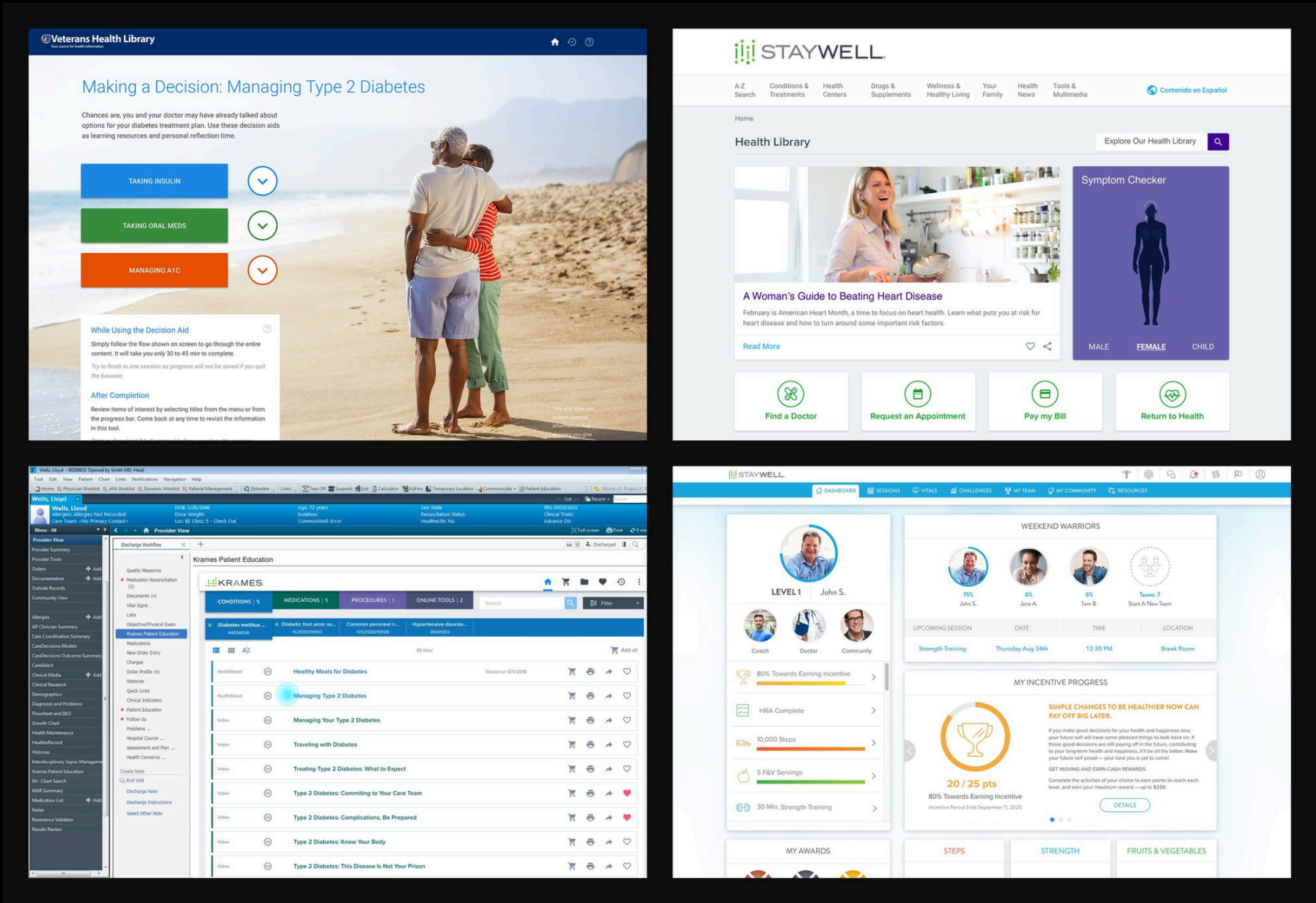


One UX practice for every StayWell product.

I led design, research and UX for StayWell and Krames products from 2017 to 2022. A diabetes decision aid for the Veterans Health Library, redesigned and tested in 2017, scored 92.5 on the System Usability Scale.

ROLE	Director of UI/UX
TIMELINE	2017 to 2022
PLATFORMS	Responsive web, an app inside Epic and Cerner, iOS and Android, print
METHODS	Heuristic review, UserTesting.com, System Usability Scale, Section 508 and WCAG 2.0 audits, personas, client reviews



A patient education company that wanted one UX practice.

StayWell publishes Krames patient education: the handouts, videos and programs that clinicians give to patients, and that hospitals, health plans and employers offer under their own names. By 2017 that content reached people through a growing set of software: a care program platform, a hospital health library, an app inside the electronic health record and an employee wellness portal.

In August 2017 the company's technology leadership named "a centralized user experience practice" as part of its plan. As Director of UI/UX I was responsible for design, research and UX across StayWell and Krames products. The job was to give those products one way of working: review what exists, draw options, test them with people, check accessibility, then build. This page follows that practice through four products, starting with the one where the whole loop is on record.

Federal rules, hospital brands and someone else's platform.

ACCESSIBILITY

Section 508 was a requirement

The Veterans Health Library is a federal client, so its tools had to meet Section 508. We tested to WCAG 2.0 AA as well, and ran the same checks on the hospital health library.

WHITE LABEL

Every hospital's own brand

The health library and the wellness portal were sold to hospitals and employers who wanted their own colors, content and priorities. A design had to survive being reskinned.

PLATFORM

A vendor's platform underneath

The care programs ran on Doctella's platform. Some fixes were ours to make and some were requests to the vendor, so every review had to separate the two.

CLINICAL WORKFLOW

Inside the health record

Krames on FHIR opens inside Epic and Cerner. It had to fit how a clinician already works and pass each vendor's review of security, technology, operations and user experience.

03

The same loop for every product.

The practice came down to a loop. A written review of what existed, against heuristics and against what earlier testing had shown. Options, drawn far enough to compare. A test with people, scored the same way each time. An accessibility audit before and after.

Design ran ahead of development. Mockups went onto the Jira ticket before grooming, so the team estimated from a design instead of a description. UX issues lived in the same backlog as development work, tagged, ranked by business value and reviewed daily.

The same loop for every product.

The loop	In the sprint	What we measured
Review against heuristics and earlier tests	Design ahead of development	Task completion
Two to four options	Mockups on the ticket before grooming	Time on task
A test with five to ten people	UX tickets in the development backlog	Errors per task
A System Usability Scale score	Backlog ranked by business value	Perceived ease
A 508 and WCAG 2.0 audit		Satisfaction

04

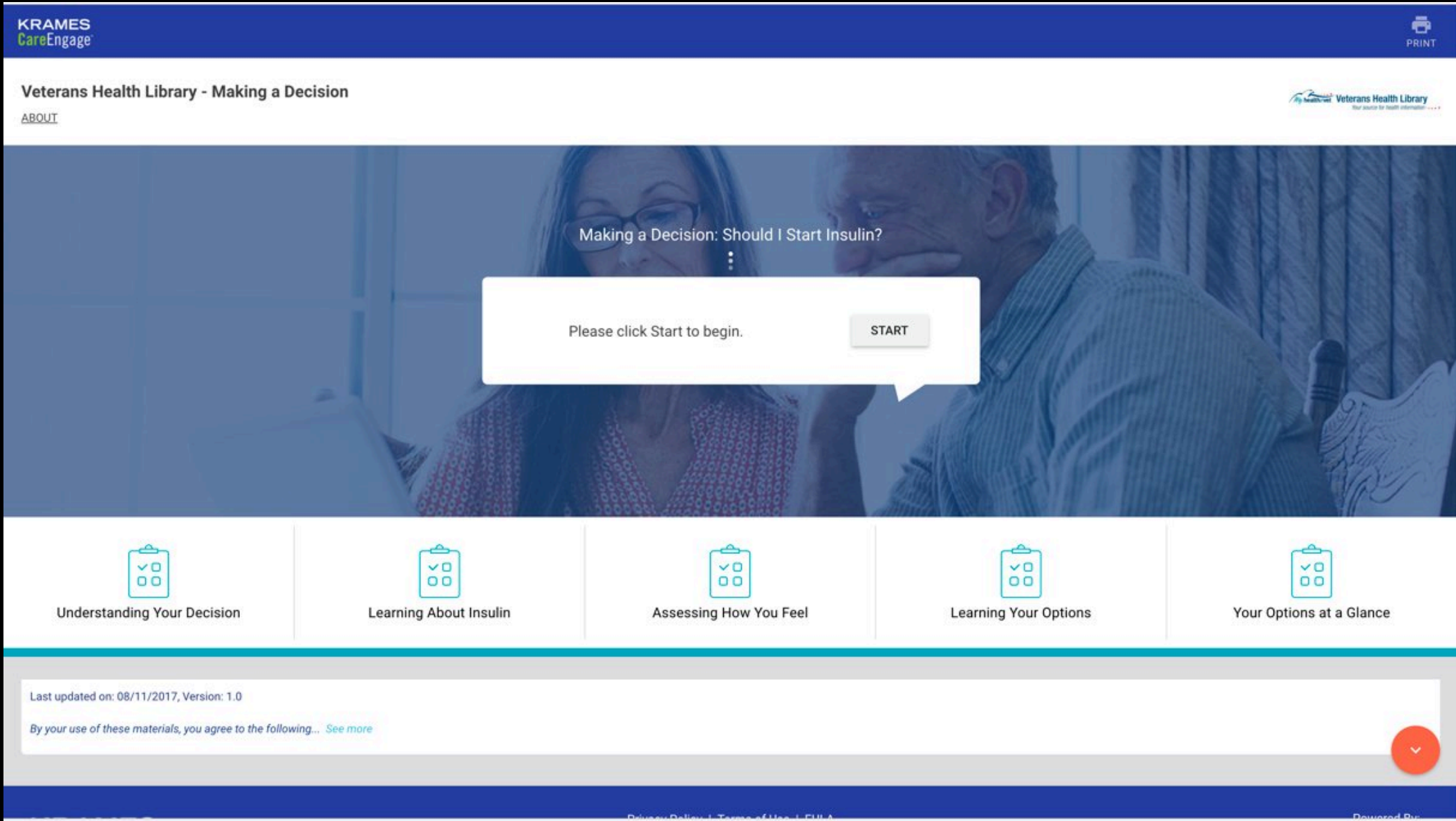
A decision aid that kept sending people away.

The Veterans Health Library offered a decision aid for people with type 2 diabetes who were weighing whether to start insulin. It ran on the Krames CareEngage platform: a start box, a row of identical icons and content that opened in a lightbox.

We already knew how people used that platform. In August 2017 we tested a sister program with five people who have diabetes, in one-hour sessions. They missed whatever sat below the fold. They skipped videos when a transcript sat underneath. They wanted the video first and the text as reinforcement.

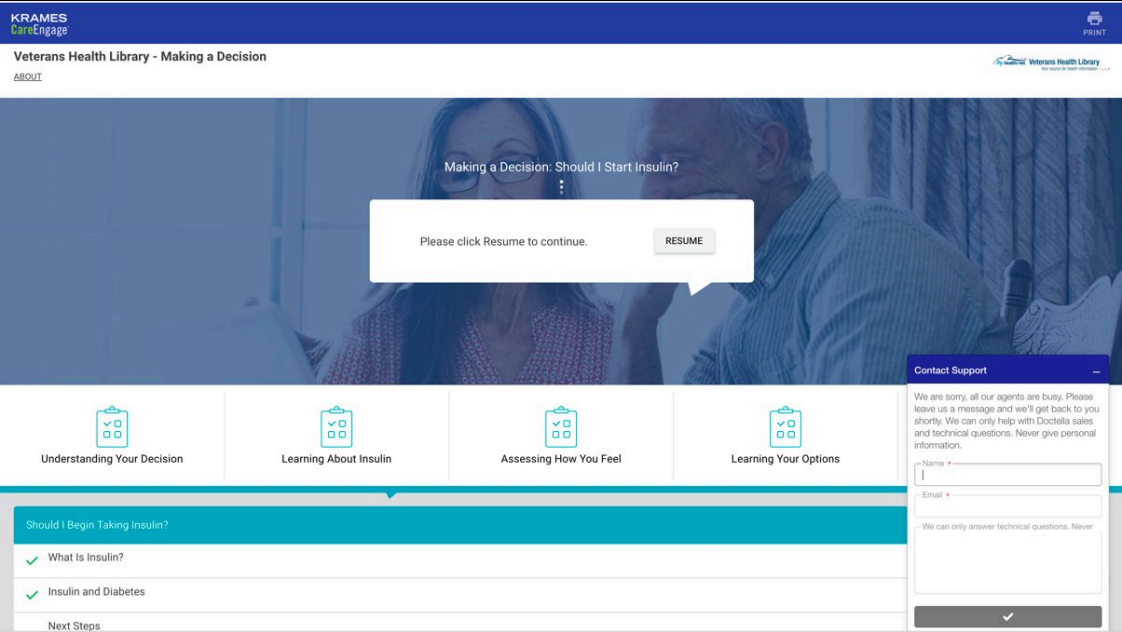
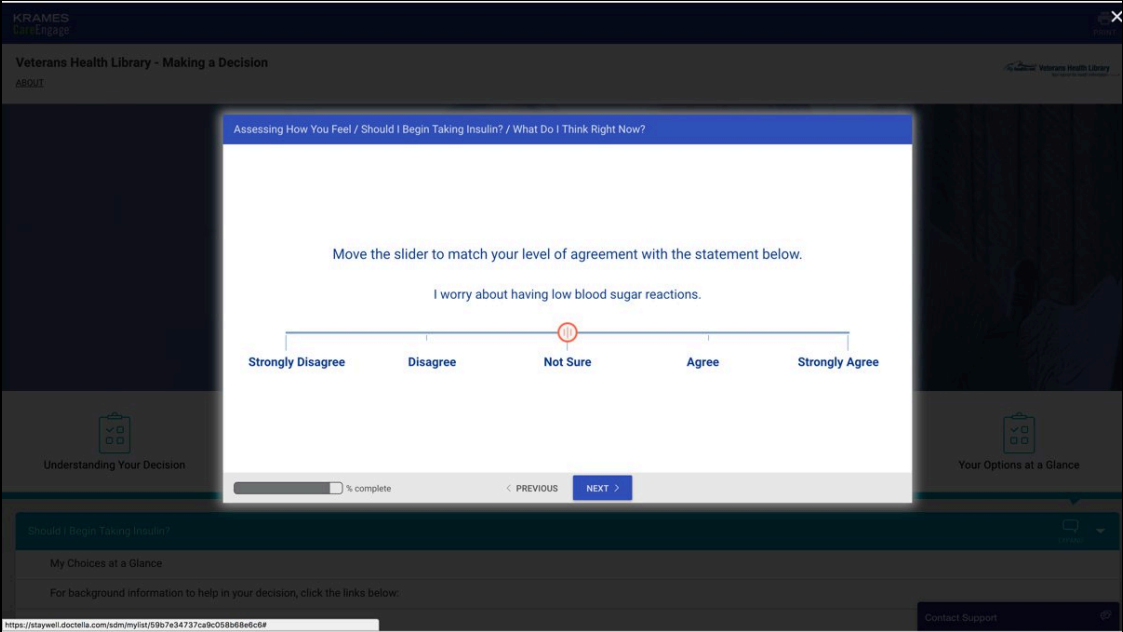
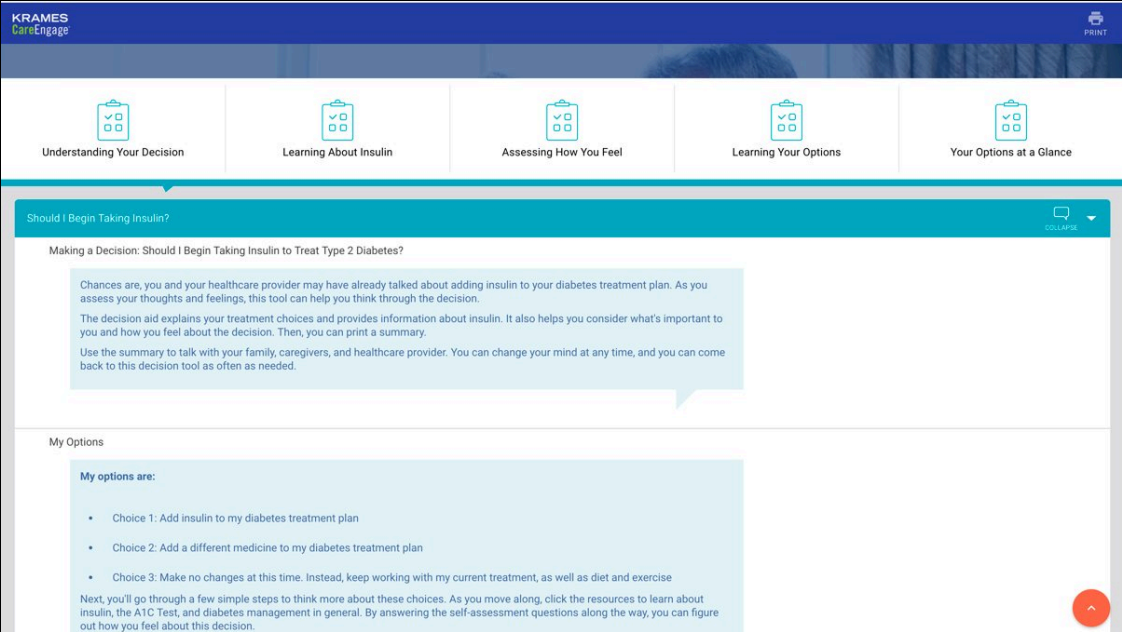
A decision aid that kept sending people away.

In September a designer on my team reviewed the decision aid itself, 14 pages across content, design and function. Sections jumped between general and specific. Links to learn more opened the library in new windows, and people lost their place. The support tab implied live agents. The colored tabs failed a color blindness test, and automated Section 508 testing returned 23 errors.



FOUND IN REVIEW

- 01 External links opened new windows
- 02 Section order jumped between general and specific
- 03 One icon for every section
- 04 Video did not fit its box
- 05 Progress bar passed 50% in the first few screens
- 06 Color tabs failed a color blindness test
- 07 23 errors in automated 508 testing



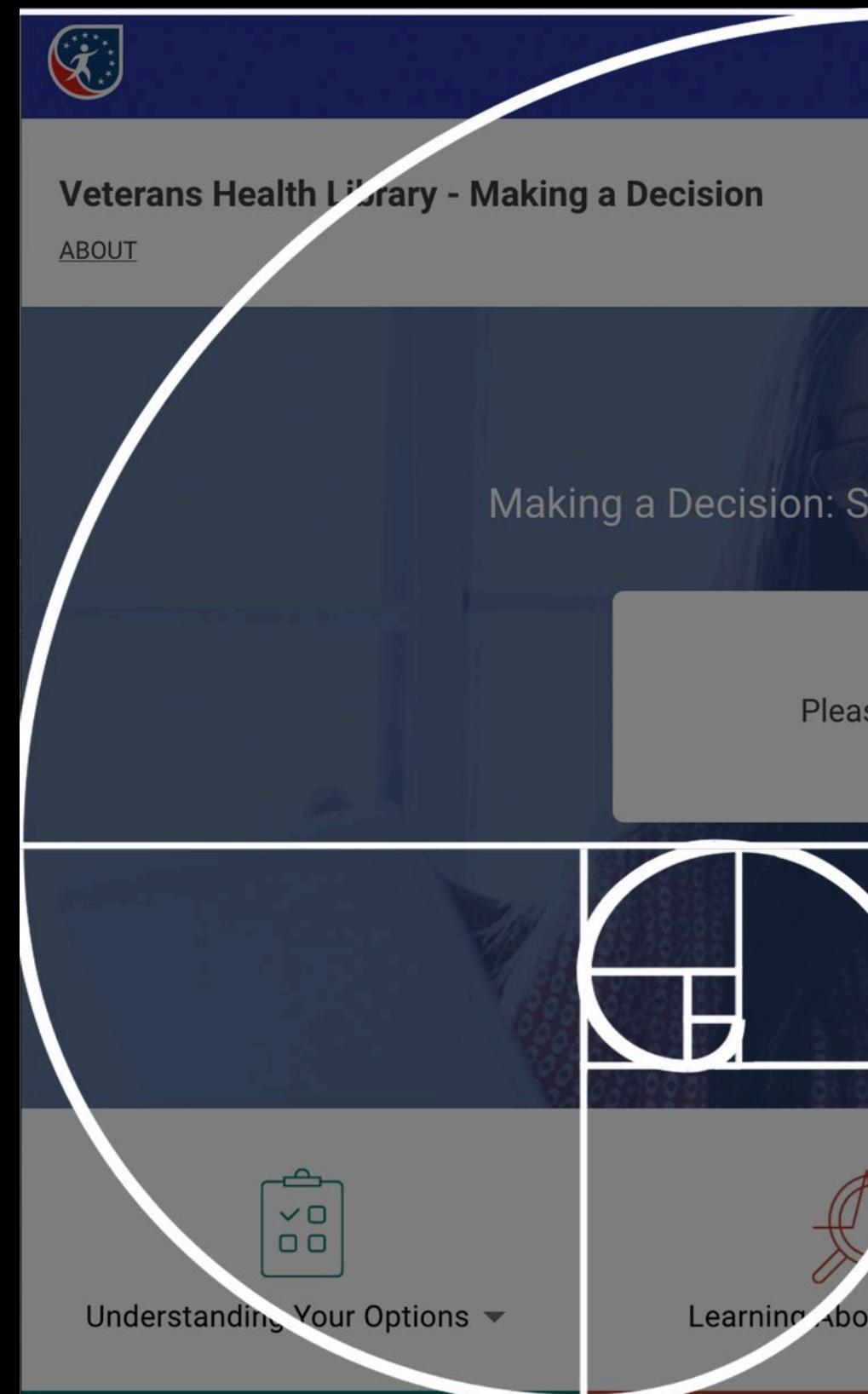
A decision aid that kept sending people away.

I also checked the layout against published eye-tracking research and a golden-ratio overlay. The new landing page would have to pass the same checks.

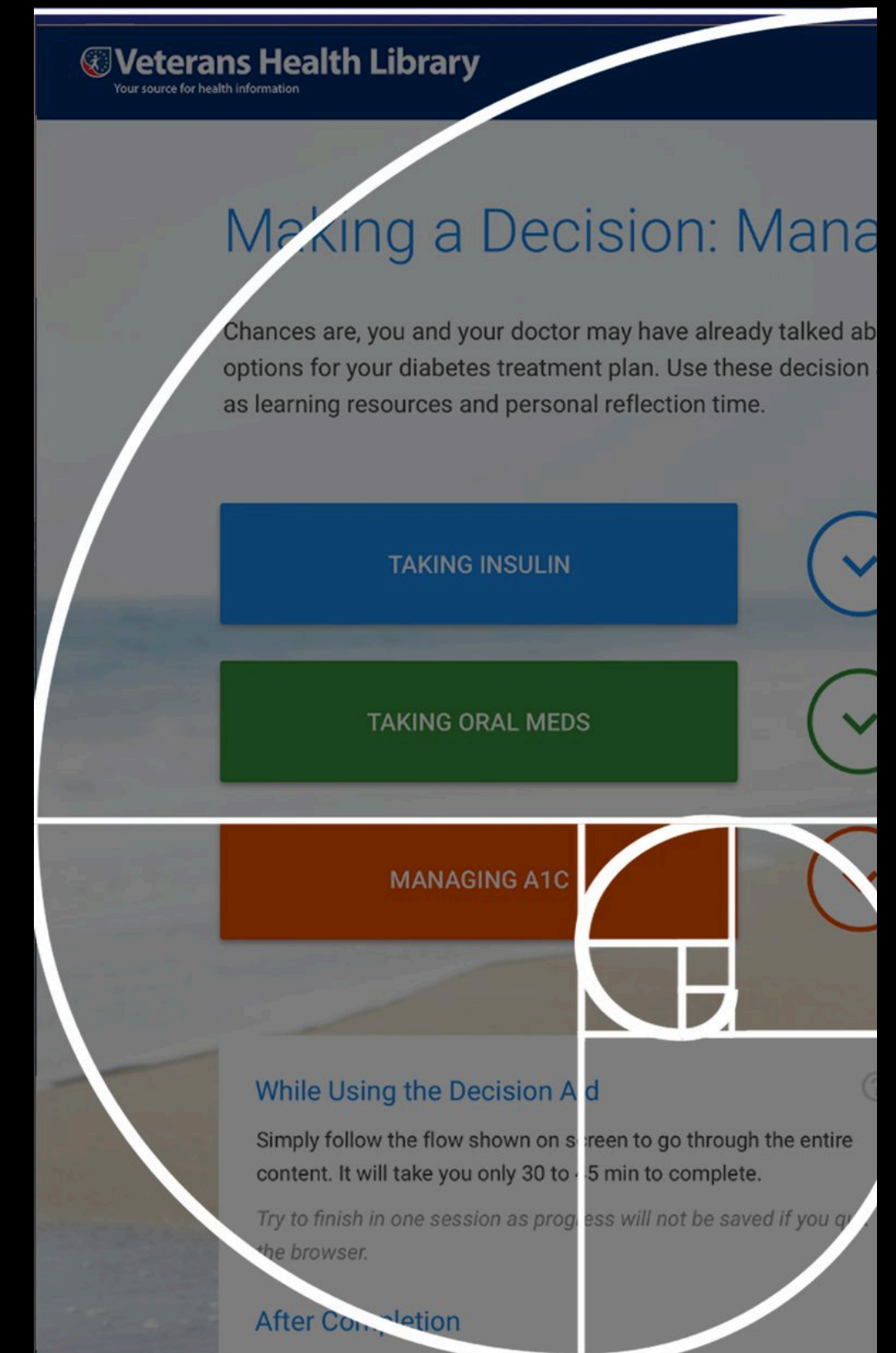
The same overlay on the old landing page and on the redesign

Before and after

BEFORE



AFTER

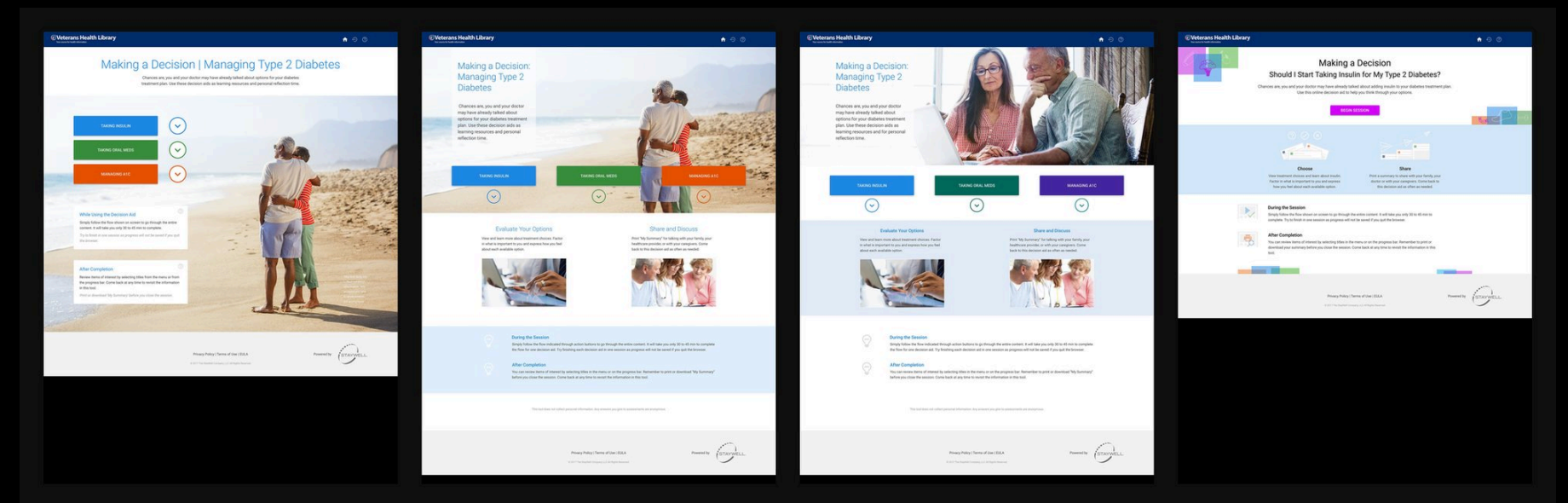


05

Four landing pages and two palettes.

The redesign started from a checklist out of the review: a larger area for content, a progress bar in a prominent place, no trips out to another site, more depth for people who want it and colors that pass a color blindness test.

I drew the landing page four ways along two lines. Immersive or sectioned: one photograph and three choices, or a page that explains itself as you scroll. Aspirational or clinical: a couple on a beach, or a couple at a laptop with their paperwork. The fourth option dropped photography for illustration and a single button.



Four landing pages and two palettes.

Both palettes were checked before anyone saw them. Every color carries white text at 3.68 to 1 or better, which meets Section 508 and WCAG 2.0 AA for large text. The navy reaches 10.44 to 1.

OPTION 1



#003F7E
10.44:1 on white

#1E88E5
3.68:1 on white

#388E3C
4.12:1 on white

#E75200
3.75:1 on white

OPTION 2



#003F7E
10.44:1 on white

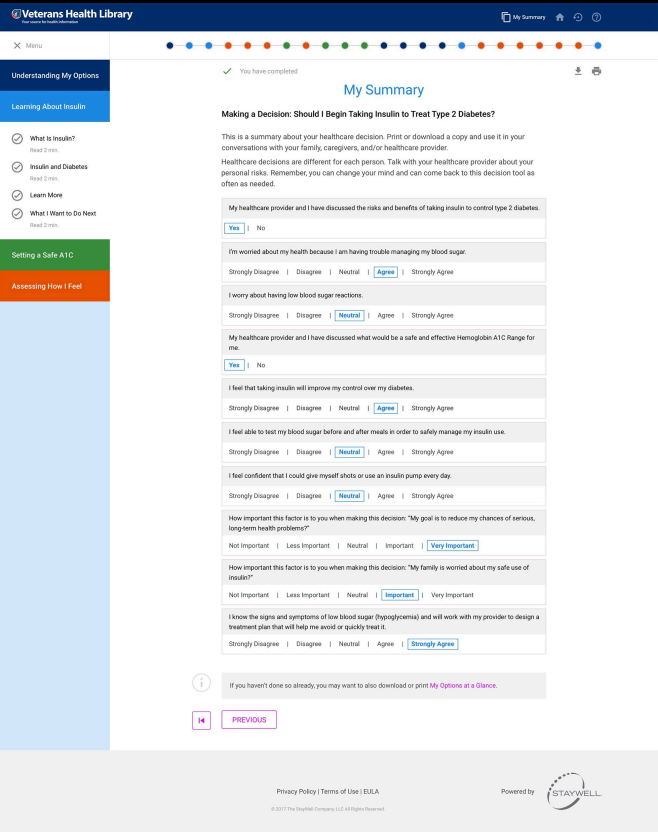
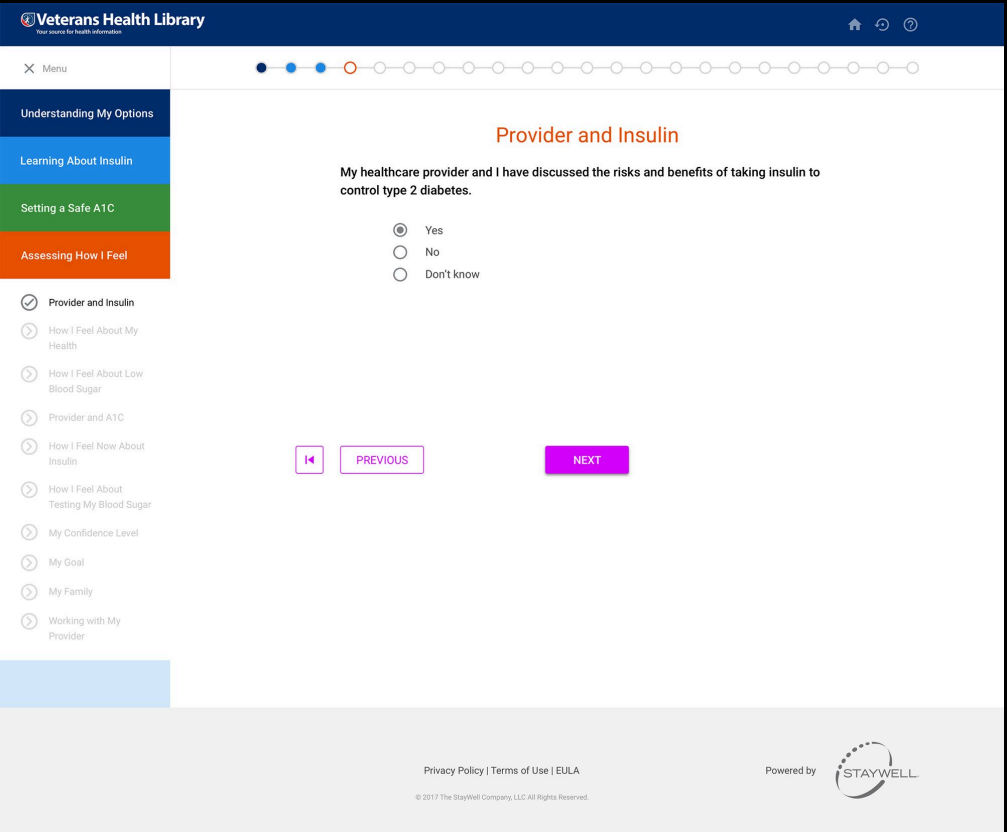
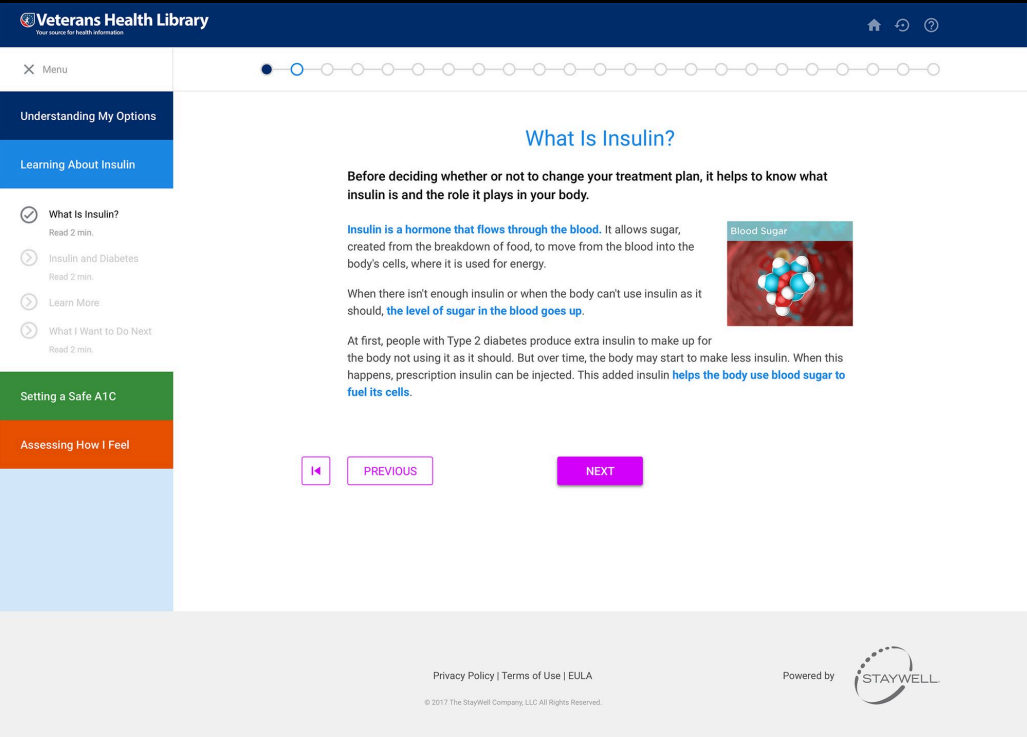
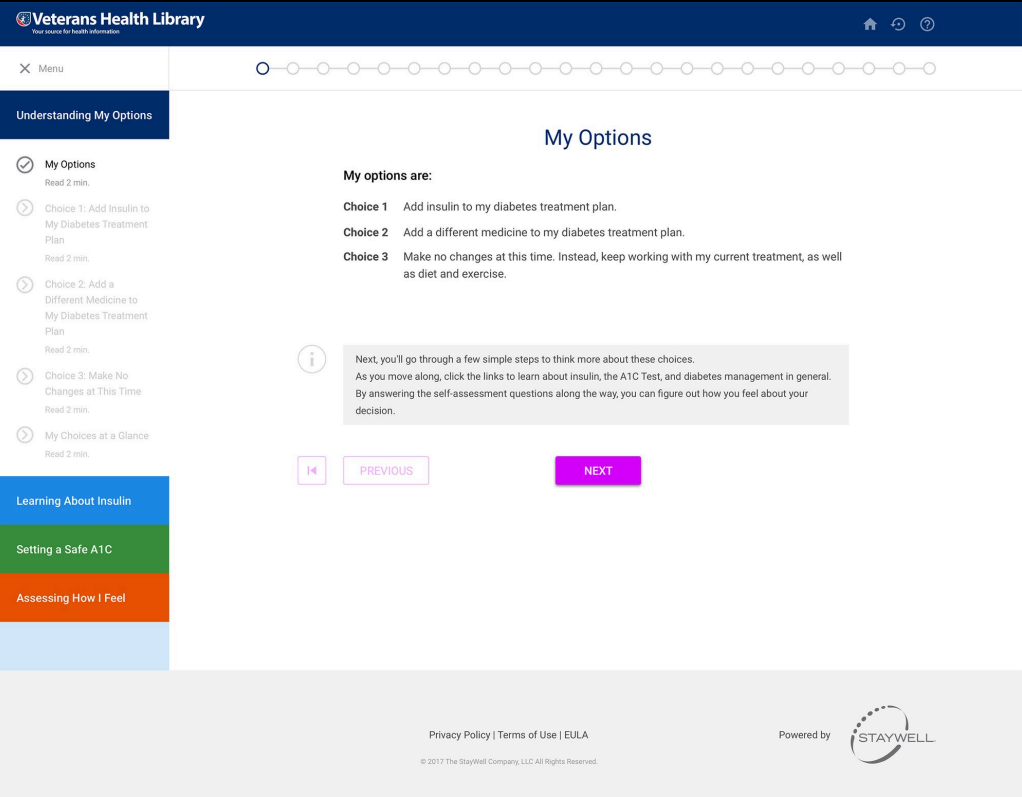
#1E88E5
3.68:1 on white

#388E3C
4.12:1 on white

#4527A1
10.20:1 on white

Four landing pages and two palettes.

The flow behind the landing page changed too: a section menu that stays on the left, progress across the top, one question to a screen and a summary to print and take to the doctor.



06

Ten people, four options, no clear winner.

In December 2017 we ran the redesign through UserTesting.com with ten people: eight women and two men, ages 30 to 56. Each followed a 26-step script. They gave a first impression of each landing page, picked a first and second favorite, then worked through the decision aid on a working build and rated each task.

Ten people, four options, no clear winner.

92.5

System Usability Scale score

10

Participants. 8 women, 2 men.

26

Steps in the test script

0

Findings rated serious

Ten people, four options, no clear winner.

What worked

Everyone found it easy to use

The video, and a summary to print for the doctor

A friendly tone

A prominent Begin Session button

What did not

The grey bar for agree and disagree answers

The questionnaire ran longer than expected

Option 3 was nobody's first choice

What we took from it

Replace the grey bar

Add a photograph if option 4 goes ahead

A/B test options 1, 2 and 4

Make the landing buttons say what they start

“It was simple, not confusing, eye catching colors, and a nice photo that didn't feel negative or depressing.”

TEST PARTICIPANT, DECEMBER 2017

Ten people, four options, no clear winner.

The vote did not settle the landing page. Option 4 took the most first choices, four of ten. Option 1 took the most votes overall, seven across first and second choice, with option 2 on six. With ten people that is a tie, and the report says so: it recommends an A/B test of the three instead of a decision.

7

Votes for option 1, first and second choices

6

Votes for option 2

2

Votes for option 3

5

Votes for option 4, with the most first choices

Ten people, four options, no clear winner.

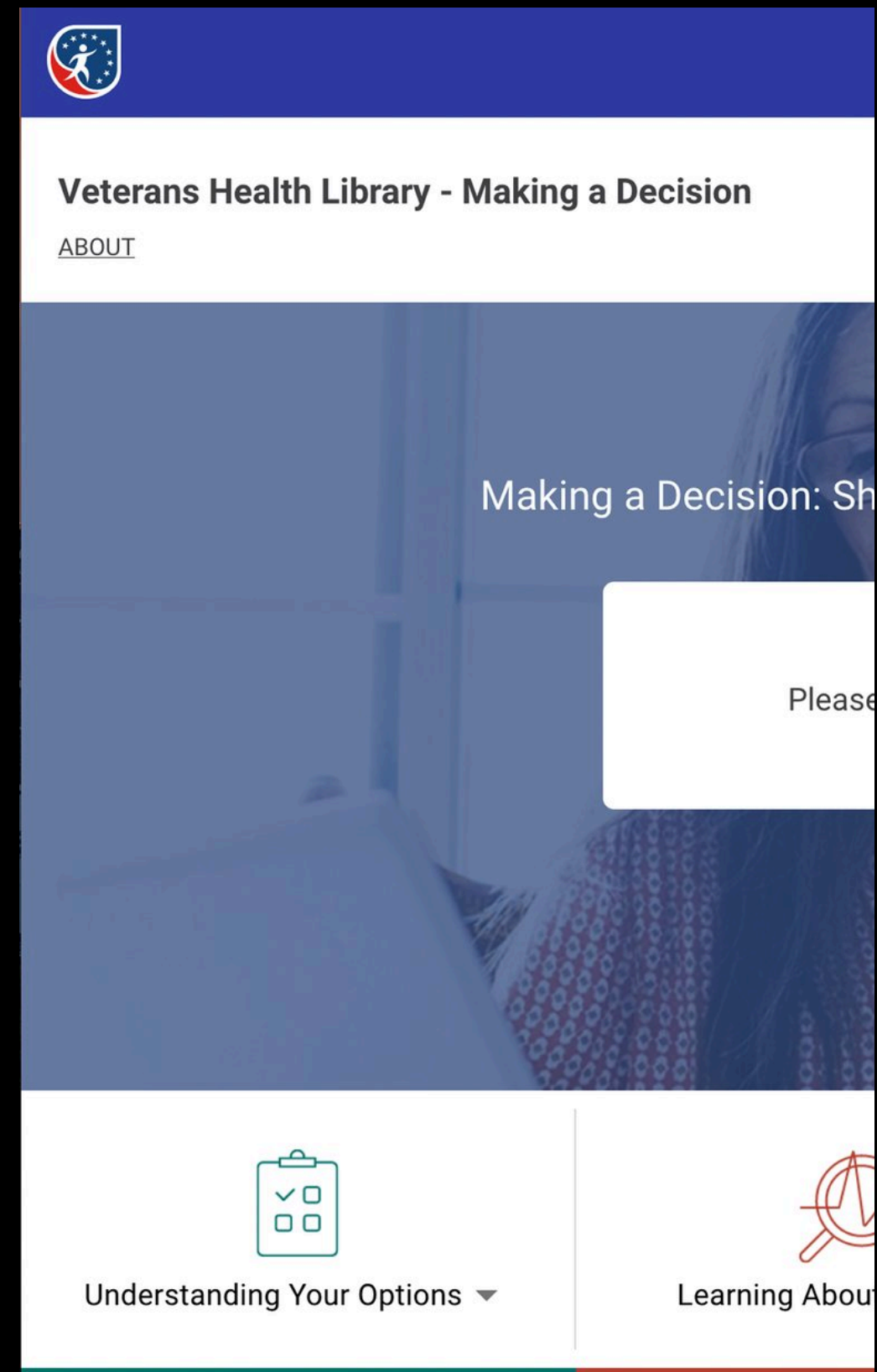
One caveat sits in the report as a footnote. These testers did not have diabetes, and they found the questionnaire long. The people with type 2 diabetes we tested in August had asked for more content, not less. The report treats the complaint as an effect of who was testing, not a reason to cut.

07

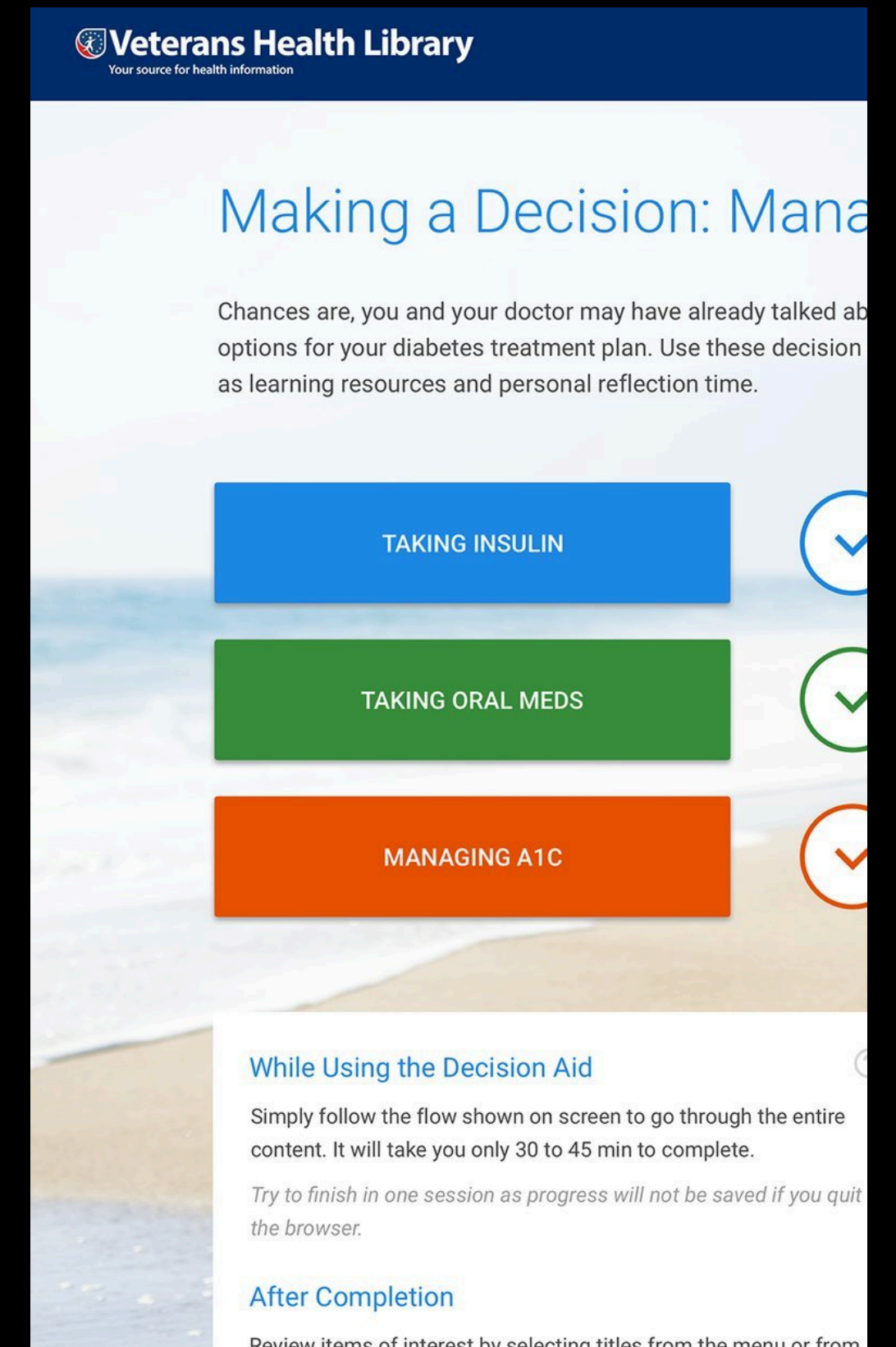
A start box became three choices

The old page asked people to click Start before telling them anything. The new one names the decision, gives one sentence of context and offers three paths. How long it takes and what happens to your answers are stated before you begin.

BEFORE



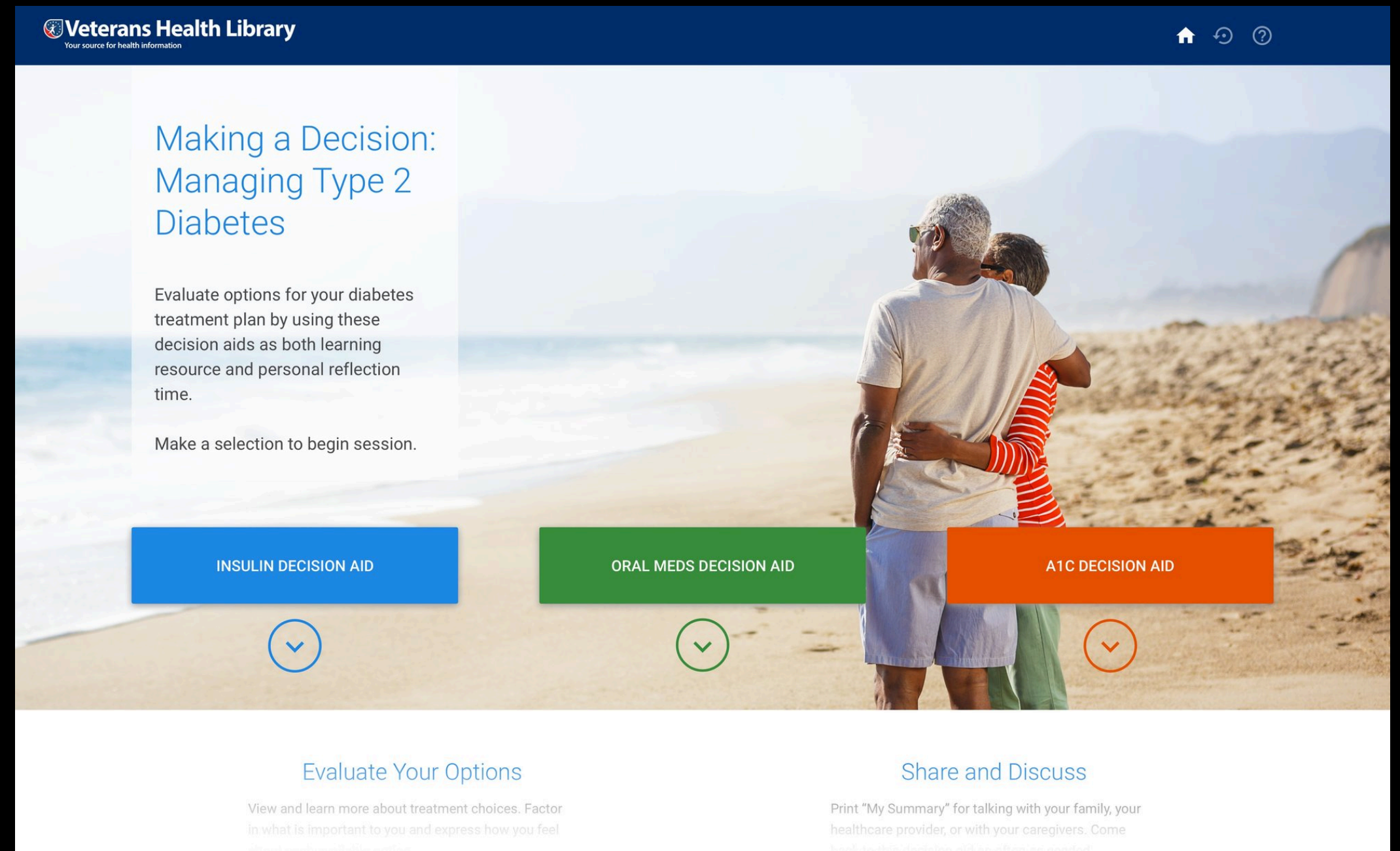
AFTER



Decision 02

Buttons that say what they start

The finding on options 1 and 2 was clarity of action. I relabeled the three buttons as decision aids and added a line telling people to make a selection to begin.



Decision 03

Two replacements for the grey bar

Participants asked us to change how they picked an answer on the agree to disagree scale. I drew two replacements: a button group where the chosen answer fills with color, and classic radio buttons.

Strongly Disagree

Disagree

Neutral

Agree

Strongly Agree

Strongly Disagree

Disagree

Neutral

Agree

Strongly Agree

Strongly Disagree

Disagree

Neutral

Agree

Strongly Agree

☐

Strongly Disagree

☐

Disagree

☐

Neutral

☐

Agree

☐

Strongly Agree

☐

Strongly Disagree

☐

Disagree

☒

Neutral

☐

Agree

☐

Strongly Agree

Decision 04

Accessibility, checked again

The old tool returned 23 errors in automated Section 508 testing. The same kind of check on the redesign reported no known problems and listed 14 advisory items to review by hand, such as link grouping and a skip-to-content link.

What changed after the test.

By January 2018 the design file held 86 desktop screens, including the error and recovery state for every question, plus tablet and phone layouts and a style kit.

08

The same loop on the hospital health library.

The Consumer Health Library is the Krames content a hospital puts on its own website: conditions, treatments, drugs, wellness, news and tools, in English and Spanish. It went through the same loop in the same winter.

The automated audit came first. In December 2017 it ran 74 tests against the demo site and reported 10.8% failing, with 36 issues: empty buttons, frames without titles, a menu that changed pages when used from the keyboard and text contrast as low as 2.4 to 1.

The same loop on the hospital health library.

In January 2018 five people, ages 39 to 70, used the site as if their hospital had just launched it. They searched for diabetes, tried to book an appointment and looked for a health risk assessment.

84

System Usability Scale score

5

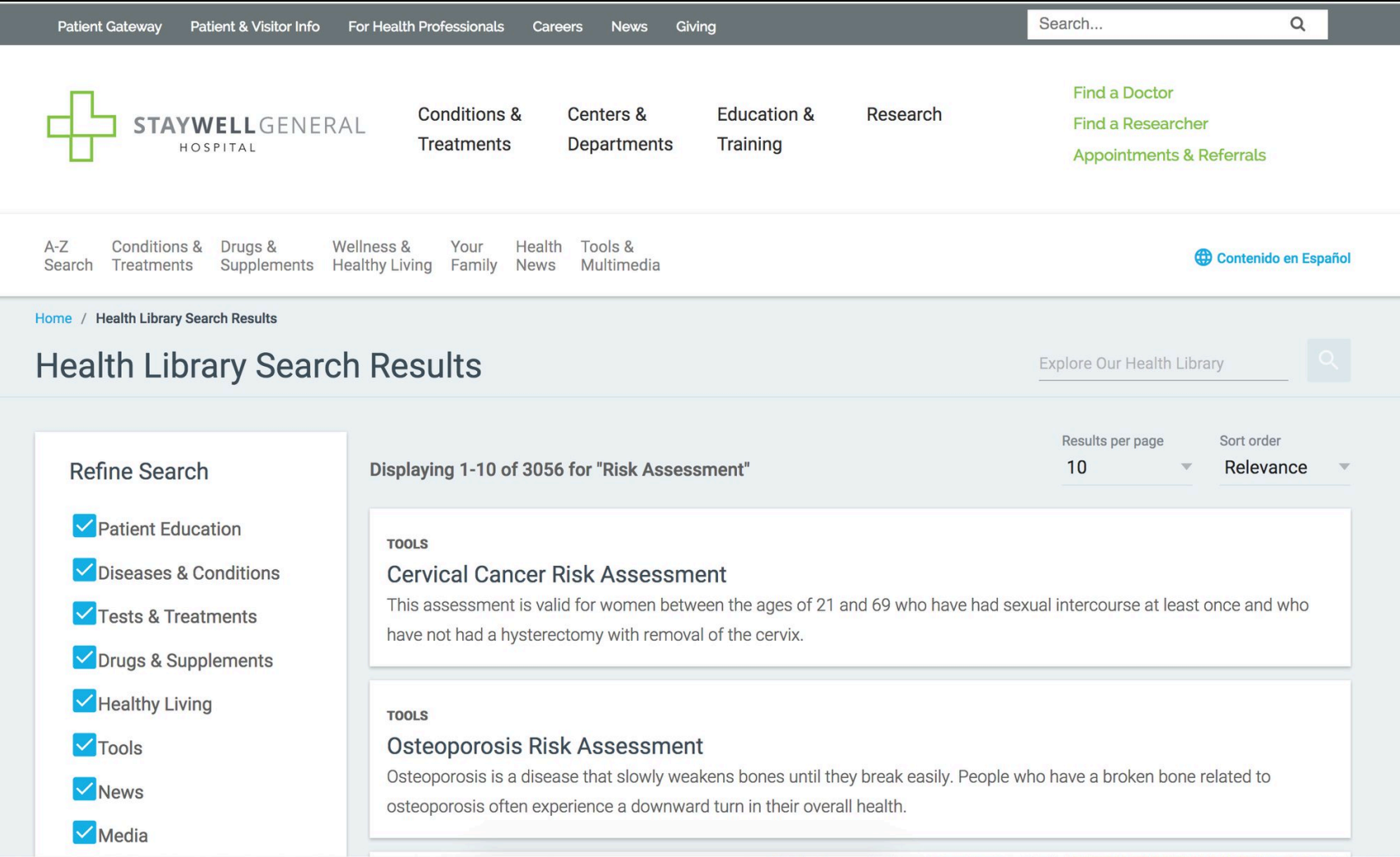
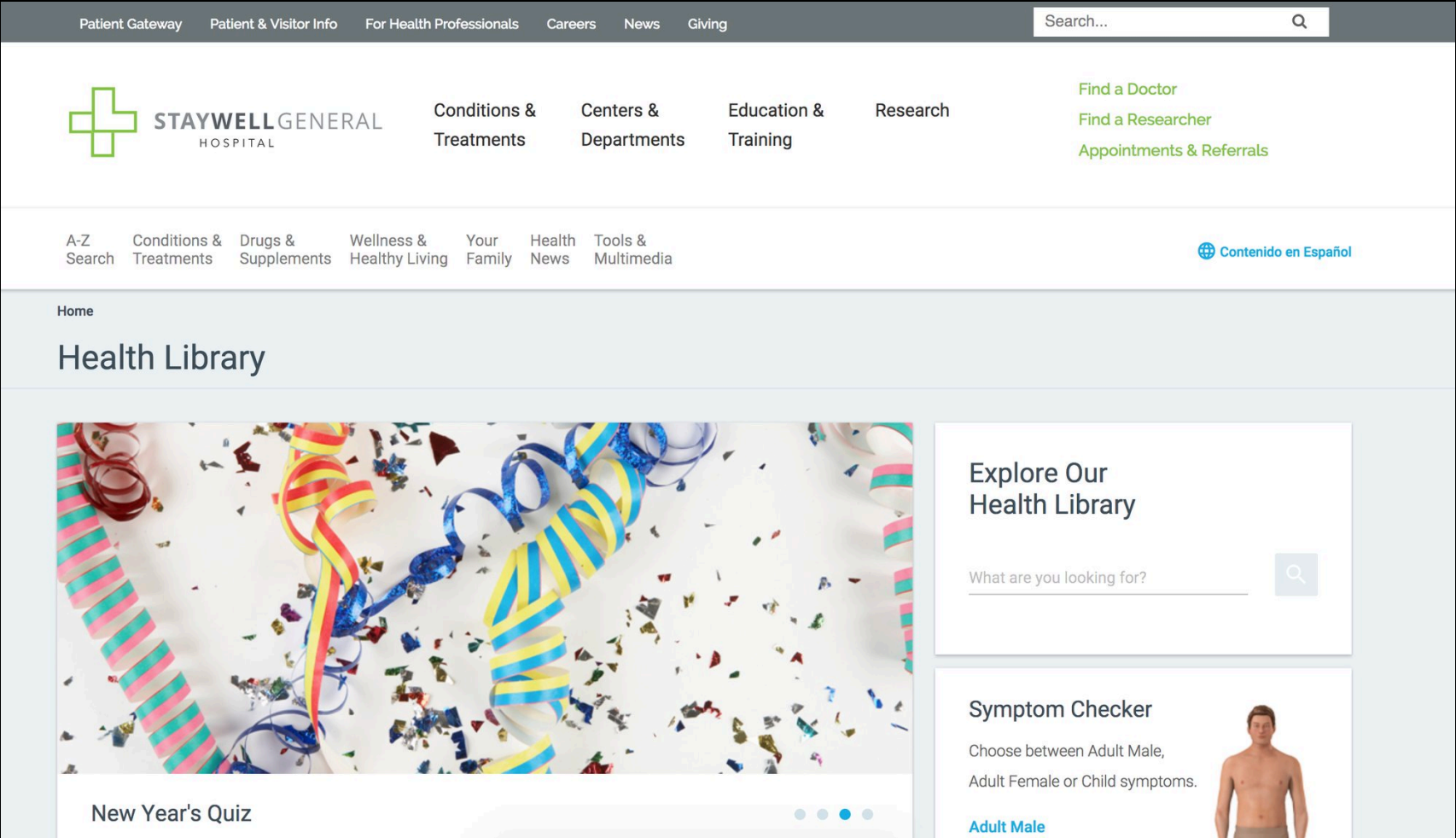
Participants, ages 39 to 70

74

Automated tests, 10.8% failing

2.1 to 3.68

Lowest contrast ratio in the palette, before and proposed



The same loop on the hospital health library.

What worked

Easy to use, said all five

A clean, professional layout

Switching to Spanish

What did not

Too much on the home page

Find a doctor and appointment buttons sat below the fold

The health risk assessment was hard to find

The blue and the green failed contrast

What we recommended

Darken the blue and the green

Shrink the header so the buttons sit above the fold

Move the risk assessment into the carousel

Raise contrast on the search icon

The same loop on the hospital health library.

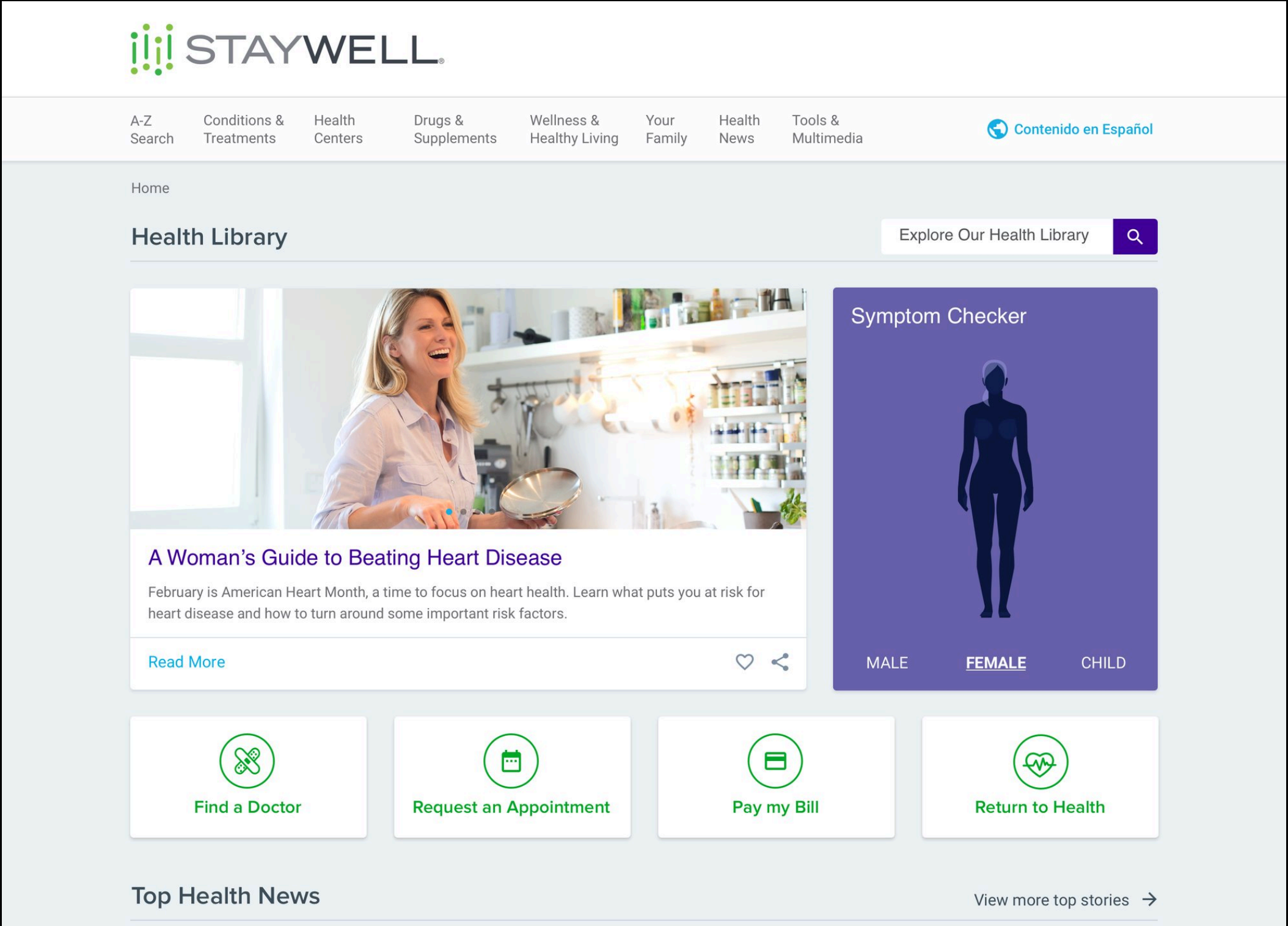
Two months later I walked a client through the next version. I asked where the reviewer would look for a health assessment.

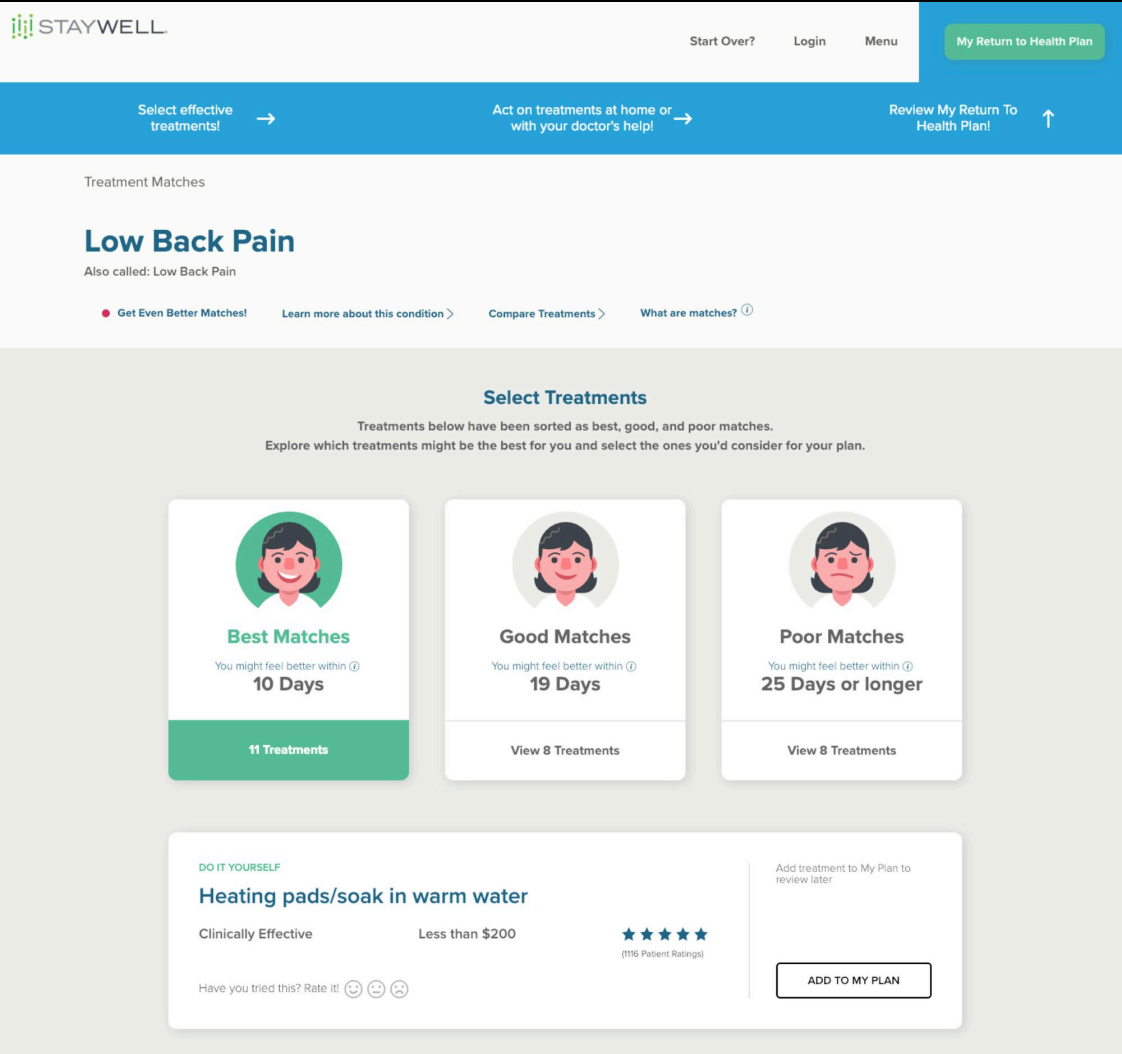
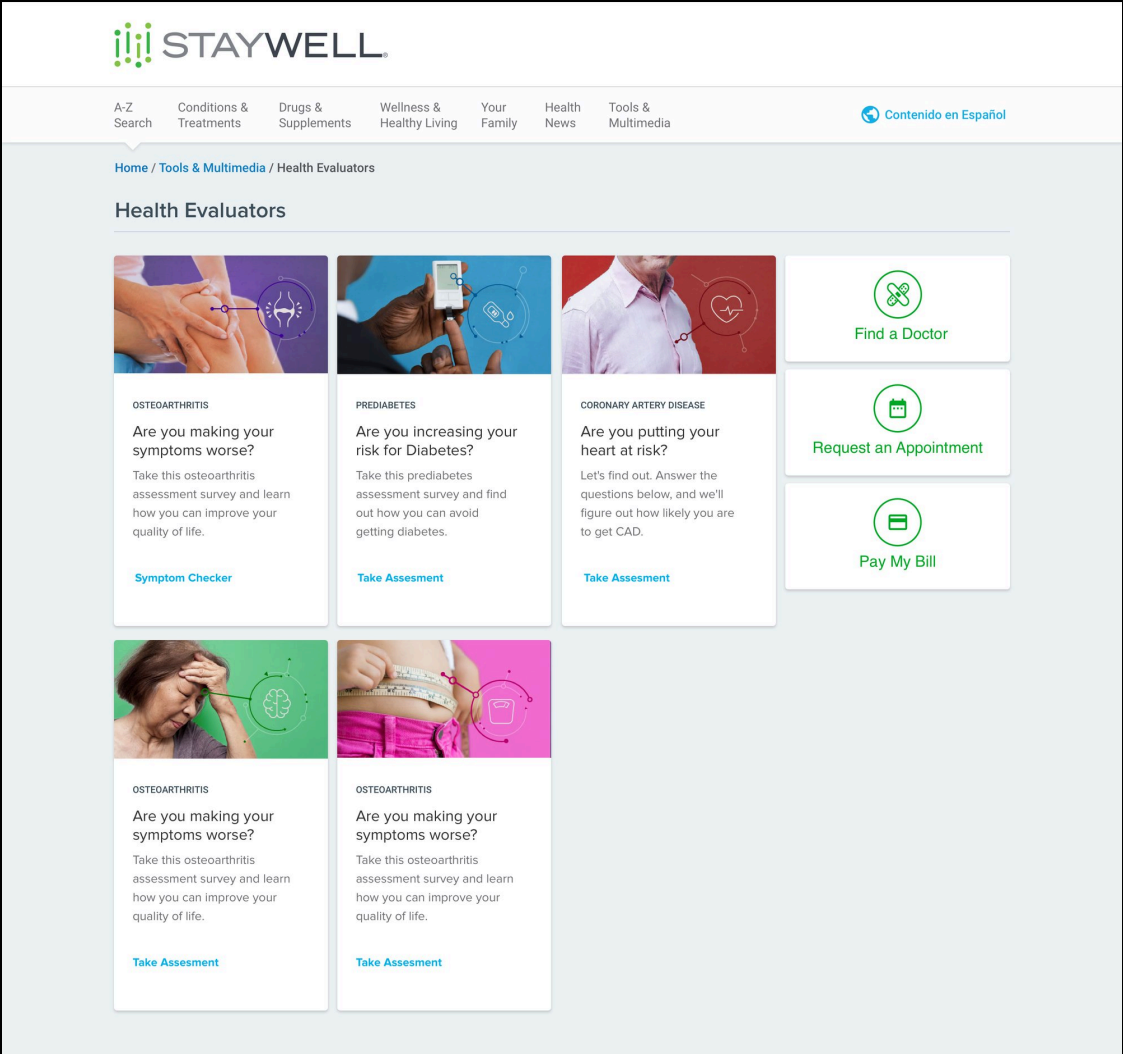
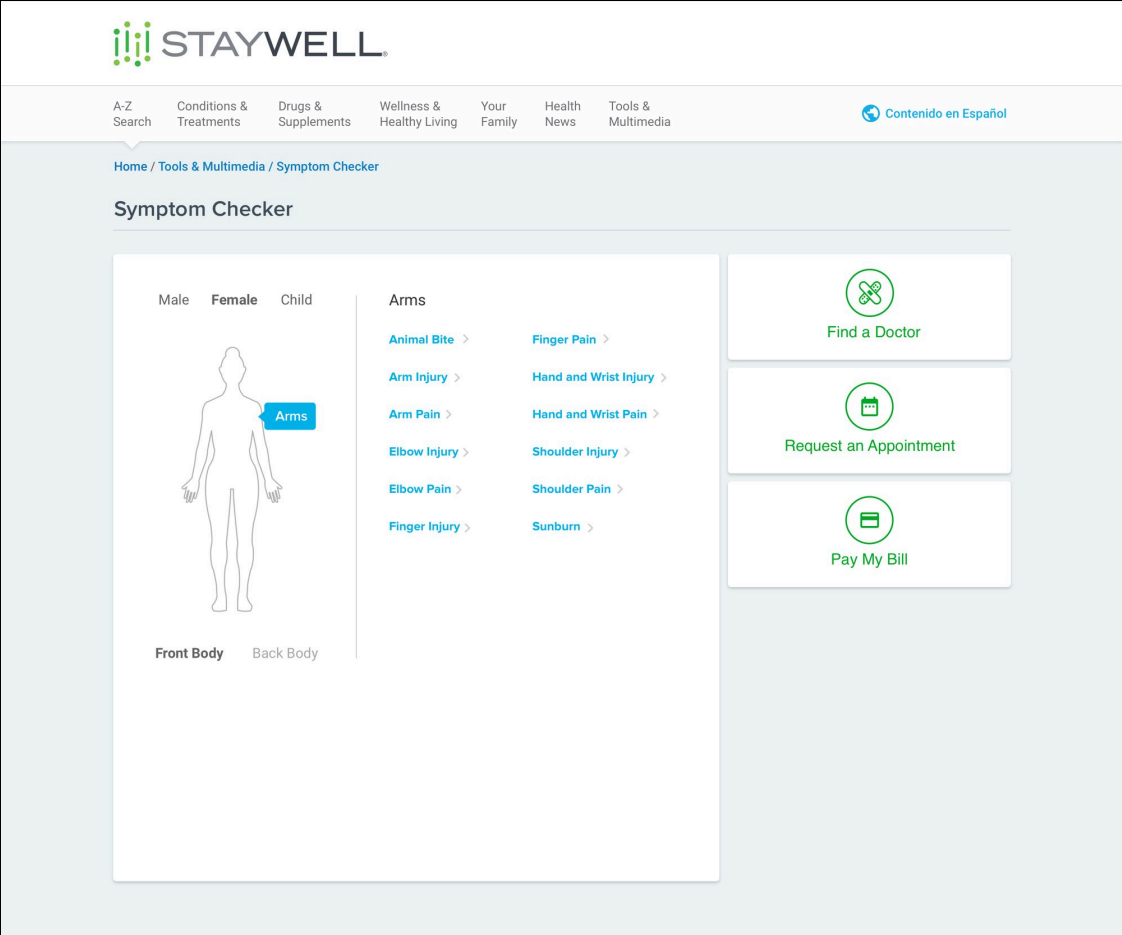
“I'm not sure, and I
don't think my
mother could figure it
out.”

CLIENT REVIEWER AT BAYLOR, FROM THE SESSION NOTES, MARCH 2018

The same loop on the hospital health library.

The redesign that followed puts what a hospital visitor came for in one row under the lead story: find a doctor, request an appointment, pay a bill and Return to Health. The symptom checker moved onto the home page. Health evaluators, a term the Baylor review flagged as unfamiliar, got a page that leads with the question each one answers.





Patient education inside the clinician's chart.

Hospitals loaded Krames content into their health record system by hand, about once a quarter. It took their IT groups 25 to 30 hours each time, the content could be out of date between loads, and the patient education screens inside the record were old.

Krames on FHIR replaced the upload with an app that opens inside the chart. It reads the patient's conditions, medications and procedures and offers matching education. The clinician previews it, edits it, prints it or sends it to the patient portal, and the record keeps a history of what was given.

Patient education inside the clinician's chart.

My team's part was the experience: 42 pages of mock-ups revised after Cerner's UX review in September 2017, then clickable prototypes that walk the whole path from the chart to the patient's portal and back. Clinician testing was part of the prototype stage. The app was validated on Cerner and Epic, and StayWell's engineering leads presented it at HL7 FHIR DevDays in Boston in June 2018.

25 to 30

Hours a quarter of hospital IT time
the manual upload took

2

Health record systems validated:
Cerner and Epic

42

Pages of phase one mock-ups

Wells, Lloyd - 00200631 Opened by Smith MD, Heidi

Task Edit View Patient Chart Links Notifications Navigation Help

Home Physician Worklist ePA Worklist Dynamic Worklist Referral Management Uptodate Links Tear Off Suspend Exit Calculator AdHoc Temporary Location Communicate Patient Education

Wells, Lloyd

Wells, Lloyd

DOB: 1/26/1946

Age: 72 years

Sex: Male

FIN: 000201032

Allergies: Allergies Not Recorded

Dose Weight:

Isolation:

Resuscitation Status:

Clinical Trials:

Care Team: <No Primary Contact>

Loc: BE Clinic; 5 - Check Out

CommonWell: Error

HealthLife: No

Advance Dir:

Menu - All

Provider View

Provider Summary

Provider Tools

Orders + Add

Documentation + Add

Outside Records

Community View

Allergies + Add

AP Clinician Summary

Care Coordination Summary

CareDecisions Models

CareDecisions Outcome Summary

CareSelect

Clinical Media + Add

Clinical Research

Demographics

Diagnoses and Problems

Flowsheet and I&O

Growth Chart

Health Maintenance

HealthRecord

Histories

Interdisciplinary Sepsis Managemen

Krames Patient Education

M+ Chart Search

MAR Summary

Medication List + Add

Notes

Resonance Validator

Results Review

Discharge Workflow

Krames Patient Education

Quality Measures

* Medication Reconciliation (3)

Documents (4)

Vital Signs

Labs

Objective/Physical Exam

Krames Patient Education

Medications

New Order Entry

Charges

Order Profile (4)

Histories

Quick Links

Clinical Indicators

* Patient Education

* Follow Up

Problems ...

Hospital Course ...

Assessment and Plan ...

Health Concerns ...

Create Note

End Visit

Discharge Note

Discharge Instructions

Select Other Note

KRAMES

CONDITIONS | 5

MEDICATIONS | 5

PROCEDURES | 1

ONLINE TOOLS | 2

Search

Filter

Diabetes mellitus ... 44054006

Diabetic foot ulcer as... 1521000119100

Common peroneal n... 10521000119108

Hypertensive disorde... 38341003

95 titles

Add all

HealthSheet EN Healthy Meals for Diabetes Shared on 12/5/2018

HealthSheet EN Managing Type 2 Diabetes

Video EN Managing Your Type 2 Diabetes

Video EN Traveling with Diabetes

Video EN Treating Type 2 Diabetes: What to Expect

Video EN Type 2 Diabetes: Committing to Your Care Team

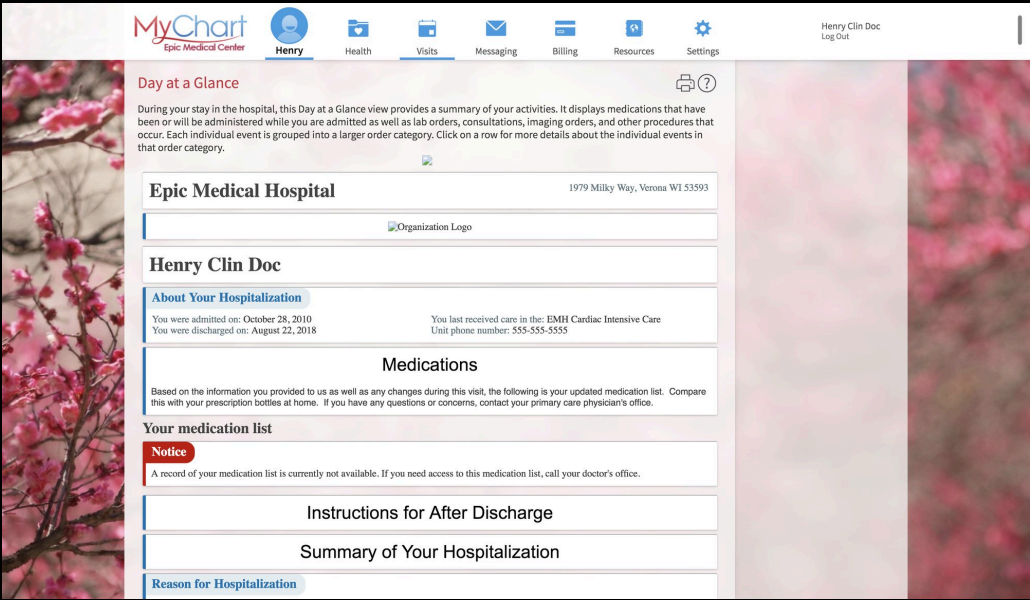
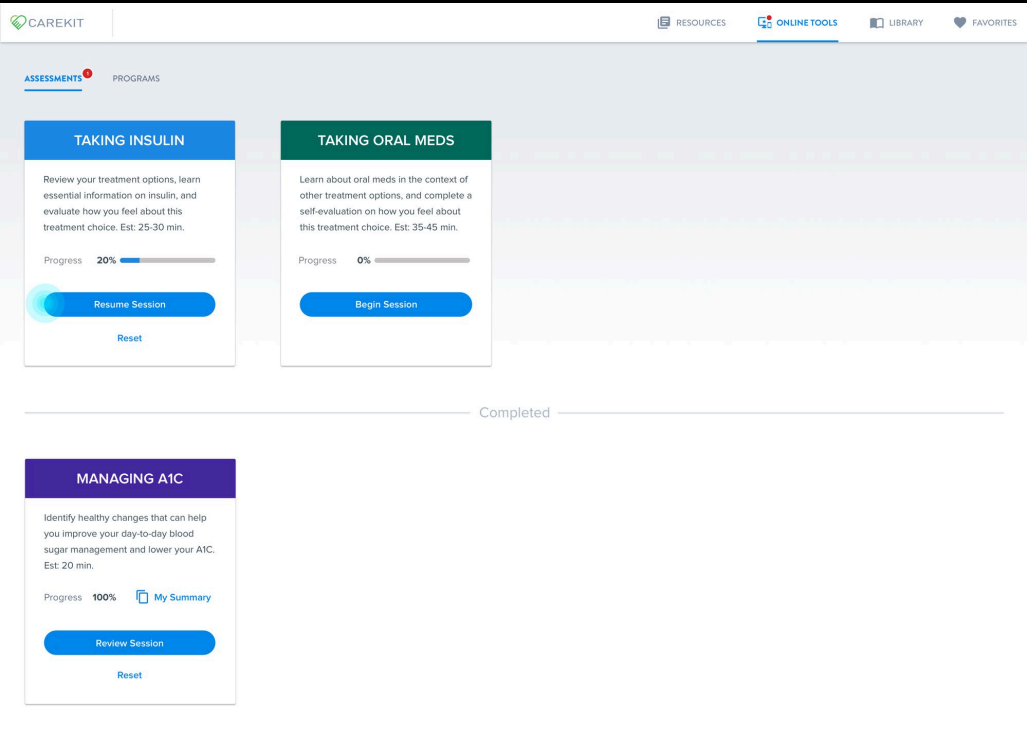
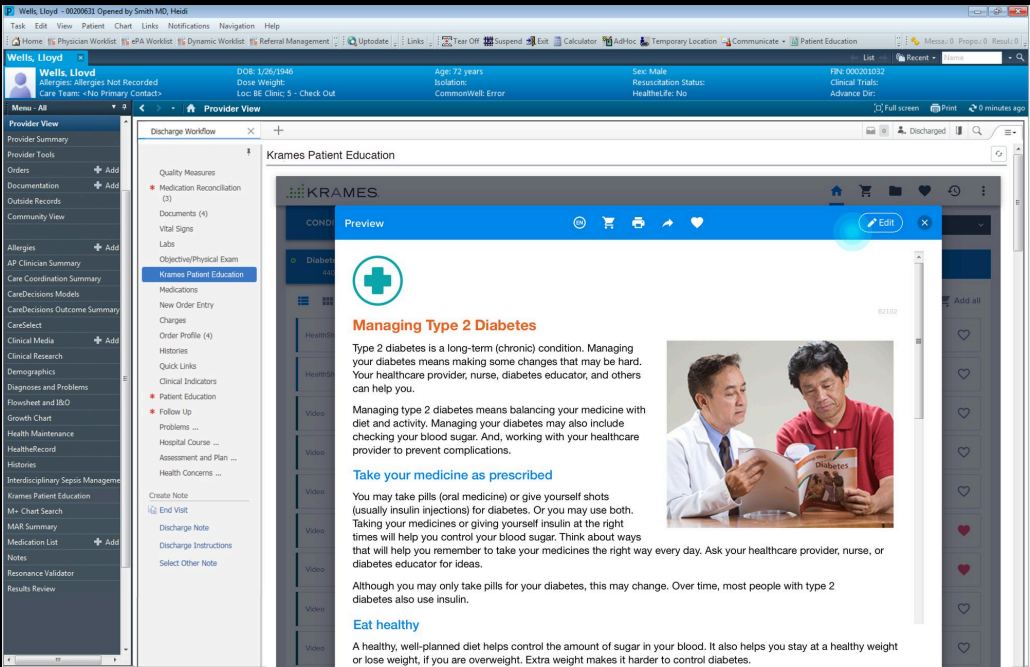
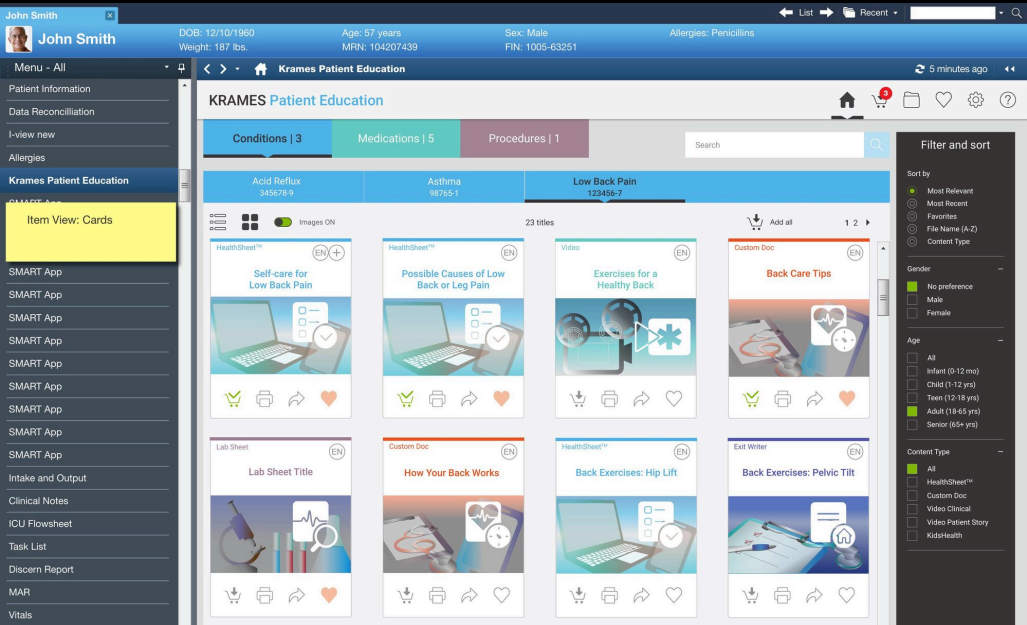
Video EN Type 2 Diabetes: Complications, Be Prepared

Video EN Type 2 Diabetes: Know Your Body

Video EN Type 2 Diabetes: This Disease Is Not Your Prison

Patient education inside the clinician's chart.

The decision aids from the first project turn up here as well. In the patient portal they sit under online tools, each with its own progress.



10

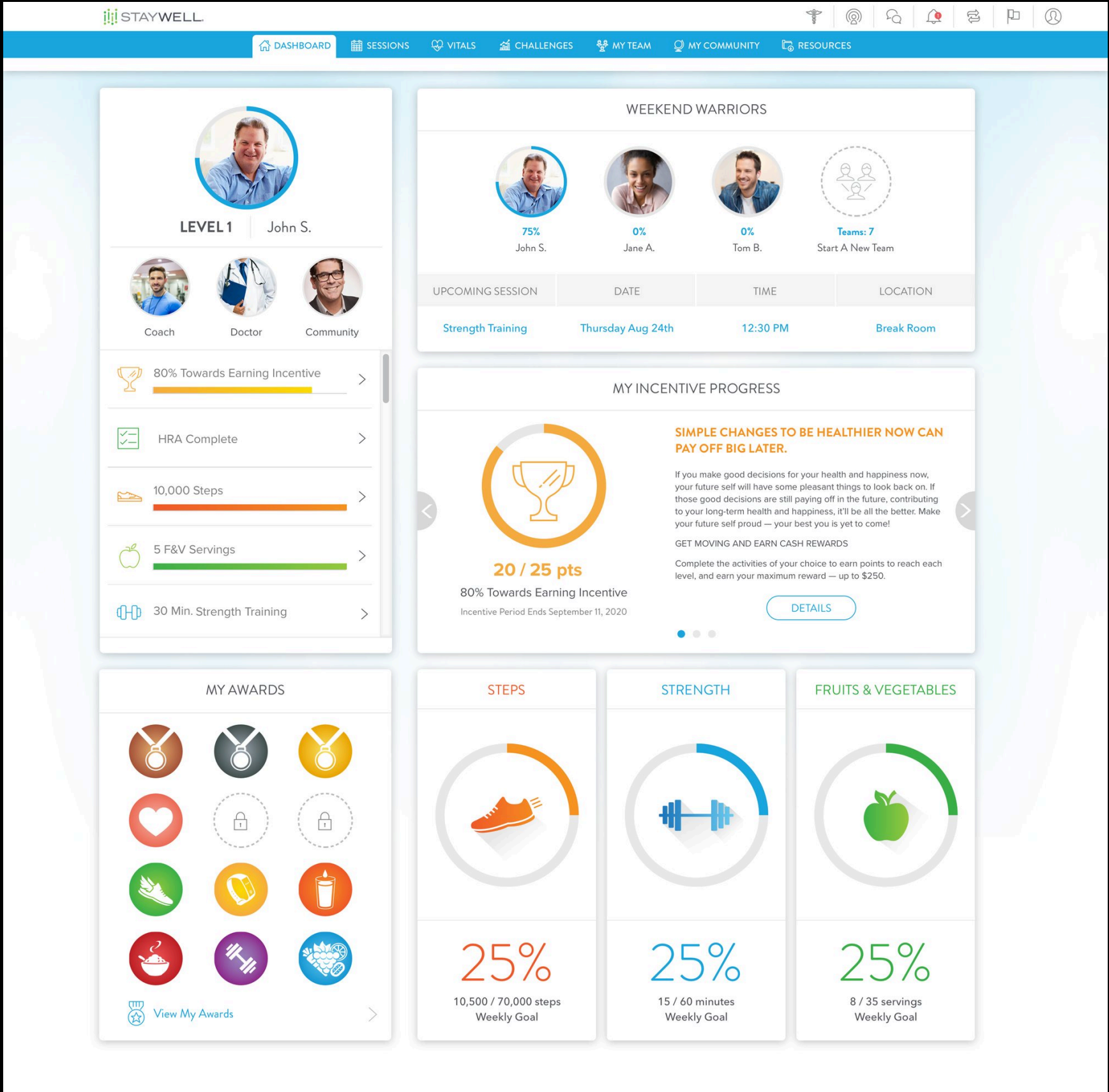
A wellness platform designed from the book of business.

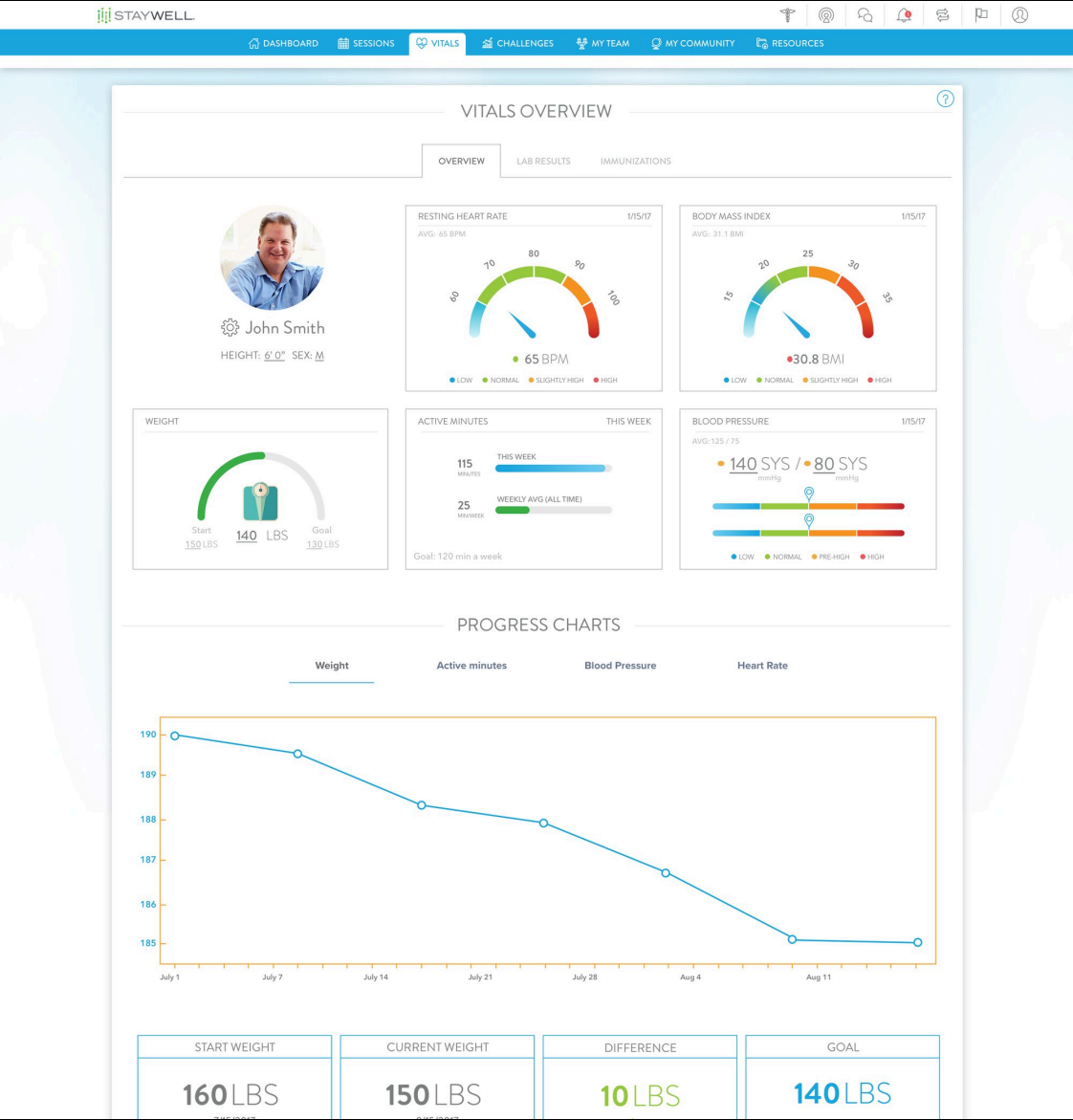
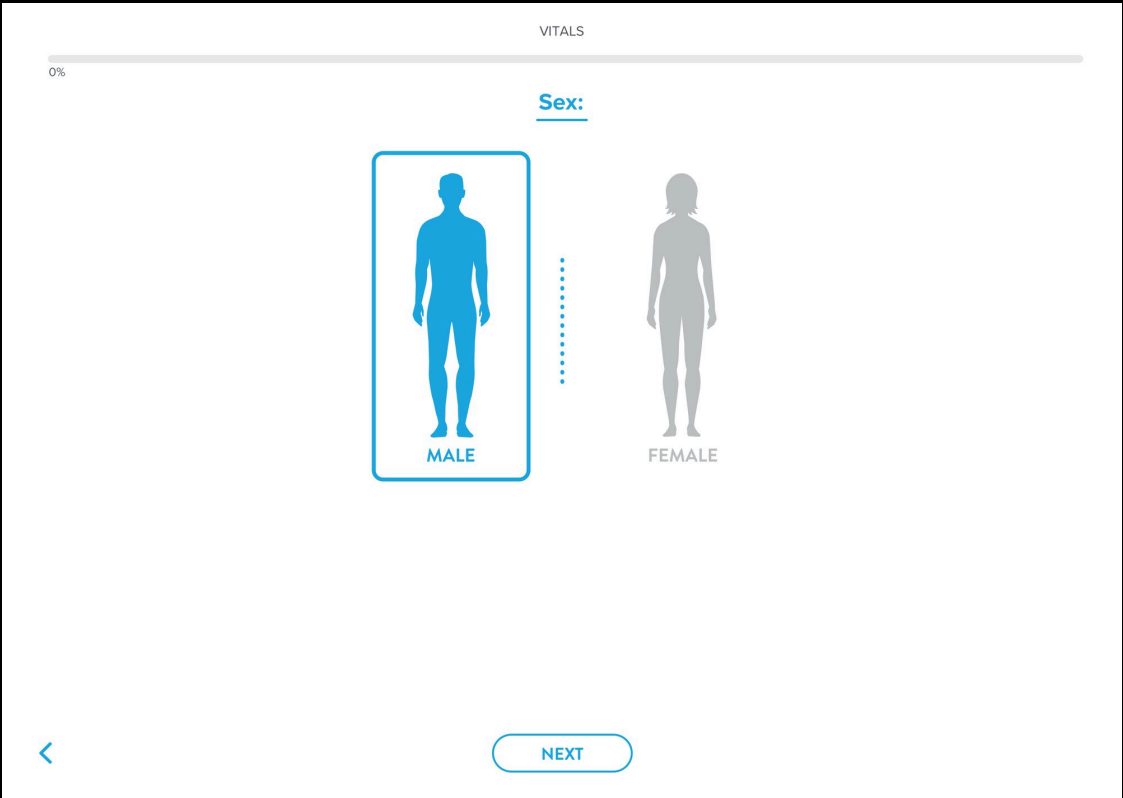
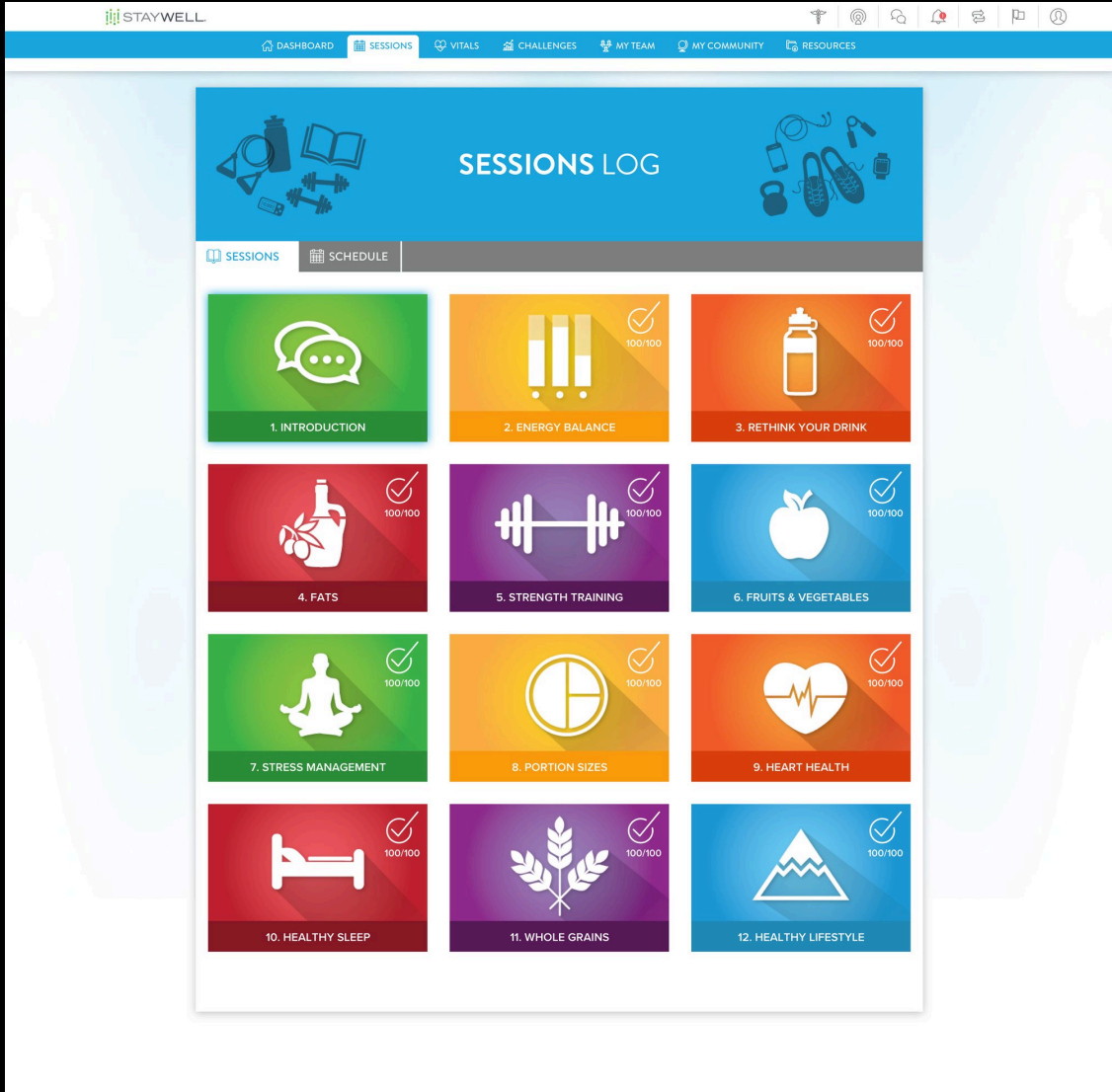
My StayWell is the wellness portal employers offer their staff: a health assessment, a twelve-session program taken alone or in teams, challenges, coaching, incentives and vitals.

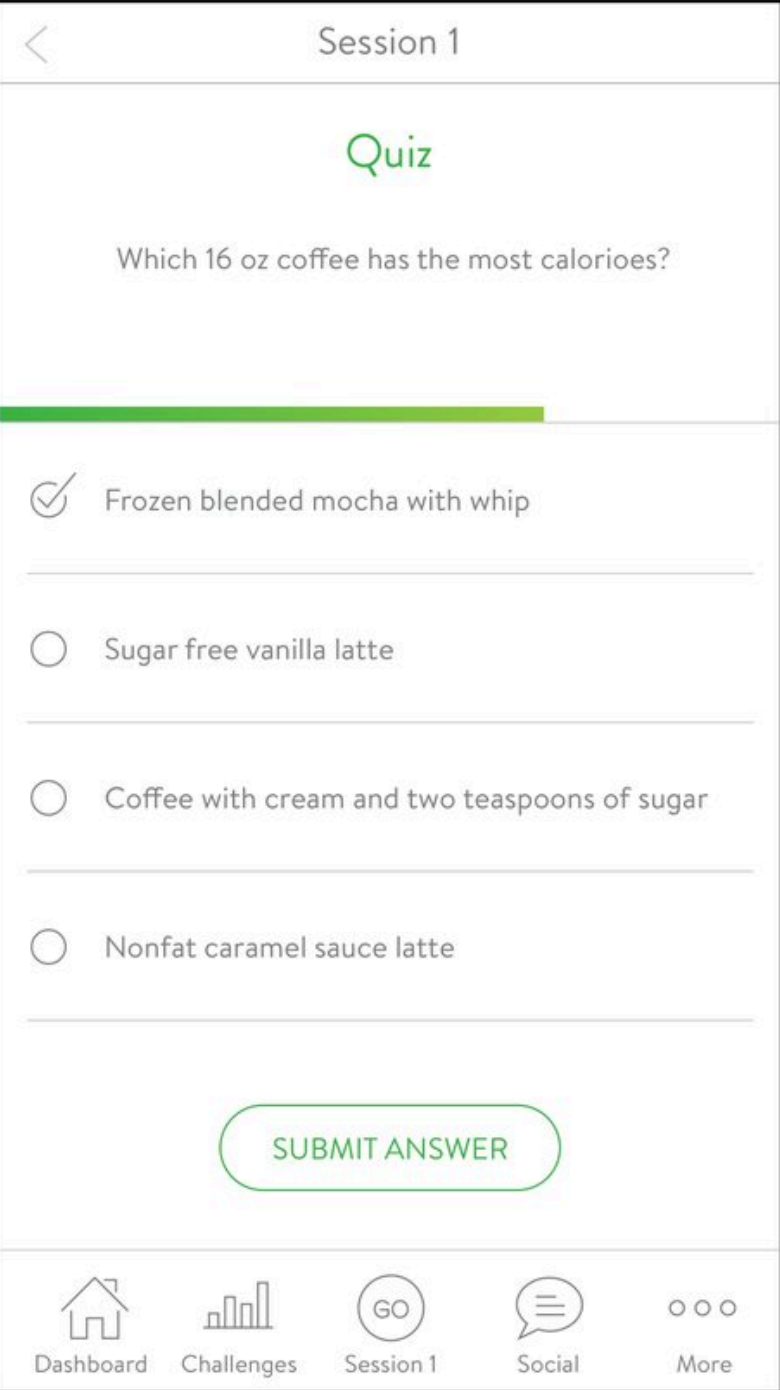
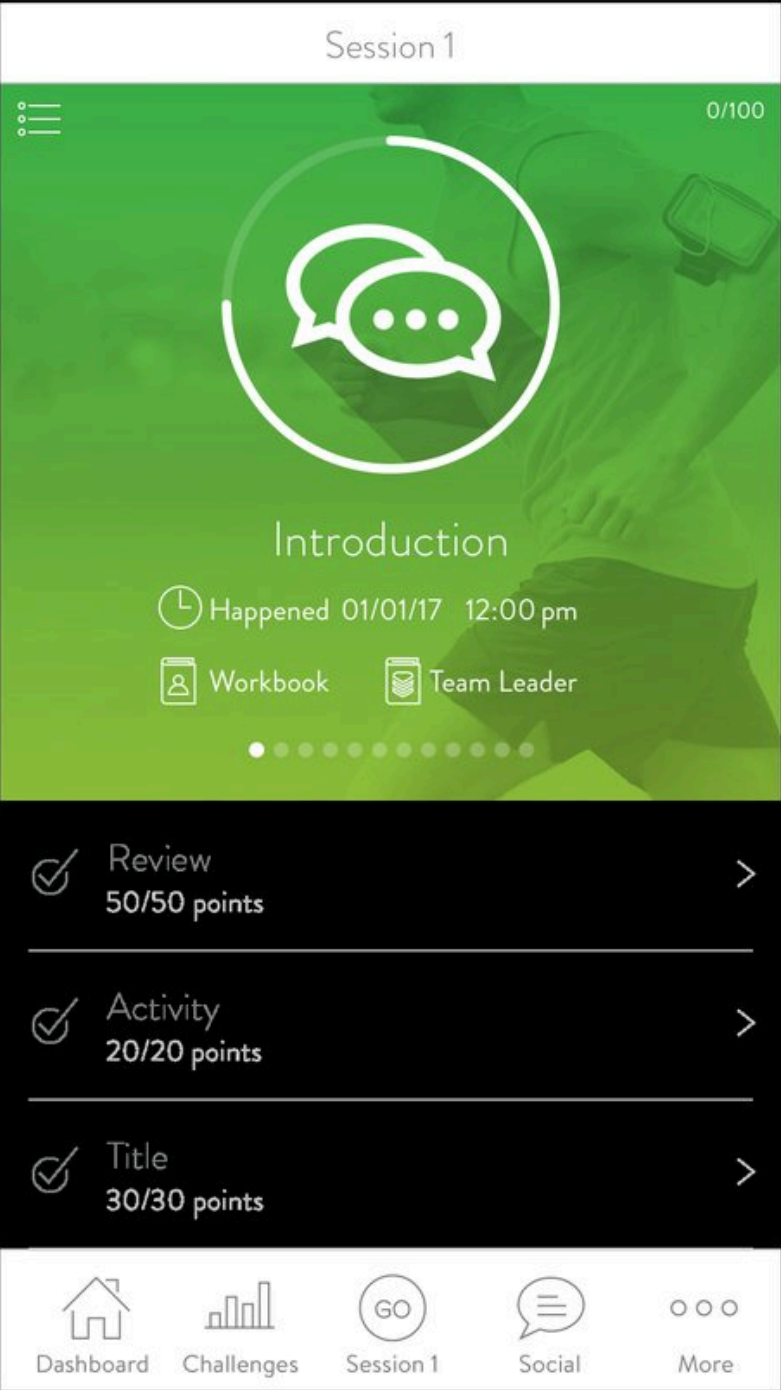
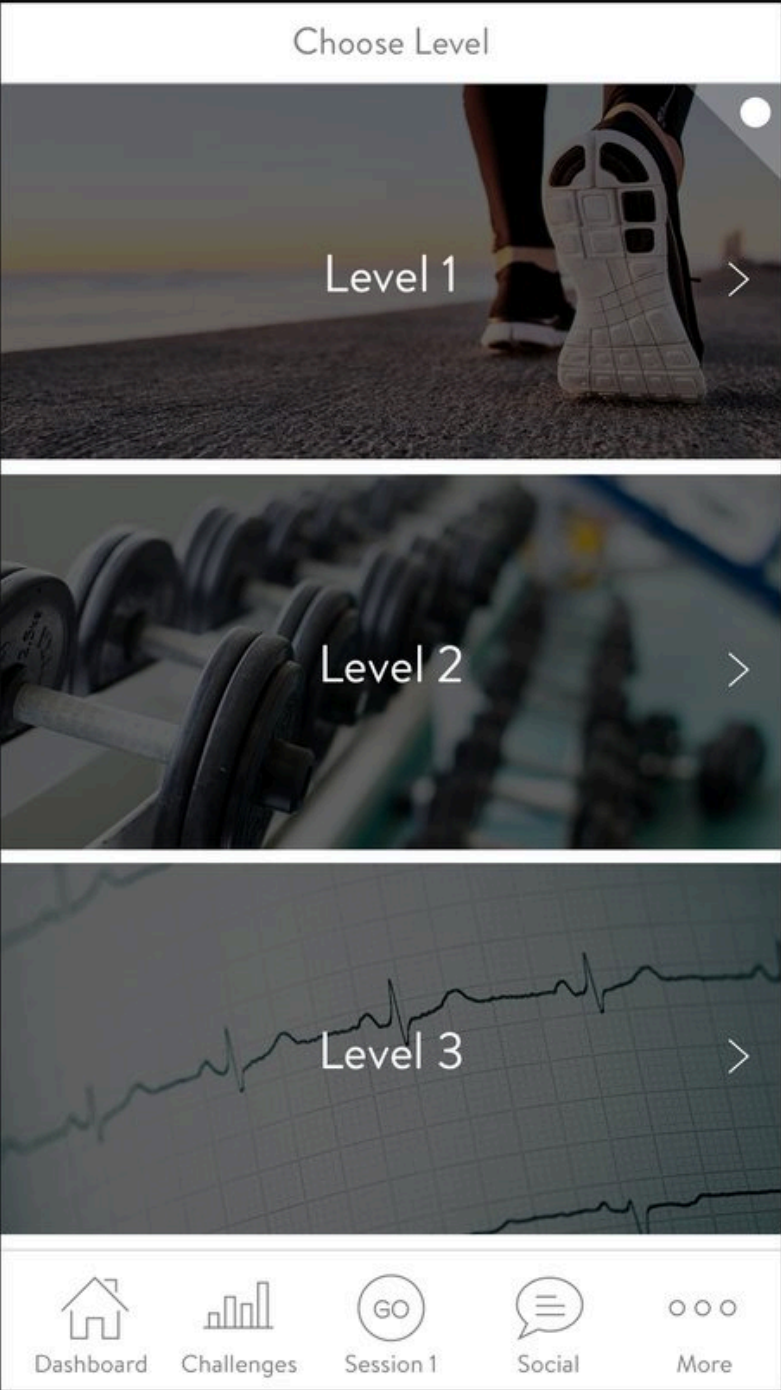
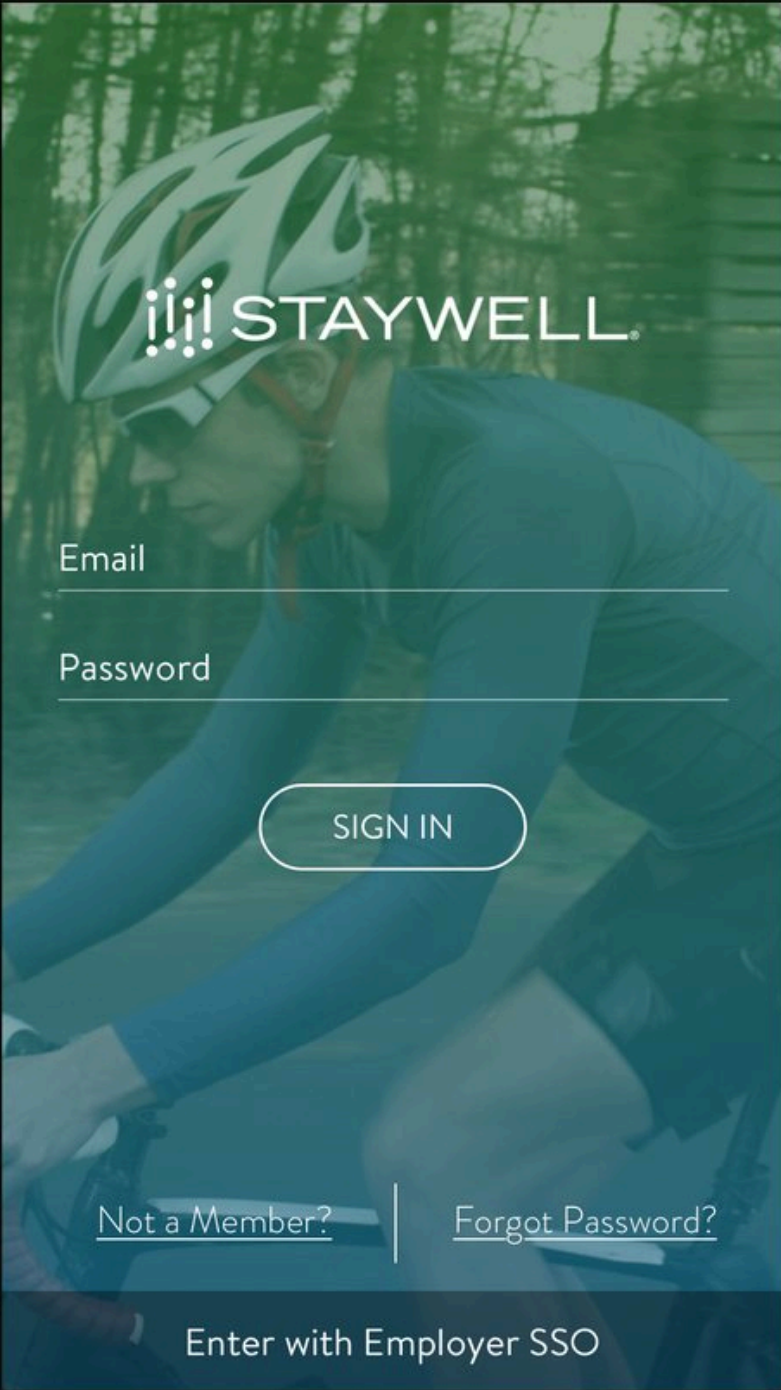
I built the personas from data. The source was the book of business: 712,814 people across 66 organizations, average age 44.7, with 2.5 health risks each. The three personas presented in August 2018 each stand for a segment of that table.

A wellness platform designed from the book of business.

The 2019 prototype runs to 48 desktop screens and about 90 on the phone. The dashboard leads with what the member is working toward: incentive progress, the next team session and three rings for steps, strength and fruit and vegetables.







Fruits & Vegetables Challenge

My Stats

Leaderboard

2nd



Liam A.

10 Servings

1st



Michelle E.

10 Servings

3rd



Denise S.

10 Servings

DAILY

DAILY AVG.

1		Michelle E	10 SERVINGS
5		Liam A	10 SERVINGS
5		Denise S	10 SERVINGS
7		Lenny G	10 SERVINGS
8		Sarah M	10 SERVINGS
8		Brendan S	10 SERVINGS

Dashboard

Challenges

Session 1

Social

More

Incentive Progress



10 / 50 pts

Incentive Period Ends Aug 1, 2019

☐

LDL: 0 / 10 pts

Incomplete | 0 of 2 Complete

☐

SBP: 0 / 10 pts

Incomplete | 0 of 3 Complete

☐

A1c: 0 / 10 pts

Incomplete | 0 of 3 Complete

☒

BMI: 10 / 10 pts

Complete | 1 of 2 Complete

Dashboard

Challenges

Session 1

Social

More

Vitals

Weight

175 LBS

Start

Goal

Blood Pressure

140 sys / 80 DIA

Heart Rate

65 BPM

Cholesterol

Talk to a Doctor

Today 12:05 pm

Q: Hi there, I have been having trouble sleeping at night. Wondering if I should look into ambien or some other type of medication. Is there anything that is safe and over the counter I can try? I have only had about 3 - 4 hours a sleep a night for the last 2 weeks. Thanks for the help!

Today 12:30 pm



Dr. Lawrence Scalzo responded

try a little snack like peanut butter crackers with a small glass of milk, can try diphenhydramine [benedryl] 25 mg too, it by 8pm. pray a lot and don't have tv or lights going, get exercise in daytime good sleep hygiene



WAS THIS ANSWER HELPFUL?



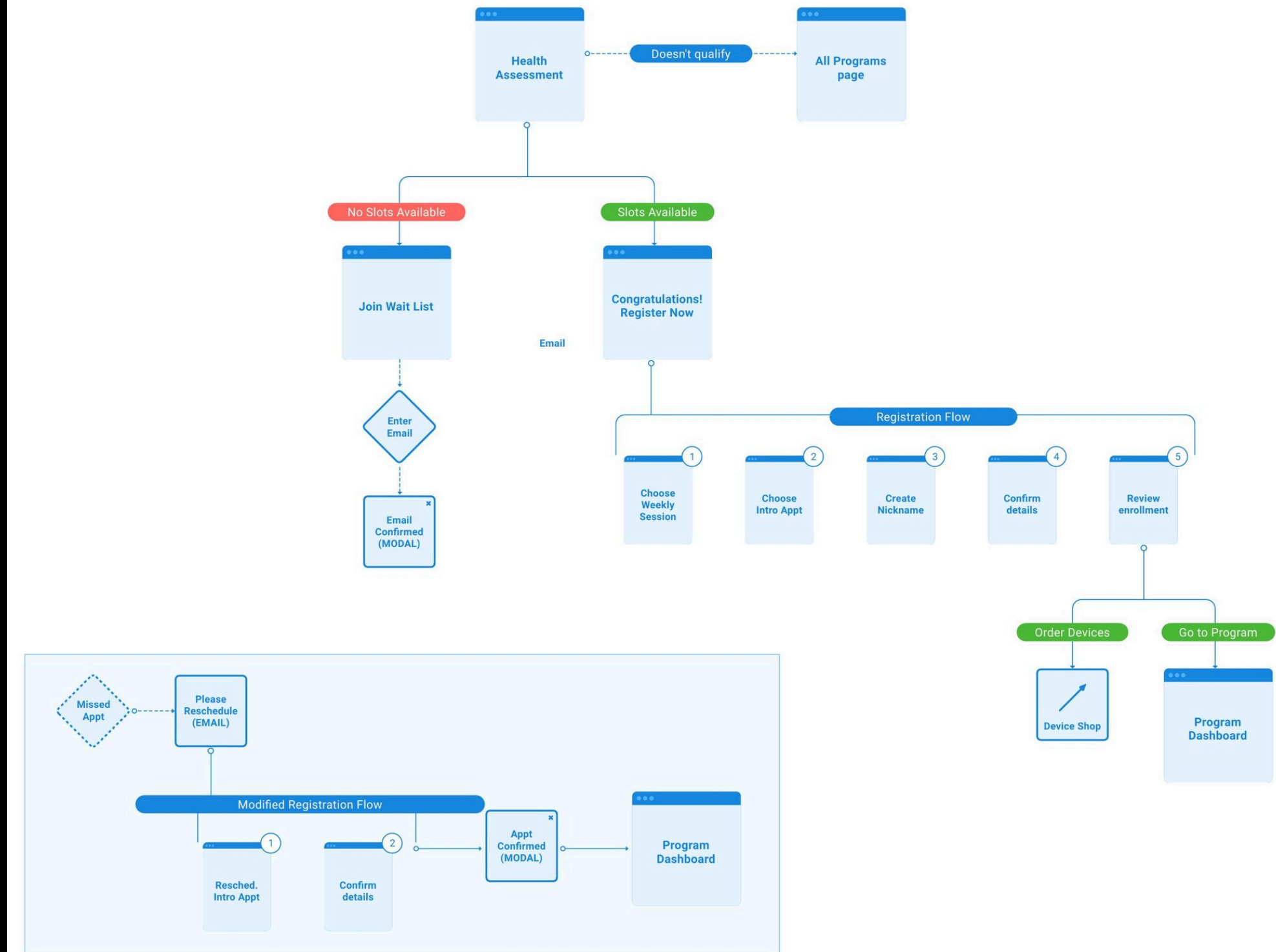
CHRIS JOHNSON / STAYWELL

42 / 50

Coaching

Group coaching needed a registration path with a branch for every outcome: no slots, a wait list, a missed appointment. I mapped it in February 2018 as a five-step registration with a separate, shorter path for rescheduling.

GROUP COACHING - UX FLOW
v01 - 02.13.2018

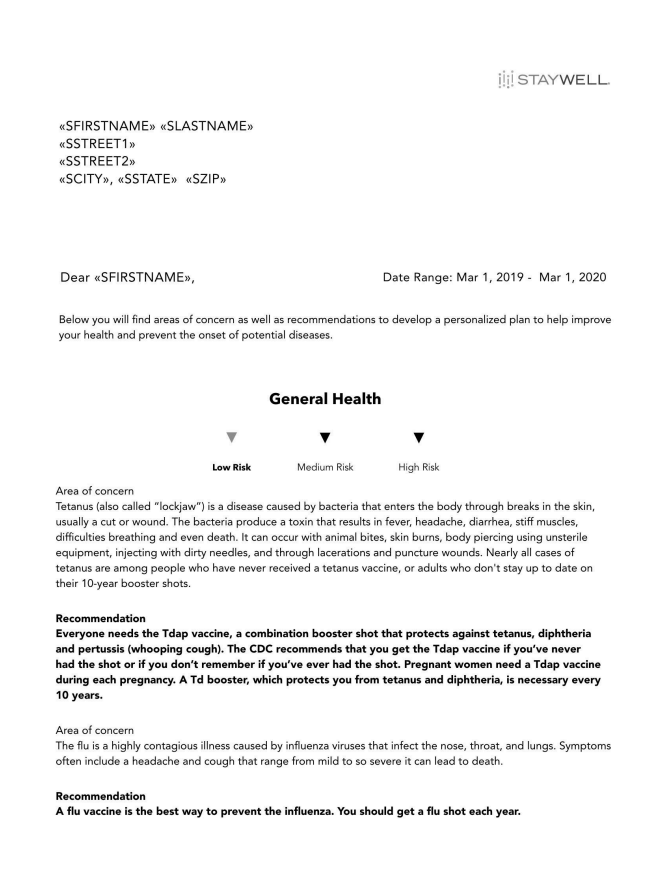
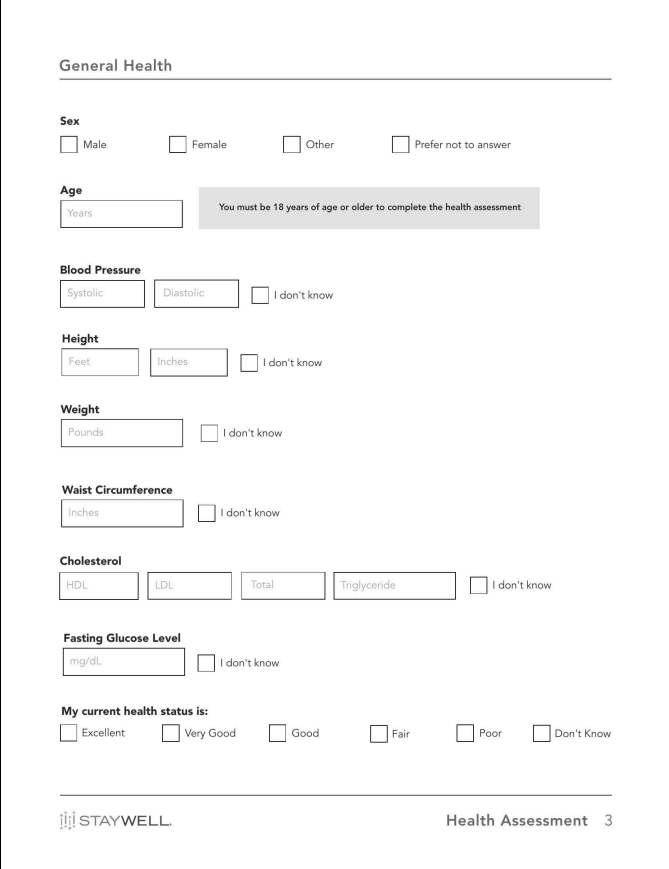


Listening after launch

In 2020 we collected what clients were telling their account teams and sorted it by part of the product: teams, sessions and levels, challenges and competitions, the dashboard and the sliders. The same points kept coming up. Joining a team was not obvious. The word "level" set up the expectation of a game that the product did not meet. Challenges and competitions were hard to tell apart.

On paper

Not every member is online. In late 2019 I laid out the health assessment as a printed booklet, with editions for LivingWell programs in Kentucky and Wisconsin and one in Spanish. The first layout ran 49 pages. Version 14 ran 19.



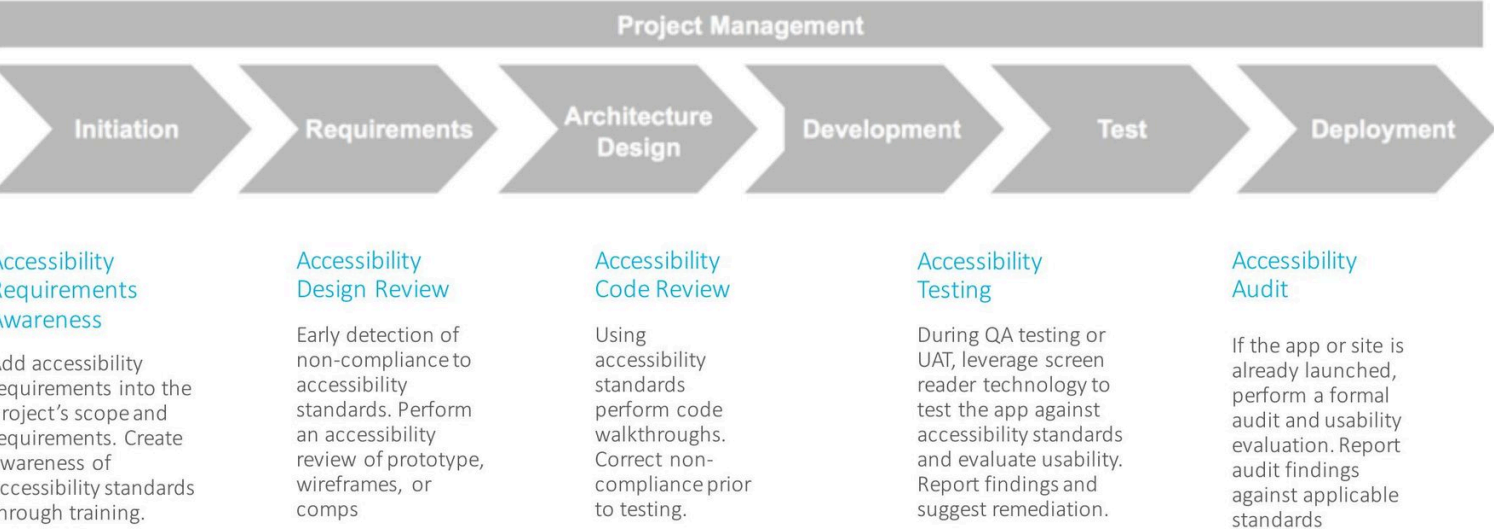
11

Accessibility at five points, not one.

The 508 work on the decision aid turned into a training deck I wrote in December 2017 and updated in 2018 and 2019. It covers the law, how people with disabilities use apps and the difference between passing a standard and being usable. A compliant application can still have usability problems. A non-compliant one always does.

It asks for accessibility at five points: in the requirements, in design review, in code review, in testing with a screen reader and in an audit after launch. Testing pairs automated tools with manual passes on desktop, tablet and phone.

Full Lifecycle Accessibility



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Accessibility Testing

Manual Testing	Manual Testing	Automated Testing
• Screen Reader (desktop and mobile) • Native Users (Visually impaired) • Standards Compliance • Usability	• Paired Testing (Blind & Sighted Testers) • Open Source Tool • Reconcile Findings • Test Windows, PC, Mac • Test desktop, tablet, phone	• Purchased Tools (Rational Policy Tester) • Open Source Tools (Achecker, FAE, WAVE) • Multiple Standards (Section 508, WCAG2.0) • Violations vs. Warnings



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Two products scored, both above 80.

92.5

System Usability Scale score for
the redesigned decision aid

84

System Usability Scale
score for the health
library

23 to 0

Automated 508 errors on the
decision aid, before and after

5x

Growth of the team over
three years, roughly,
from my recollection

Two products scored, both above 80.

Both products that went through the full loop came back with a usability score the reports call well above average. The decision aid went from 23 automated accessibility errors to none, and the health library got a proposed palette that passes.

The team grew roughly fivefold over three years. The loop outlasted any one project: the accessibility deck was still being updated in 2019, and client feedback was still being sorted by the same method in 2020.

Thank you.

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