracker Entry* part of the form.

### GROUP B VALIDATION:

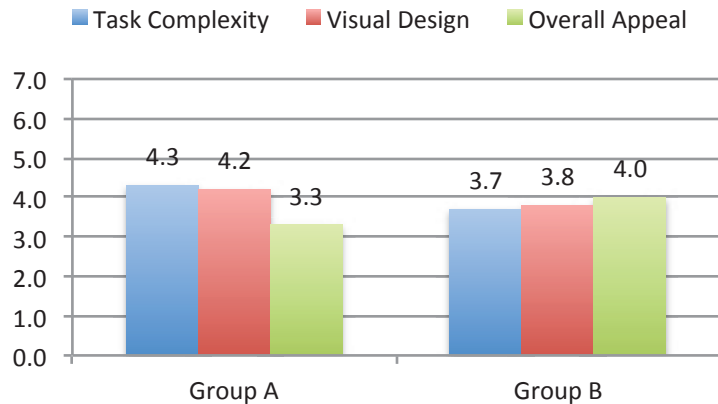
#### Revert or Revised

- Successful Completion: 25% decrease, from 67% to 50%
- Observed Time: Benchmark: 116% increase, from 1.51 to 3.26
- Observed Path: Benchmark: 122% increase, from 0.91 to 2.02
- Error Rate: 0.33, down from 0.5

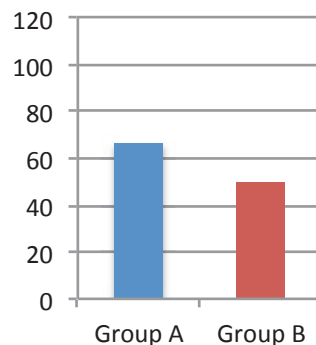
### RECOMMENDATIONS

- Testers did not relate "trackers" to *Vital Signs*. Consider renaming *Vital Signs*, perhaps to *Trackers* or *Vitals Tracker*.
- Consider a different location for trackers.

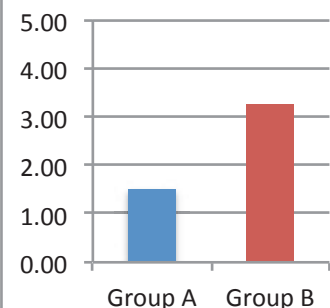
**VITALS20: Mean Scorecard Return, Group A vs. B**



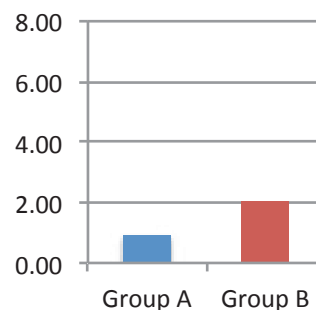
**Mean Success VITALS20**



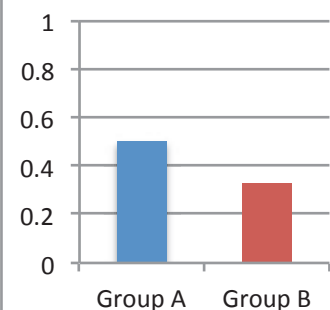
**Obv. : Benchmark Time VITALS20**



**Obv. : Benchmark Path VITALS20**



**Mean Number of Errors VITALS20**



## ATTEMPTED FIXES

1. Change the button label from + Add Tracker to + Add New Tracker.



FIGURE 65A: Before

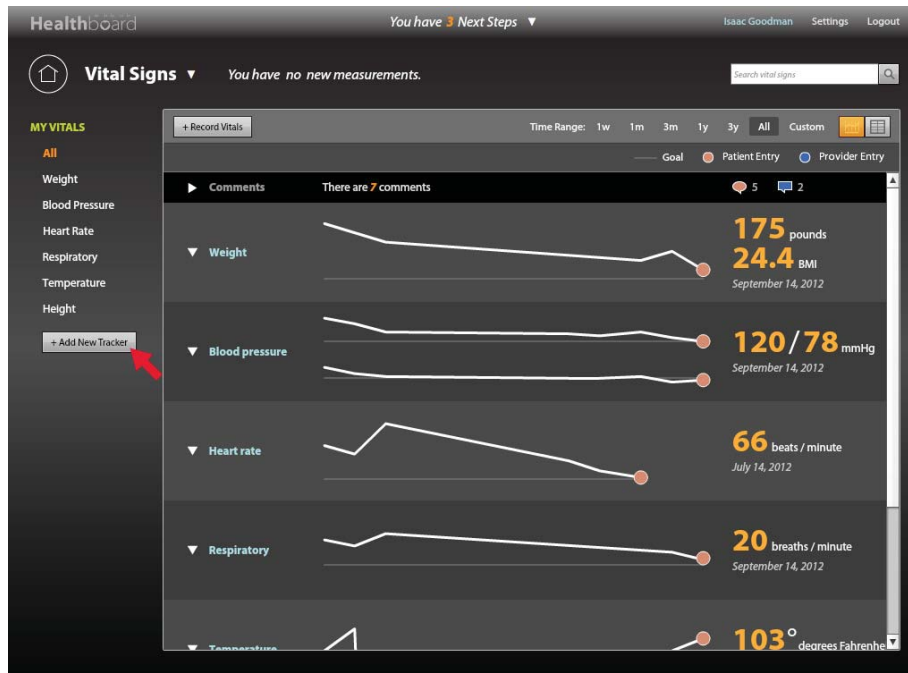


FIGURE 65B: After

2. Change the titles and labels of the *Add New Tracker* creation form. PIIM also added the units label after the *Result* text box.

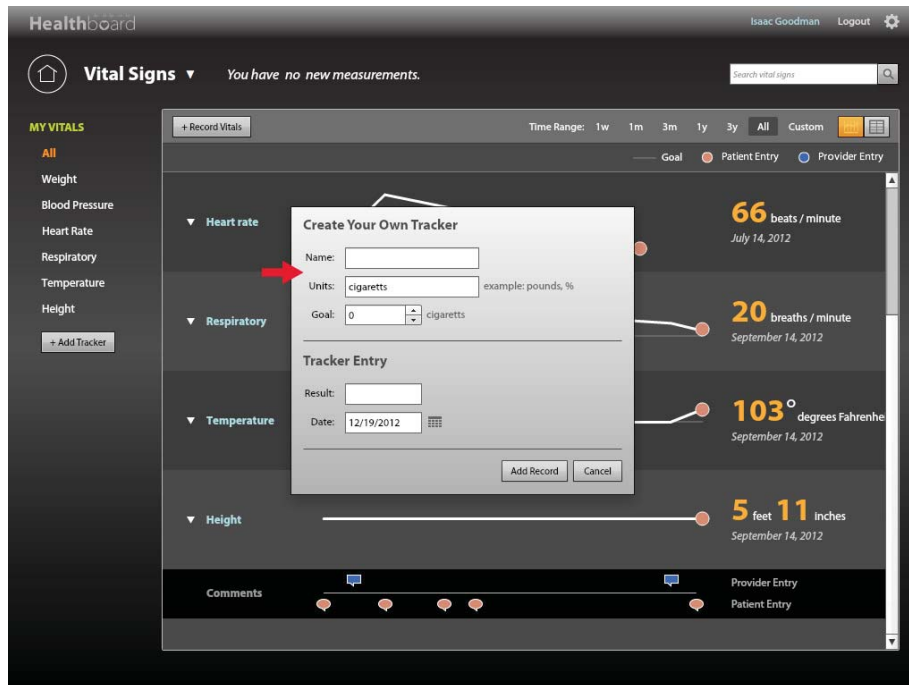


FIGURE 66A: *Before*

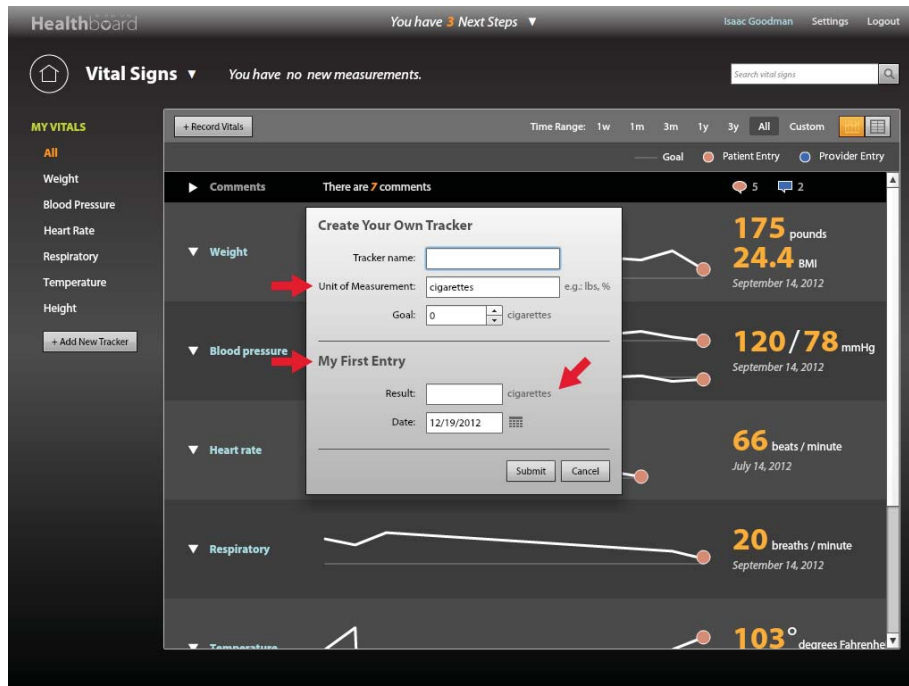


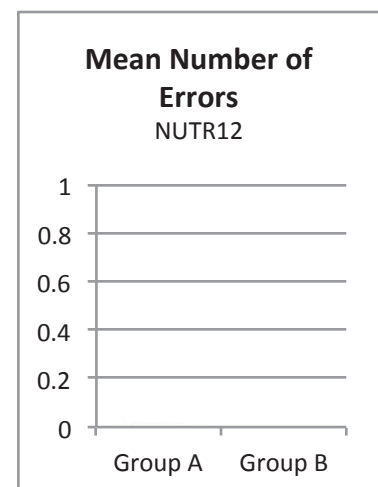
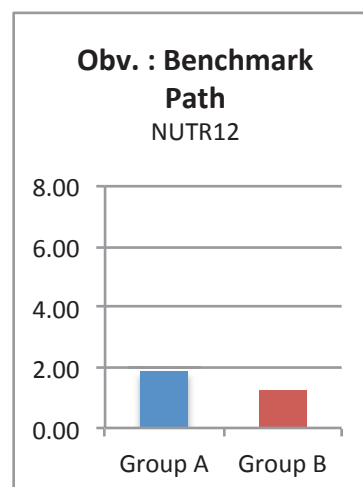
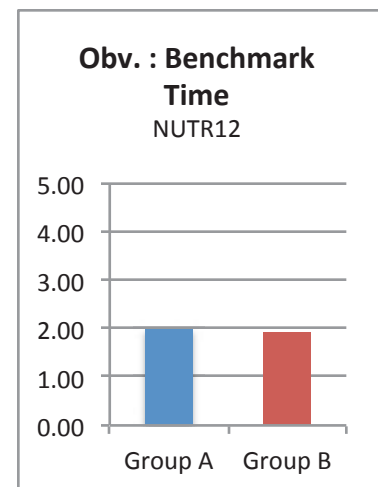
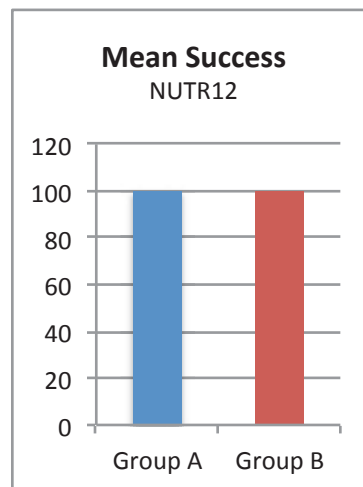
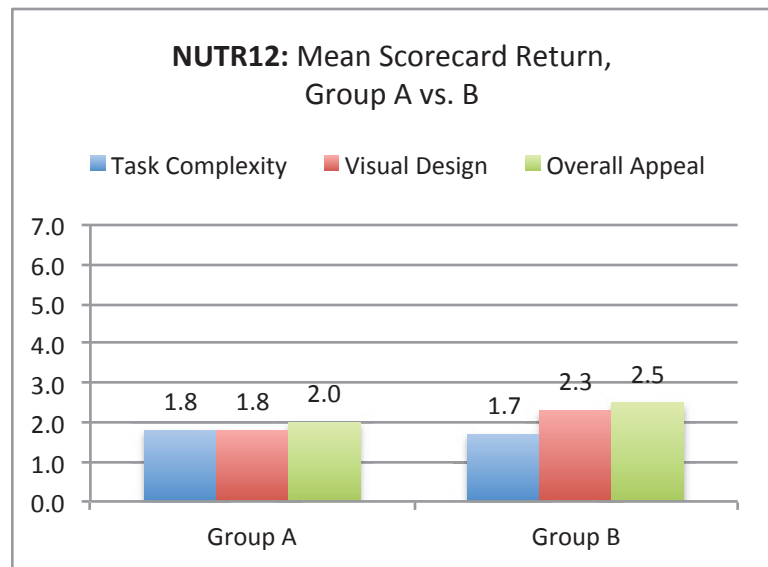
FIGURE 66B: *After*

## NUTR12

You won't always have access to a computer and the internet. Download a worksheet to log your meals on-the-go.

### GROUP A DETERMINATION:

No issues



## EDU03, 06

Where would you find information on the occasional heartburn that some foods cause you? Bookmark it for future reference.

### GROUP A DETERMINATION:

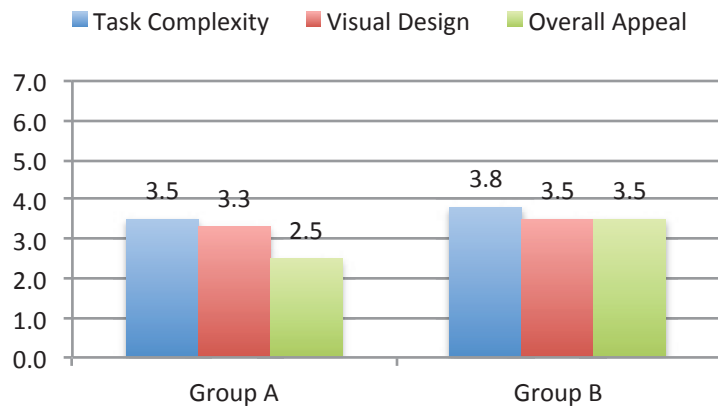
#### Moderate issues

- Successful Completion:  
33% (Tie x3, Worst)
- 50% of testers could not identify the correct module.

### RECOMMENDATIONS

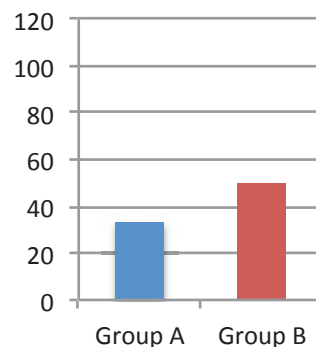
- On the “widget view,” elevate the position of Educational Resources so that it is on the screen by default.

## EDU03, 06: Mean Scorecard Return, Group A vs. B



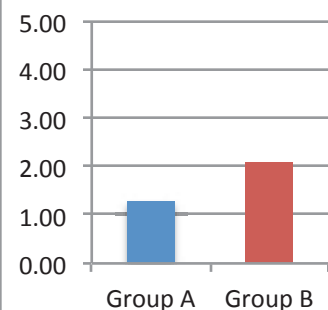
### Mean Success

EDU03, 06



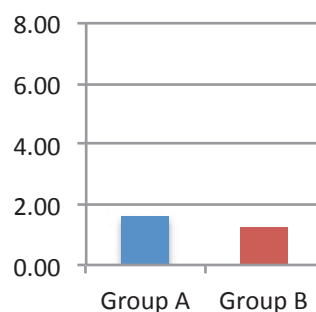
### Obv. : Benchmark Time

EDU03.06



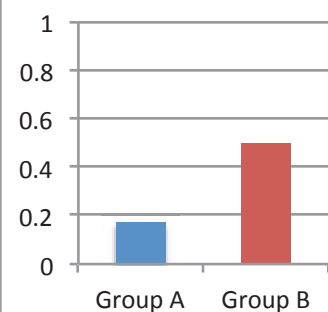
### Obv. : Benchmark Path

EDU03, 06



### Mean Number of Errors

EDU03, 06





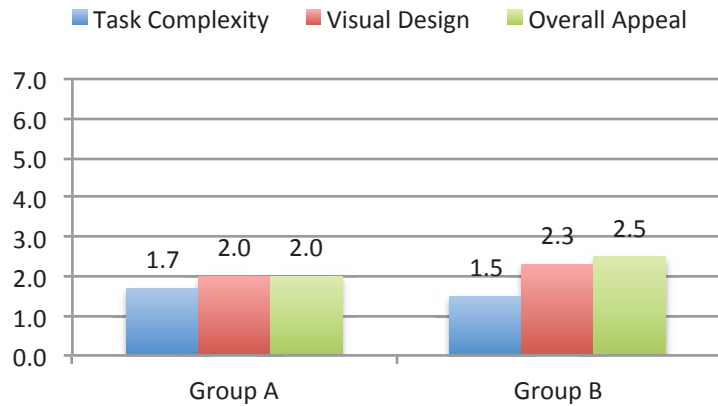
## EXER04

What personal exercises are you doing?

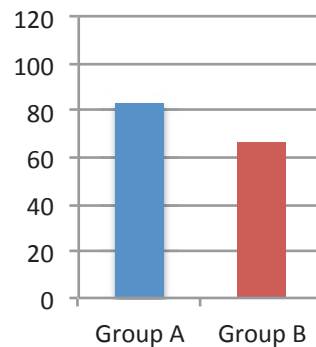
### GROUP A DETERMINATION:

No issues

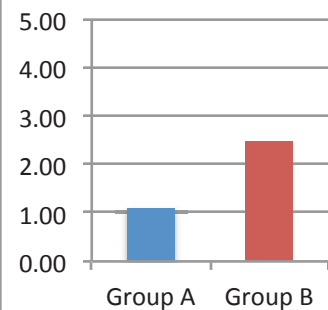
**EXER04: Mean Scorecard Return,  
Group A vs. B**



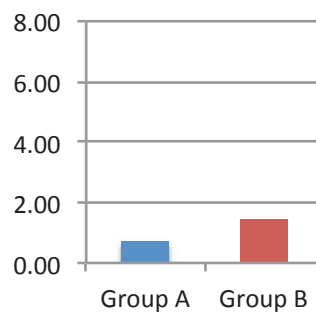
**Mean Success  
EXER04**



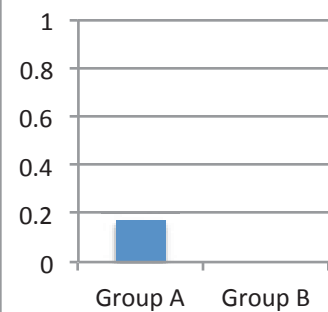
**Obv. : Benchmark  
Time  
EXER04**



**Obv. : Benchmark  
Path  
EXER04**



**Mean Number of  
Errors  
EXER04**



## EXER17-18

Add "weight training" as personal exercise.  
Add "soccer."

### GROUP A DETERMINATION:

#### Minimal issues

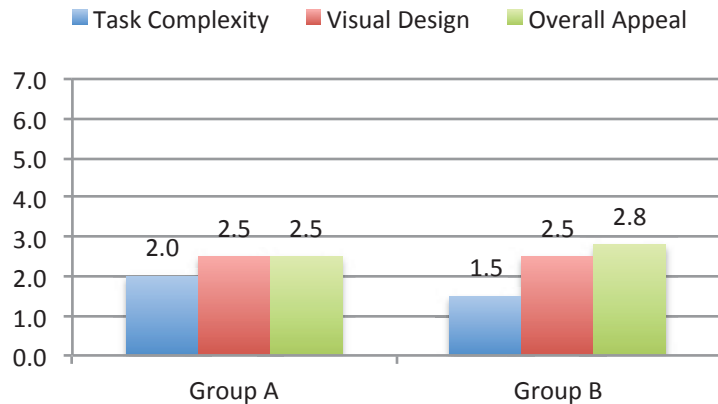
- Error Rate: 0.33 (Tie, 3rd Worst)
- In the *Untrackable Exercise* form, Test P2-02, typed her persona name "Tiffany Janeway" instead of the Exercise name.
- Most participants were confused by the distinction between *Trackable* and *Untrackable* exercise. One tester questioned: "Aren't all exercises trackable?"

### GROUP B VALIDATION:

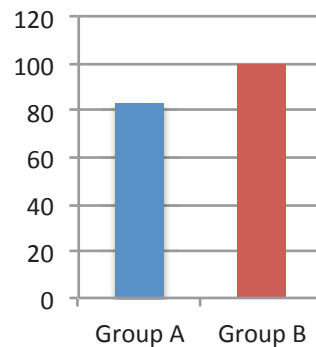
#### IMPROVED

- Successful Completion:  
20% increase, from 83% to 100%
- Error Rate: 0, down from 0.33

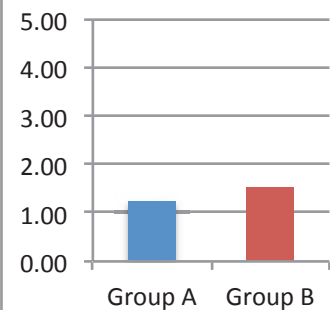
## EXER17-18: Mean Scorecard Return, Group A vs. B



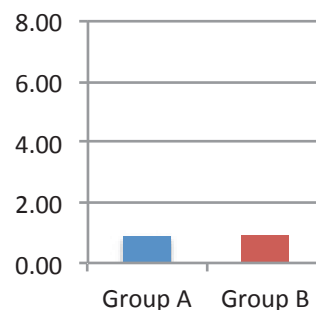
### Mean Success EXER17-18



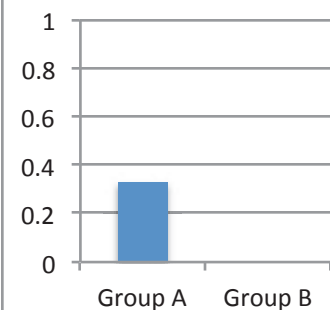
### Obv. : Benchmark Time EXER17-18



### Obv. : Benchmark Path EXER17-18



### Mean Number of Errors EXER17-18



## ATTEMPTED FIXES

1. Eliminated the *Trackable* versus *Untrackable* distinction. The form, formerly known as *Untrackable*, becomes an *Other* option.

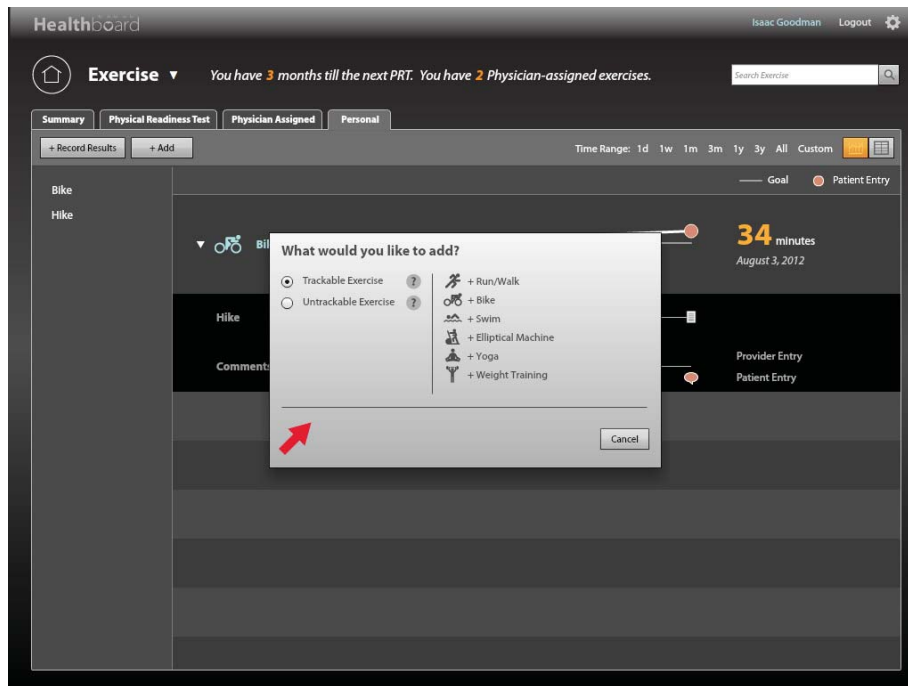


FIGURE 67A: Before: User just choose between *Trackable* and *Untrackable* exercise, which confused testers.

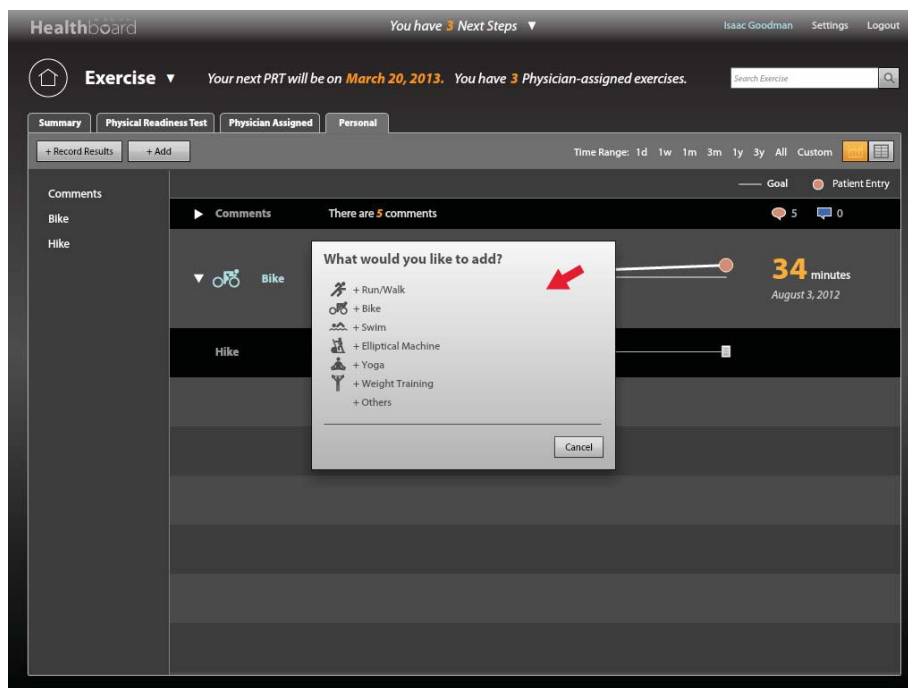


FIGURE 67B: After: User just chooses an exercise, and *Untrackable* exercise becomes *Other*.

2. Change the *Name* default text to be *Exercise Name*.

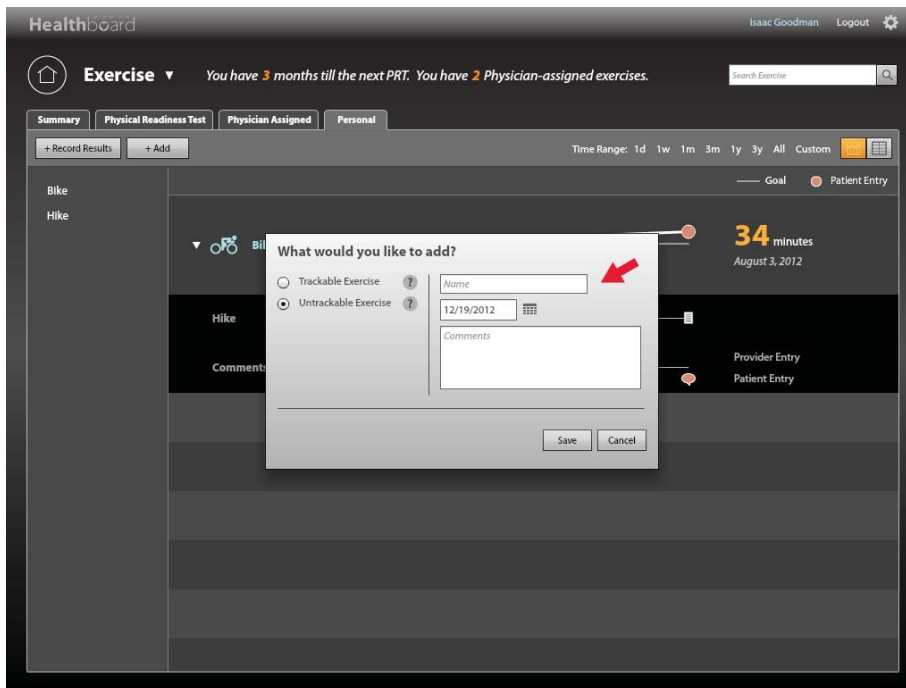


FIGURE 68A: *Before*

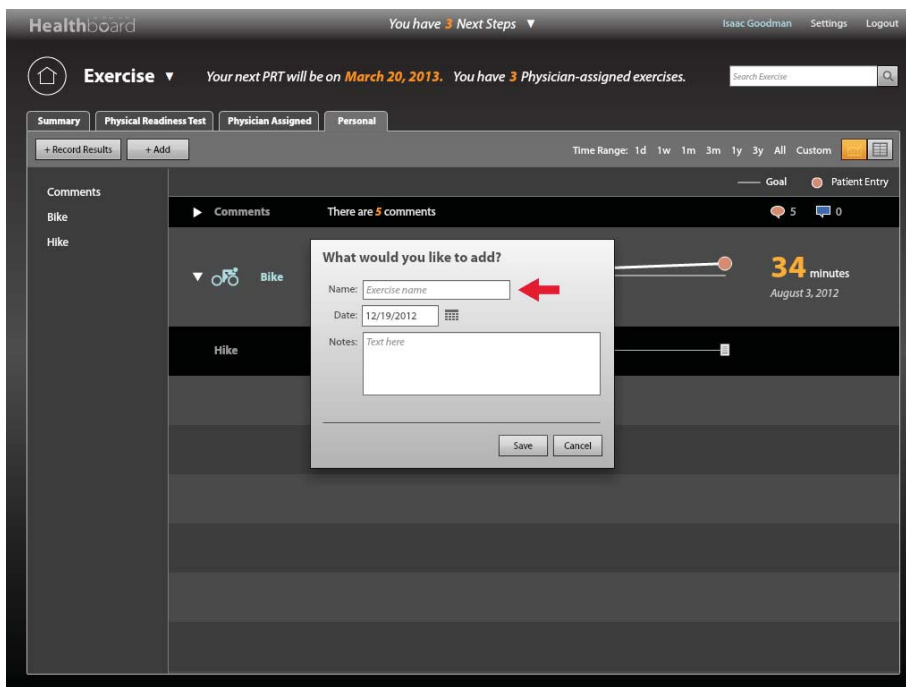


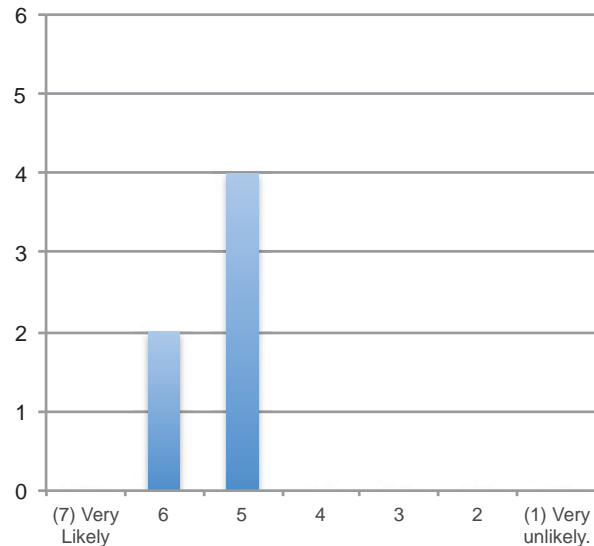
FIGURE 68B: *After*



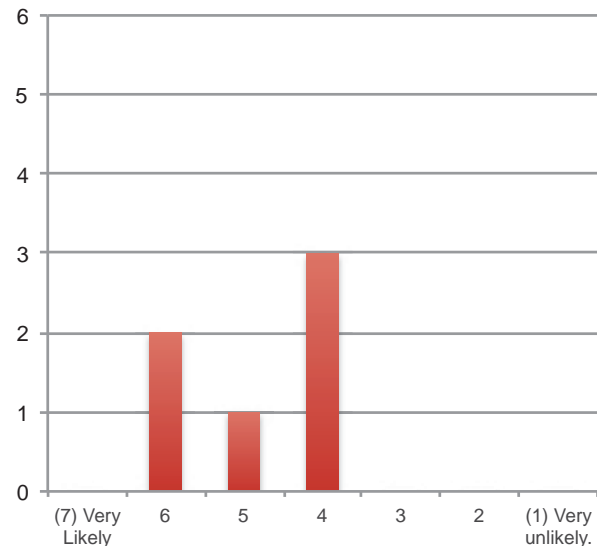
## *Exit Survey Results: Group 1*

## 2. ON THE SCALE BELOW, HOW EASY OR DIFFICULT DID YOU FIND USING THE SOFTWARE?

GROUP 1A



GROUP 1B



## 3. WHAT PART OF THE TESTING DID YOU FIND WAS THE MOST CHALLENGING?

GROUP 1A

“...Most challenging were the navigation aspects that were unlike either Windows or Mac.”

“Getting used to navigating”

“Couldn’t figure out one task at all, and was also confused by the password changing task. Most challenging were the navigation aspects that were unlike either Windows or Mac.”

“Finding where to click to record additional information about medications, and figuring out which of the available appointment slots was actually applicable.”

“Not being able to take my own notes. I think I would have been able to offer better comments, if I could take a quick note on each of the scorecards.”

“learning all of the bits of the software/program”

“Locating how to change notifications...I just didn’t see the ‘cog’ even though I am familiar with that mechanism for changing things.”

GROUP 1B

“Finding the ‘Next Steps’ information.”

“Date navigation.”

“finding old medications, registering for chair yoga, perhaps one more thing I can’t remember”

“Recording that I have done something scheduled in the Next Step.”

“Finding next steps”

“Finding when I took certain medications. Looking at history of Next Steps. Not sure what Next Steps meant.”

“Finding the ‘Next Steps’ information.”

## 4. WHAT PART OF THE TESTING DID YOU FIND THE EASIEST?

### GROUP 1A

“Most of the information was very clear. The home screen was easy and made sense.”

---

“Finding the ‘subject’ needed on the home page”

“Most of the information was very clear. The home screen was easy and made sense.”

“All of the choices that were available via buttons or tabs at the top of the screen.”

“Most of the actions were fairly straight forward, the questions or actions were easy to understand.”

“sending mail, but I use it to send mail really unless I had to”

“Messaging and appointments.”

### GROUP 1B

“Navigating the main heading sections”

---

“The messages module.”

“adjusting settings on the site”

“Finding information on the medical record.”

“Navigating the main heading sections”

“Settings”

“Logging in and changing settings.”

## 5. WHAT FEATURE OR INFORMATION WAS MOST VALUABLE TO YOU?

### GROUP 1A

“Making appointments!”

“The medical history and the coordination of information between appointments and suggested next steps.”

---

“lab/test results at your fingertips”

“Making appointments, communicating with the medical personal easily.”

“Making appointments!”

“The medical history and the coordination of information between appointments and suggested next steps.”

“my past history, particularly immunizations and prescription info.”

“Appointments and medications. Probably tracking would have been if I'd been looking at it. (I took a look in my desperate attempt to locate “notifications.”)”

### GROUP 1B

“The medication history, and the data it was pulling on meds, was surprisingly helpful.”

“...Information that's organized in a way that's relevant and easy to find and remember.”

---

“The medication history, and the data it was pulling on meds, was surprisingly helpful.”

“being able to pull up medical records, and also pulling up drug dosages/when they were prescribed also great to record exercise, and immunizations”

“Icons with a title that tells me what information I'm getting when I click on it. Information that's organized in a way that's relevant and easy to find and remember.”

“Medication, probably, or the history of appointments and procedures”

“List view as opposed to horizontal view of medications taken. List view was more clear and easy to understand.”

“The medical history information”



6. WHAT FEATURE OR INFORMATION WAS LEAST VALUABLE TO YOU?

GROUP 1A

“Everything seemed valuable.”

“mail and calender system. why use it I have and love gmail.”

“?”

“Can’t think of anything. Perhaps I’m not sure why I would have to send my doctor medical records when I could presumably give her permission to access them.”

“n/a”

“Everything seemed valuable.”

“mail and calender system. why use it I have and love gmail.”

“Nothing wasn’t valuable.”

GROUP 1B

“Depends—didn’t use certain sections, but probably the ones that would take the most voluntary time (daily exercise, food, etc.)”

“n/a”

“I think it was all valuable.”

“Depends—didn’t use certain sections, but probably the ones that would take the most voluntary time (daily exercise, food, etc.)”

“Data visualizations”

“The calendar—I keep my own master calendar with all the information I need on it.”

## 7. WAS THERE ANYTHING YOU THOUGHT WAS MISSING FROM THE SOFTWARE?

### GROUP 1A

“...In places, I would really have liked acknowledgment that the task had been completed.”

“...a window or pop-up which provided the most critical information (immunizations overdue, next appointment, refill for medication).”

“Information hidden in the gear icon should be moved to the middle of screen and given a clear label.”

“I missed back buttons, but I could get used to it. In places, I would really have liked acknowledgment that the task had been completed.”

“More explanations about the use of each screen at the top of each screen”

“Maybe a window or pop-up which provided the most critical information (immunizations overdue, next appointment, refill for medication)”

“search”

“I made note as I went along.”

### GROUP 1B

“Enabling the user to choose the color scheme would be nice...”

“The drop down box for module nav.”

“perhaps a comprehensive look at diet—but that might be there or in the works and we just didn’t work on it.”

“Enabling the user to choose the color scheme would be nice. Having the option to choose a sound for notifications would also be nice.”

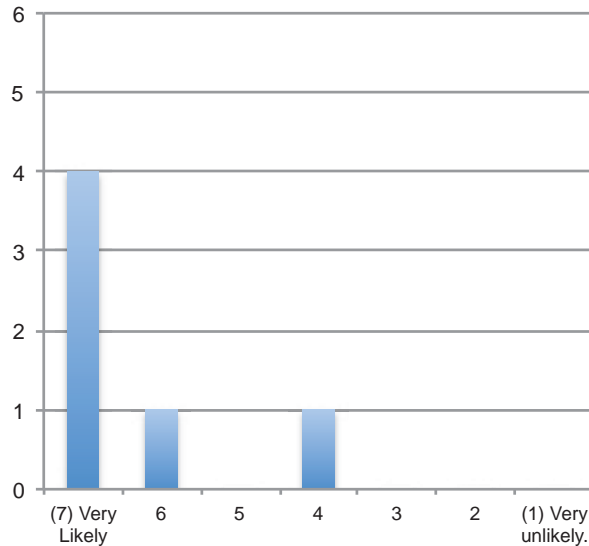
“No”

“Diary of side effects.”

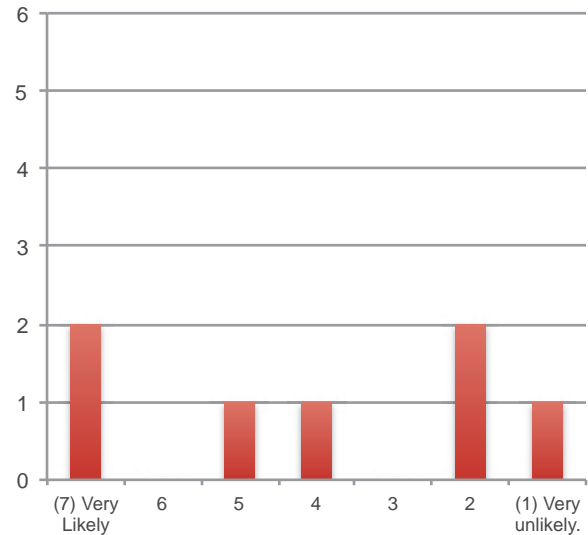
“No.”

## 8. IF THIS SOFTWARE WERE AVAILABLE TO YOU, HOW LIKELY WOULD YOU BE TO USE IT?

GROUP 1A



GROUP 1B



### COMMENTS

“Convenience and one-stop shopping”

“Ease of use; found interface comforting; made me feel as though I was in control. Dark color scheme is comforting—not clinical.”

“It keeps track many of my important records and any new updates.”

“The interface was difficult although the concept of the site could be very useful.”

“It seems to do what I would want it to do.”

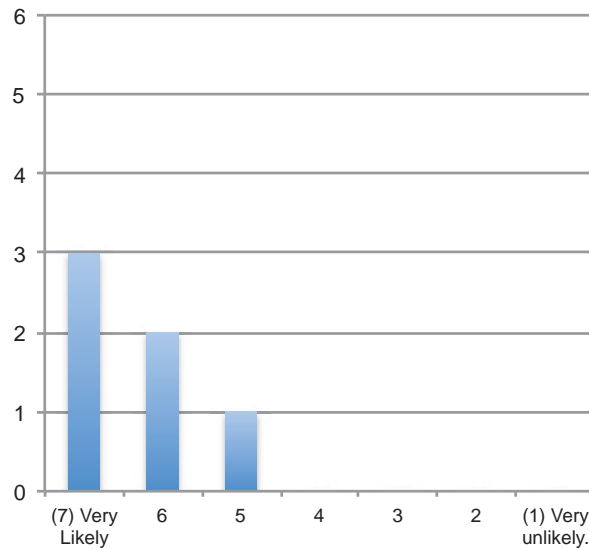
“It keeps track many of my important records and any new updates.”

“The interface was difficult although the concept of the site could be very useful.”

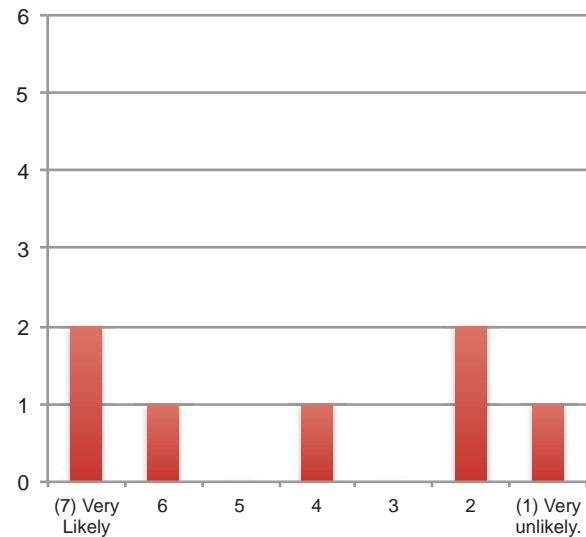
“I don’t have very many doctor’s appointments at the moment, but maybe in the future.”

## 9. HOW LIKELY WOULD YOU BE TO RECOMMEND THE SYSTEM TO A FRIEND OR COLLEAGUE?

GROUP 1A



GROUP 1B



### COMMENTS

“Makes it easy to keep all your medical information/history in one place.”

“Obviously the concern would be for security, but outside of that it would be nice to have everything in one place, especially medical history!”

“I’d recommend it to someone that is sick and has lots of stuff to keep track of”

“I think with continuous use, the interface will make sense.”

“Simple enough for most people to work through. Maybe not my mother, though.”

“it is efficient and it’s a great idea to keep all of this information in an easy to locate place.”

“I think with continuous use, the interface will make sense.”

“It’s useful to have all your medical information in one place.”

## 10. DO YOU HAVE ANY OTHER FINAL THOUGHTS OR COMMENTS YOU'D LIKE TO SHARE ABOUT YOUR EXPERIENCE?

### GROUP 1A

"I think the strength of a system like this is in detecting patterns. it would be great if it told me after a few years: you tend to have allergies in May, so start taking allergy medication in April to ward off the coming effects"

---

"Very interesting, glad to have the opportunity to participate!"

"Although I understand most military personal and their families are under 40, for those who aren't (and aren't corrected well), the type might be a bit small and the place to change it wasn't very obvious. On the whole, it was fun. I loathe calling for an appointment."

"This is a great app and the testers were very welcoming and accommodating."

"It was great. Thanks for letting me participate."

"I think the strength of a system like this is in detecting patterns. it would be great if it told me after a few years: you tend to have allergies in May, so start taking allergy medication in April to ward off the coming effects"

"Great user testing and great interface."

### GROUP 1B

"...More options for customization of the screen would also be nice, such as the color, where different categories of information can be placed on a page on the screen, etc."

---

"No thanks."

"I think the overall appearance of the system can be improved to make it more pleasing to look at. More options for customization of the screen would also be nice, such as the color, where different categories of information can be placed on a page on the screen, etc."

"No, thank you."

"Brighter colors, not as monochromatic."

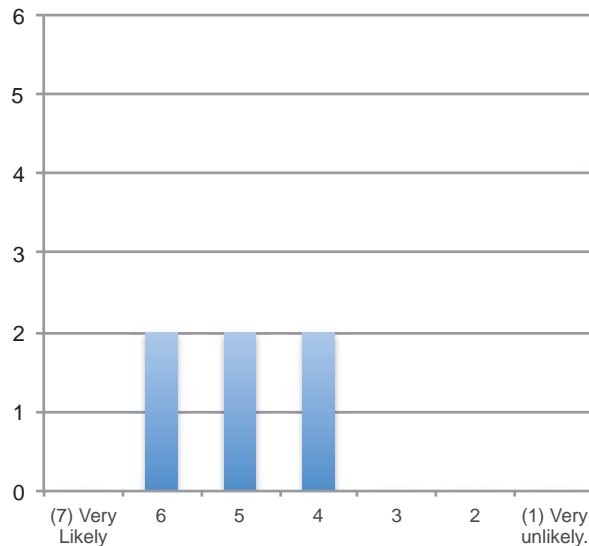
"No."



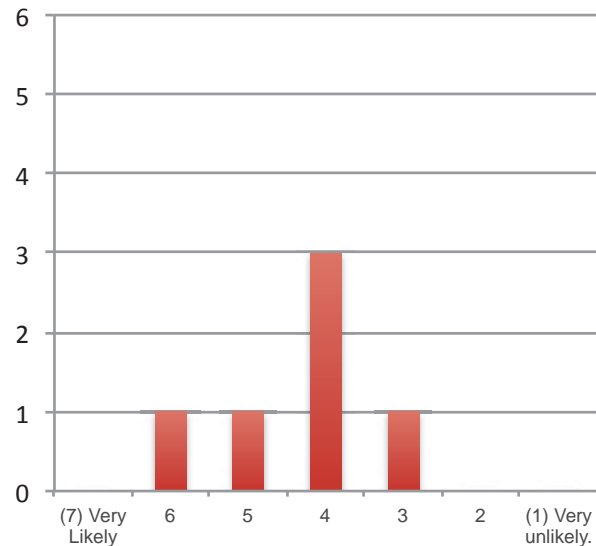
## *Exit Survey Results: Group 2*

## 2. ON THE SCALE BELOW, HOW EASY OR DIFFICULT DID YOU FIND USING THE SOFTWARE?

GROUP 2A



GROUP 2B



## 3. WHAT PART OF THE TESTING DID YOU FIND WAS THE MOST CHALLENGING?

GROUP 2A

“finding some of the requested information”

“Finding certain information input but that is quickly learned after use.”

“finding some of the requested information”

“finding calorie information and what items I’d eaten.”

“Occasionally it was difficult to judge how best to proceed with a task.”

“some questions required finding the links that I found difficult if not impossible to locate. The smoking bit was tough! also those food photos in the lower right”

“Navigating through recording results and setting goals.”

GROUP 2B

“finding information...but once I got used to the software, it was easy to figure out which is where.”

“Adding the weight on health board.”

“finding information. information hierarchy is a bit lost. but once I got used to the software, it was easy to figure out which is where.”

“finding some editing functions.”

“I could not find the homepage icon so had to keep going back to changing homepage set up to get back to that page.”

“adding the smoking task—it was not obvious where that should be done.”

“Nothing was terribly difficult, but I suppose acclimating to the overall organization of the interface.”

## 4. WHAT PART OF THE TESTING DID YOU FIND THE EASIEST?

### GROUP 2A

“the icons were intuitive. Pretty much you would expect to find information based on the image you saw on the screen.”

---

“Info input.”

“filling in information”

“the icons were intuitive. Pretty much you would expect to find information based on the image you saw on the screen.”

“on tape”

“Using the cursor.”

### GROUP 2B

“Reading/finding information once I knew where I was going”

---

“Adding weight training as a personal exercise.”

“data entry and fave buttons.”

“input information, except for cigarette smoking”

“general navigation. The exercise section was very easy. I ended up liking the nutritional section as well.”

“Reading/finding information once I knew where I was going”

## 5. WHAT FEATURE OR INFORMATION WAS MOST VALUABLE TO YOU?

### GROUP 2A

“The depot of health info on one program.”

---

“The depot of health info on one program.”

“tracking components”

“Monitoring how I was keeping within my calorie goals. Being able to graph the weight changes.”

“The food journal, the connection to dr. appts, the sense of agency in monitoring my own health and nutrition”

“Physical Exercise information.”

### GROUP 2B

“the ability to track everything and having interaction with physicians on an on-going basis”

---

“the widgets.”

“nutrition with the graphs and stuff. specially like the pop-ups.”

“Vital history, diet and weight history, and exercise performance”

“the ability to track everything and having interaction with physicians on an on-going basis”

“tracking diet / exercise could be useful. I liked the goal idea, to see how I was doing in general.”

“Probably the graphical tracking of various metrics (vital signs, exercise, etc.)”



## 6. WHAT FEATURE OR INFORMATION WAS LEAST VALUABLE TO YOU?

### GROUP 2A

“all very valuable”

---

“Not sure.”

“nothing in particular”

“Hard to tell since it was all new.”

“all very valuable”

“Nutritional Information.”

### GROUP 2B

“some of the vital signs section. Since I am not familiar with thinking about myself in that...”

---

“no”

“none”

“some of the vital signs section. Since I am not familiar with thinking about myself in that (BMI vs weight) it did not make complete sense. Perhaps after tracking it for a few months, it will make more sense.”

“Nothing stands out among the stuff I used.”

## 7. WAS THERE ANYTHING YOU THOUGHT WAS MISSING FROM THE SOFTWARE?

### GROUP 2A

“For a first time user, a ‘how-to’ on how to navigate the system...”

---

“Not sure.”

“personalizations/allergy information”

“For a first time user, a ‘how-to’ on how to navigate the system. But I know this was a test.”

“my photo! and my dr’s photos would be nice. Also a bigger logon for the program”

“Perhaps a ‘Help’ section, or FAQ section.”

### GROUP 2B

“Quick links from the home page to record meals or other activity... There should be a quick link to record these things...”

---

“no.”

“physician’s recommendations isn’t highlighted so much. I think this should be more prominent, maybe in the form of a notification or like a unread message/mailbox.”

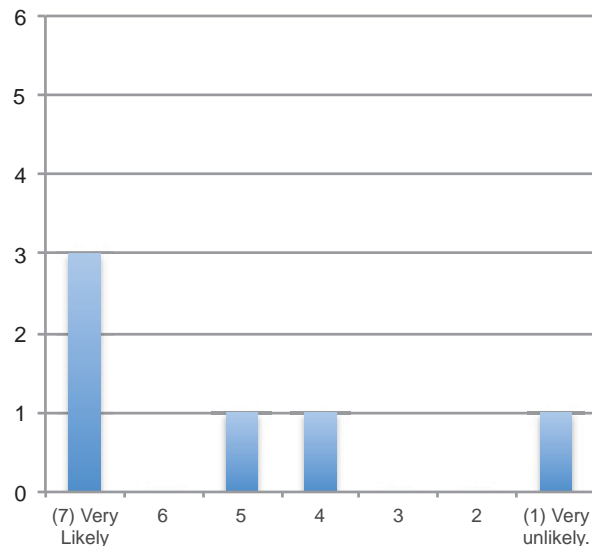
“no”

“Quick links from the home page to record meals or other activity. I will probably log in to record eating or exercise several times a day. There should be a quick link to record these things, instead of navigating a few pages.”

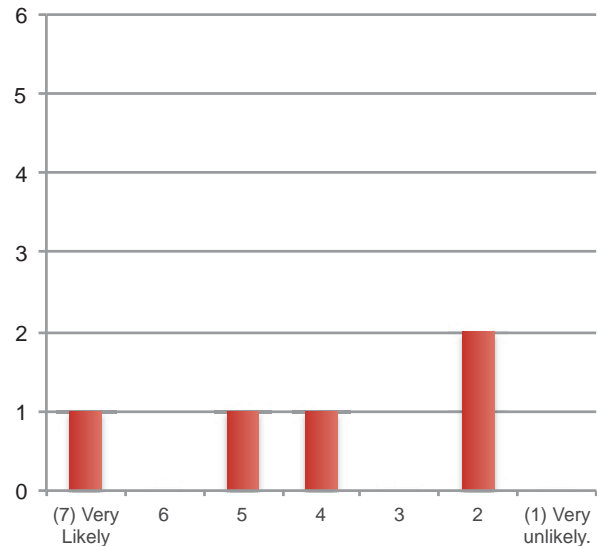
“Hard to say (didn’t get to explore all available functionality). But in the nutrition/food diary section it might have been useful to be able to get more detailed nutritional information on the foods entered than just calorie count (this could be in the software but I didn’t use it).”

## 8. IF THIS SOFTWARE WERE AVAILABLE TO YOU, HOW LIKELY WOULD YOU BE TO USE IT?

GROUP 2A



GROUP 2B



### COMMENTS

“All in one software on health and food!”

“I have difficulty maintaining this detail of information”

“Looks to be interesting and if my doctor could interact with it I would use it more often.”

“I have difficulty maintaining this detail of information”

“It stores my health info in one location. Ease of communicating with health provider.”

“All in one software on health and food!”

“It would require much more attention to detail than I would be able to provide.”

“It’s a great way of monitoring your health.”

“it is not something that I like thinking about. It is a bit of a ‘nanny’ software...”

“It’s a great way of monitoring your health.”

“it is not something that I like thinking about. It is a bit of a ‘nanny’ software. Though I should try to pay attention to it.”

“There are other systems available, in more convenient forms to me (e.g. iPhone apps), that provide the functionality I’d probably find most useful (e.g. exercise/diet tracking), and I don’t use them.”

“I’m in love with Nike+ software, unless this can top that,

## 10. DO YOU HAVE ANY OTHER FINAL THOUGHTS OR COMMENTS YOU'D LIKE TO SHARE ABOUT YOUR EXPERIENCE?

### GROUP 2A

“Excellent prototype.”

“overall feels pretty good, but some features felt as though they should be more personalized...”

“Need to change color scheme for more contrast.”

“overall feels pretty good, but some features felt as though they should be more personalized, but instead led to websites of generic information”

“When is this coming out! This was interesting.”

“Excellent prototype.”

“Sorry I am very exhausted! But very pleased to participate.”

“It is an intriguing program, in concept.”

### GROUP 2B

“I think this would be great for everyone—great way to stay on top of all health aspects. Only concern is privacy.”

“At first I was nervous but once I knew where things were, it became more easier to understand.”

“check nike+ or nike training. maybe an app will be useful too, for easy access.”

“I think this would be great for everyone—great way to stay on top of all health aspects. Only concern is privacy.”

## IV. REFERENCES

## REFERENCES

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- Schumacher, Robert M. and Lowry, Svetlana Z. *NIST Guide to the Processes Approach for Improving the Usability of Electronic Health Records (NISTIR 7741)*. National Institute of Standards and Technology (NIST), U.S. Department of Commerce. November 2010.

## V. APPENDIX