

Patient, Heal Thyself

How the future of health service delivery
is through patient self-care technology

 @JosephCafazzo PhD PEng



YOUR HOME



PHARMACIES

NEW SPACES



REMOTE COMMUNITIES



SCHOOL & WORK

HEART FAILURE

affects

500,000

CANADIANS

DIABETES

affects

3,000,000

CANADIANS

HYPERTENSION

affects

5,000,000

CANADIANS

DIABETES **HIGH BLOOD PRESSURE** **LUNG DISEASE** **CANCER**

KIDNEY DISEASE

HEART FAILURE

MENTAL HEALTH





Hospitals

29.5%

of health
spending



0.9%
↑
growth



Drugs

15.7%

of health
spending



0.7%
↑
growth



Physicians

15.5%

of health
spending



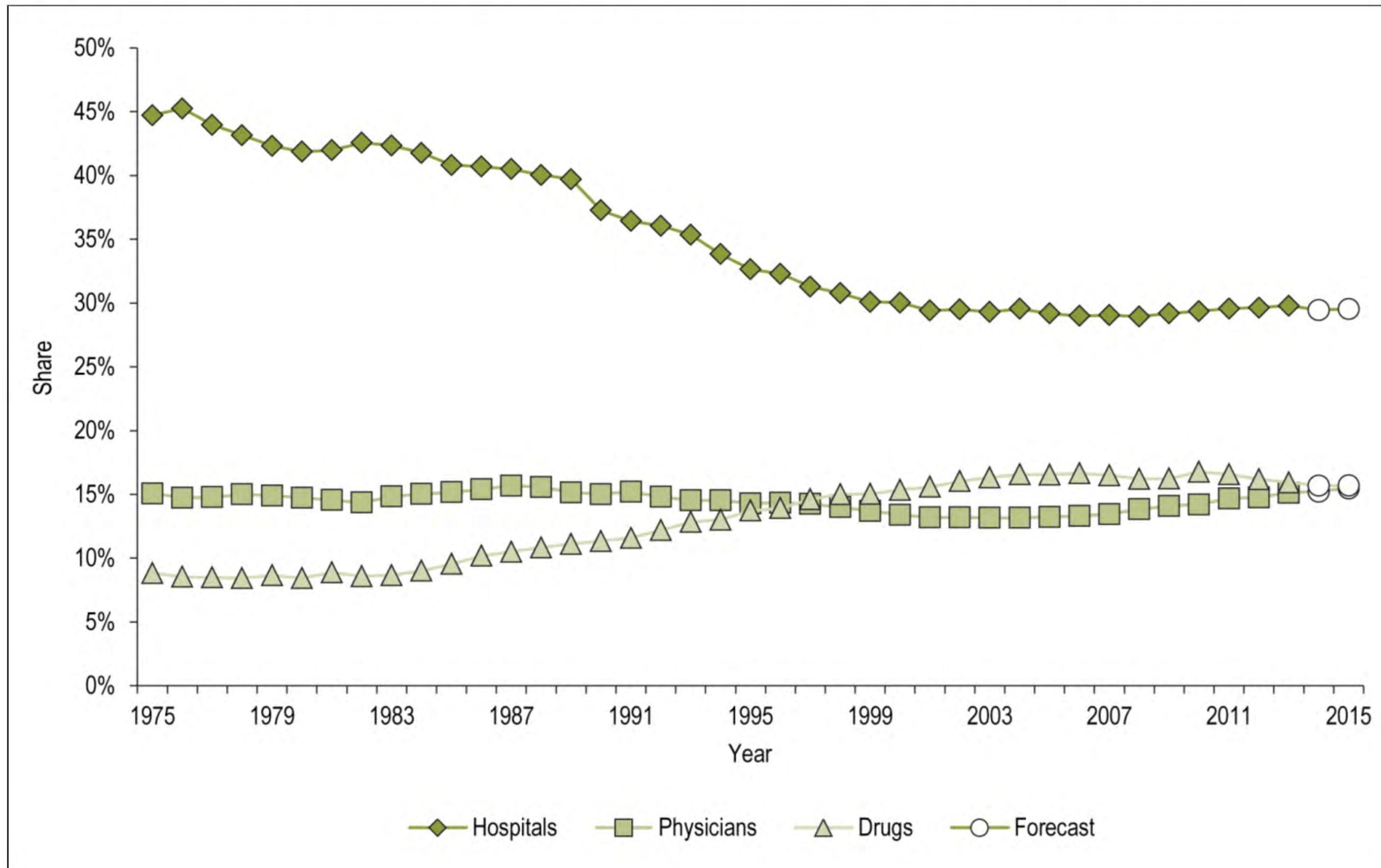
2.2%
↑
growth

Growth per capita
has outpaced
that for **hospitals** or **drugs** since 2007.

Source

National Health Expenditure Database, Canadian Institute for Health Information.

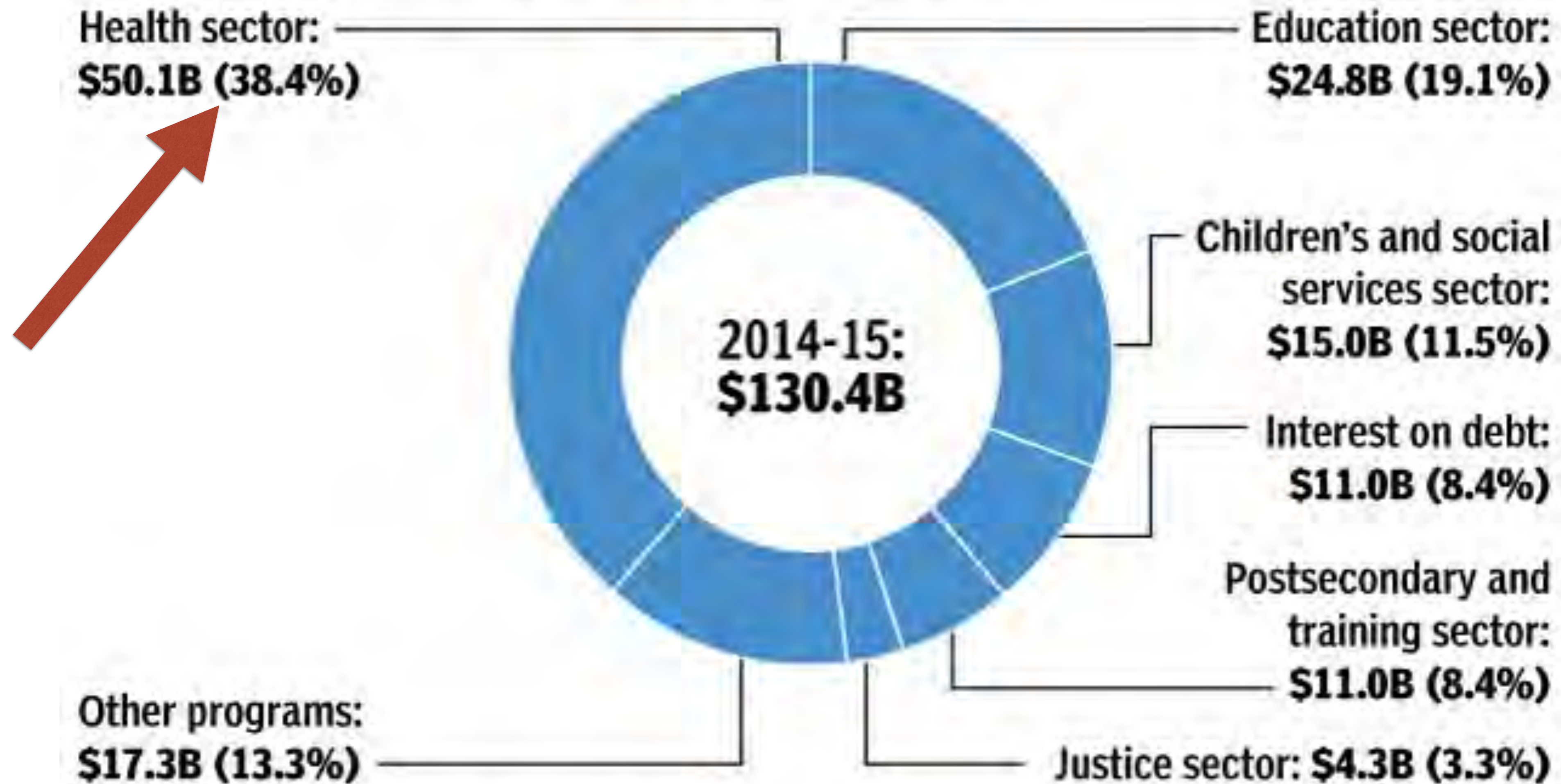
Total health expenditure, share of selected use of funds, Canada, 1975 to 2015



Source

National Health Expenditure Database, Canadian Institute for Health Information.

COMPOSITION OF TOTAL EXPENSES



NOTE: Numbers may not add up to 100% due to rounding.

SOURCE: ONTARIO BUDGET 2014

JONATHON RIVAIT / NATIONAL POST

THE GLOBE AND MAIL



Why the future of health care may depend on tearing down the hospital


The Hospital

by Carly Weeks • Feb. 21, 2014 • 2 min read • **original**

PATIENT SELF-CARE

\$600 for personal medical records shocks patient

MARCH 12, 2013

 READ LATER

A Thunder Bay woman says she's shocked by the high cost of accessing her own medical file after her family doctor closed his practice late last year.

To get her health records, Wendy Doran had to call a private medical registry that now holds her file. When she says she was told there would be a fee of more than \$600 to access them, she couldn't believe it.

“**'We try to work with the patient.'**—*Elan Eisen, president of RSRS*

“I was just dumbfounded,” she said.

“I couldn't believe I would have to pay for my own medical records. [I] can't afford

“Gimme My Damn Data”

Medicine 2.0
September 18, 2009

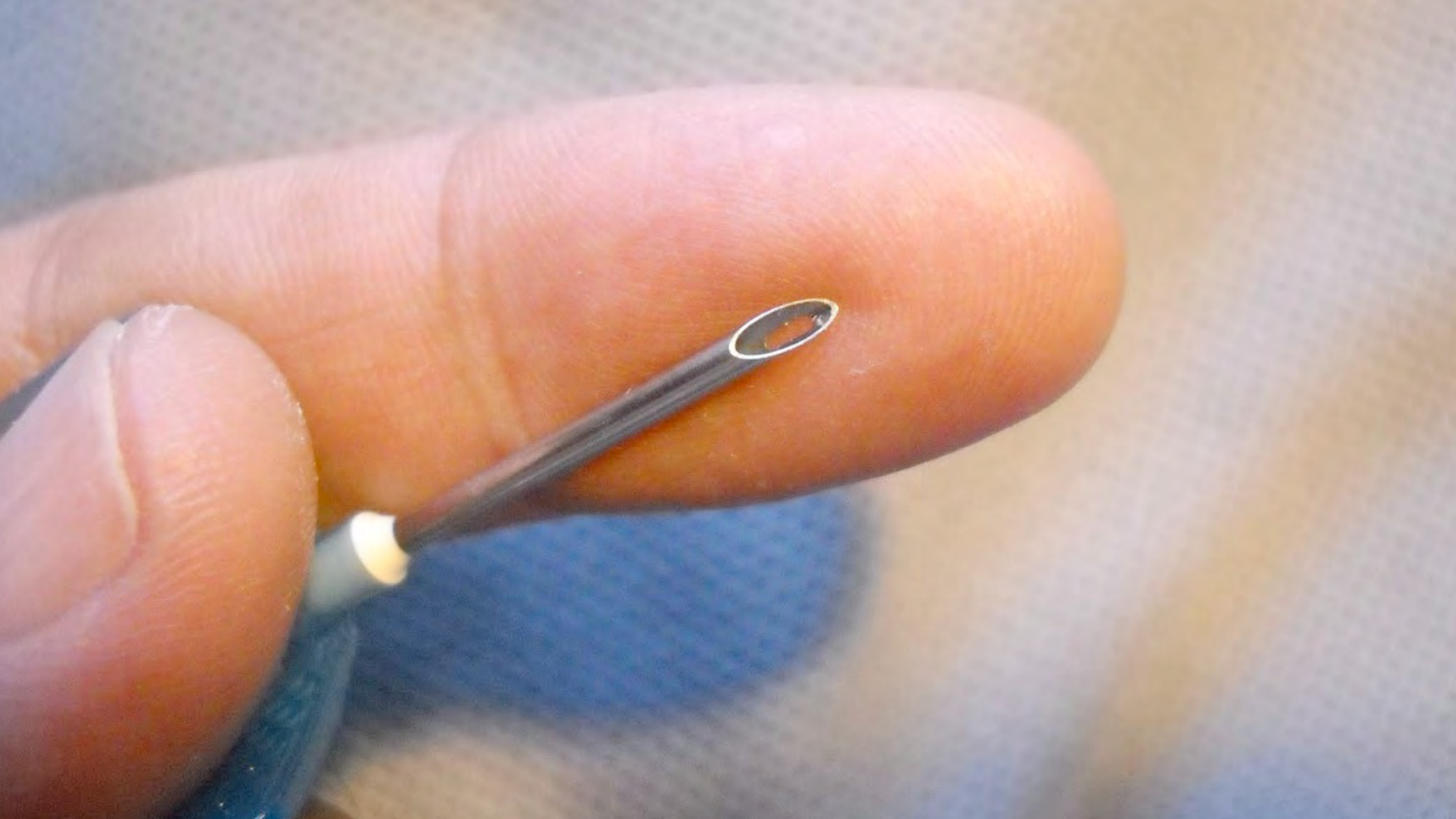




NDNG







NURSING

2:1

NURSING

20:1



YVONNE



MARIE



BELLA



Improved Health Outcomes : Home Hemodialysis

- Normalization of blood pressure without the need for anti-hypertensive medications
- Normalization of abnormal wall thickness of the heart
- Restoration of impaired heart function
- Improvement in peripheral circulation
- Improvement in sleep quality
- Improvement in nutritional determinants
- Elimination of dietary restriction
- Patient autonomy
- Cost effective modality

Chan et al : KI, 2002, Chan et al: NDT, 2003 Chan et al: AJKD, 2003,
Hanly et al: NEJM, 2001
Pierratos et al: JASN, 1998

Patient-Perceived Barriers to Home Hemodialysis

(Cafazzo and Chan, 2007)

- **Perceived burden on family members**
- **Fear of self-cannulation**
- **Fear of a catastrophic event in the absence of nursing support**
- **Low self-efficacy**



YVONNE



MARIE

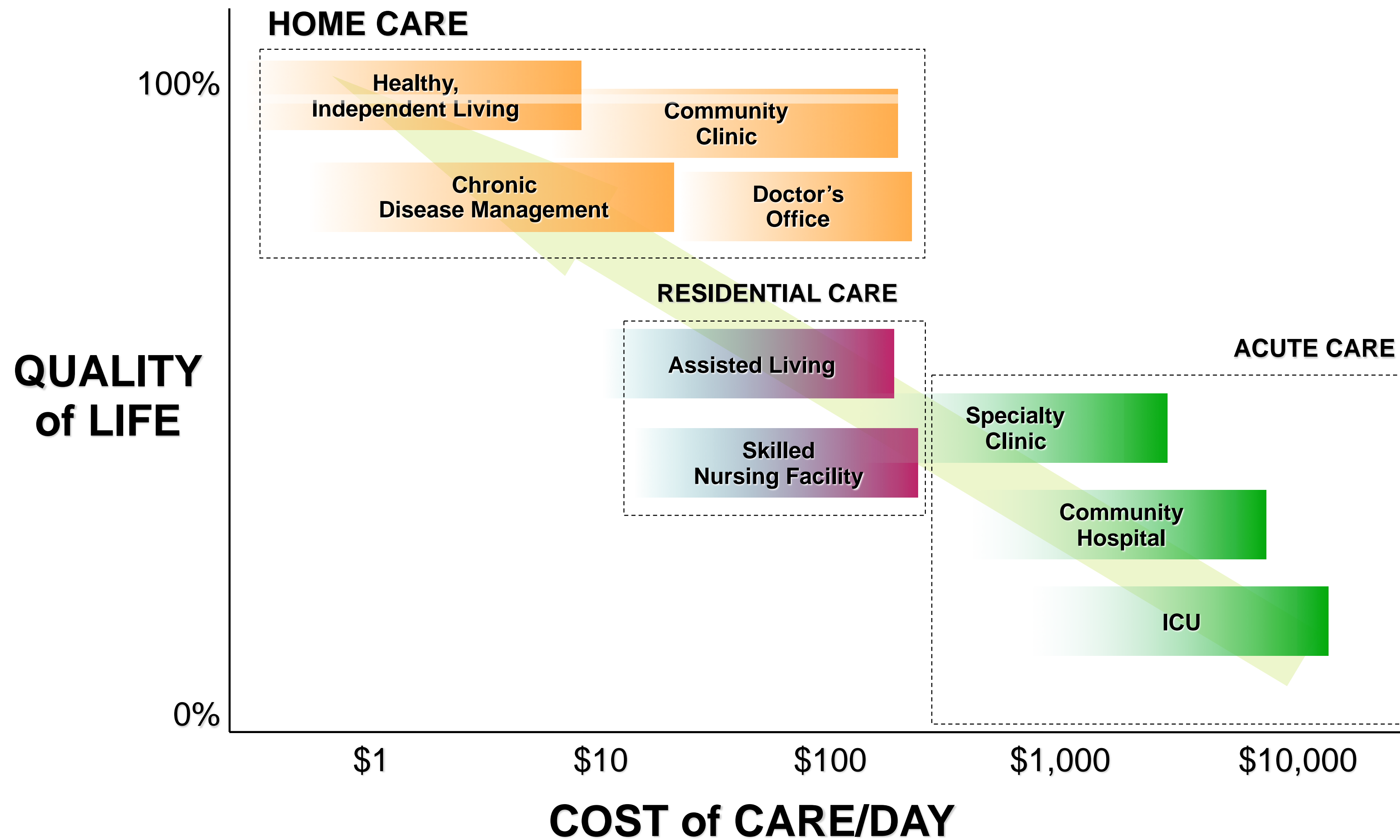


BELLA



Hu Songwen

'Shift Left' of Healthcare through Technology¹



1) from Intel, and Center for Aging Services Technologies (CAST)



TSP Guide

Transition Support Program

Navigate through your
EMR journey with the
EMR Transition Support Guide.





The Office of the National Coordinator for Health Information Technology

Health IT Home

[HITECH & Funding Opportunities](#)

[HITECH Programs](#)

[Federal Advisory Committee](#)

[Regulations & Guidance](#)

[ONC Regulations FAQs](#)

[Meaningful Use](#)

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[Federal Advisory Committee Blog](#)

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Incentive Programs for EHRs



Now's the **Time to Register!**

Now's the Time to Register for EHR Incentive Programs

Registration is open for the Medicare and Medicaid Electronic Health Record (EHR) Incentive Programs, administered by the Centers for Medicare & Medicaid Services (CMS). Eligible health care providers and hospitals have the opportunity to receive significant incentive payments for adoption and meaningful use of certified EHRs.

Why Register Now?

Providers can get started on EHR adoption now with the help of financial incentives from the federal government.

- Adopting and achieving meaningful use of EHRs takes time.
- Begin participating in 2011 and 2012 to earn the maximum incentive.
- These incentive programs will not always be available and financial penalties are scheduled to take effect in 2015.

About the Medicare and Medicaid EHR Incentive Programs

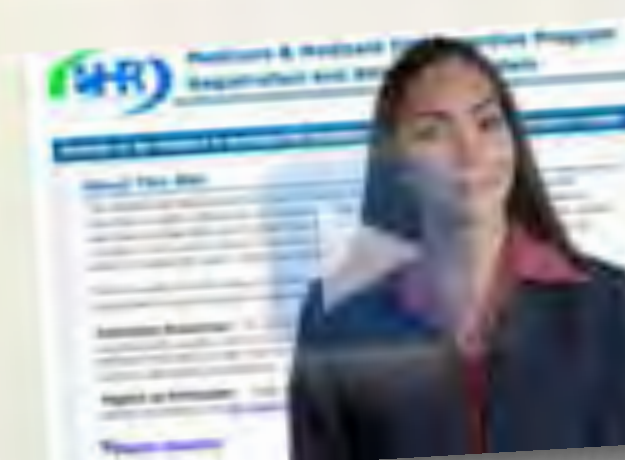
The HITECH Act of 2009 authorizes substantial support to help support provider adoption of EHRs. With the Medicare and Medicaid EHR Incentive Programs:

- Doctors and other eligible professionals can qualify for incentive payments as high as \$44,000 through Medicare or \$63,750 through Medicaid.
- Hospitals can qualify for incentive payments as high as \$1 million or more.

Recent Videos



Now's the Time to Register for EHR Incentive Programs
[Watch David Blumenthal Video > if](#)



Resources

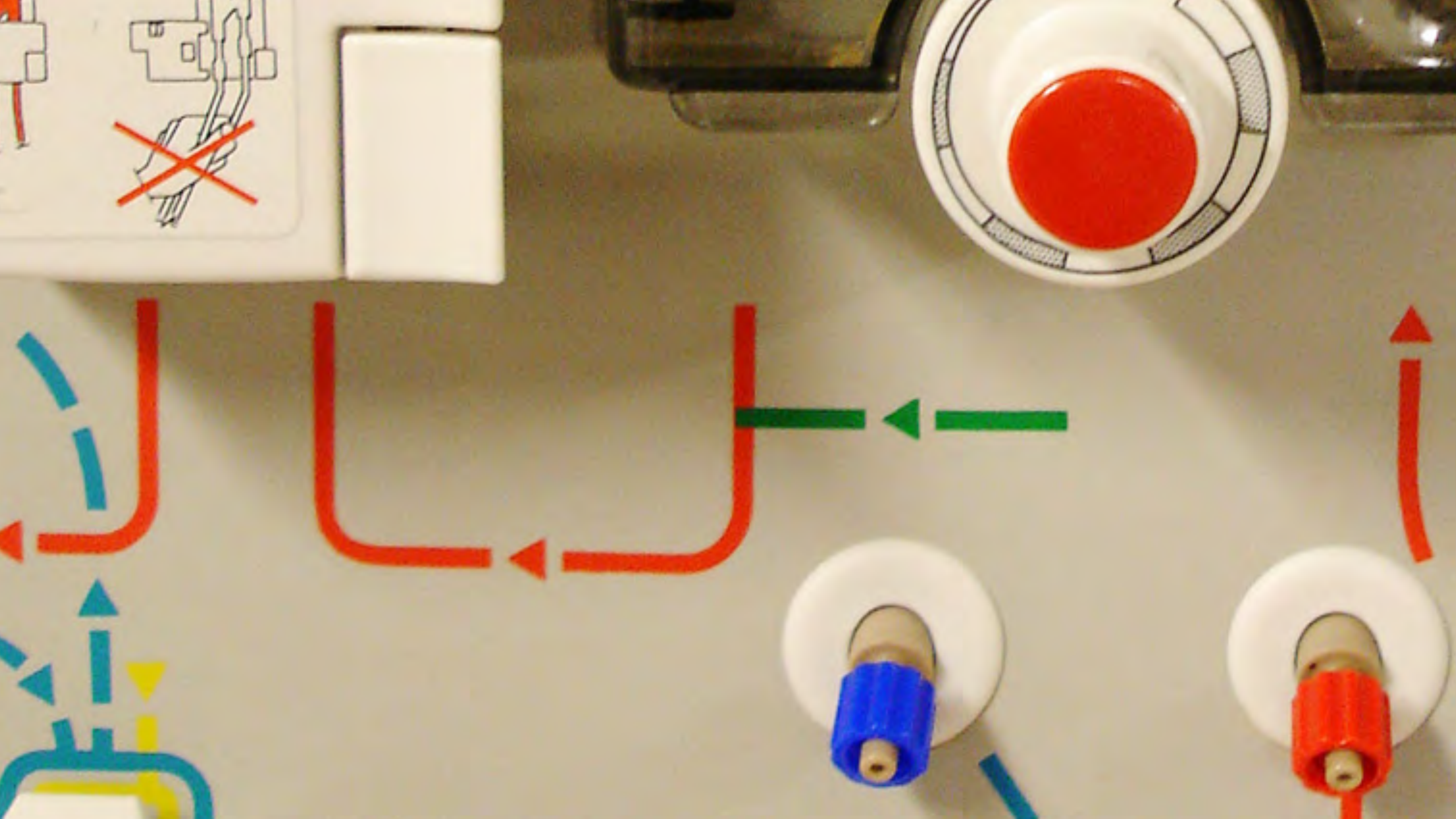
- CMS Press Release: [EHR Incentives Registration](#)
- Overview: [EHR Incentive Programs](#)
- [Path to Payment](#)
- [Determine Eligibility \[PDF - 617 KB\]](#)
- Registration Website: [CMS EHR Incentive Programs](#)
- [How to Register](#)
- Specification Sheets: [Meaningful Use](#)
- Milestone Timeline: [Incentive Programs \[PDF - 422 KB\]](#)
- Health IT Buzz Blog: [ONC/CMS Meaningful Use Resources](#)
- Update from Dr. Blumenthal: [EHR Adoption](#)
- Update from Dr. Blumenthal: [Registration Opens](#)
- [Grids for Meaningful Use or Standards and Certification Criteria Final Rules](#)

Register for

CMS Electronic Health Record Incentives







po-ten-ti-om-e-ter

“an instrument that measures a voltage by opposing it with a precise fraction of a known voltage, and without drawing current from the unknown source.”

EMPATHY in design


```
C:\>
```




A	B	C	D	E	F	G	H	I
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J	K	L	M	N	O	P	Q	R
---	---	---	---	---	---	---	---	---

S	T	U	V	W	X	Y	Z
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0	1	2	3	4	5	6	7	8	9
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OFFICIAL BALLOT, GENERAL ELECTION
PALM BEACH COUNTY, FLORIDA
NOVEMBER 7, 2000

OFFICIAL BALLOT, GENERAL ELECTION
PALM BEACH COUNTY, FLORIDA
NOVEMBER 7, 2000

A

ates will r electors.) y)	(REPUBLICAN) GEORGE W. BUSH - PRESIDENT DICK CHENEY - VICE PRESIDENT	3 ➡
	(DEMOCRATIC) AL GORE - PRESIDENT JOE LIEBERMAN - VICE PRESIDENT	5 ➡
	(LIBERTARIAN) HARRY BROWNE - PRESIDENT ART OLIVIER - VICE PRESIDENT	7 ➡
	(GREEN) RALPH NADER - PRESIDENT WINONA LaDUKE - VICE PRESIDENT	9 ➡
	(SOCIALIST WORKERS) JAMES HARRIS - PRESIDENT MARGARET TROWE - VICE PRESIDENT	11 ➡
	(NATURAL LAW) JOHN HAGELIN - PRESIDENT NAT GOLDHABER - VICE PRESIDENT	13 ➡

➡ 4	(REFORM) PAT BUCHANAN - PRESIDENT EZOLA FOSTER - VICE PRESIDENT
➡ 6	(SOCIALIST) DAVID McREYNOLDS - PRESIDENT MARY CAL HOLLIS - VICE PRESIDENT
➡ 8	(CONSTITUTION) HOWARD PHILLIPS - PRESIDENT J. CURTIS FRAZIER - VICE PRESIDENT
➡ 10	(WORKERS WORLD) MONICA MOOREHEAD - PRESIDENT GLORIA La RIVA - VICE PRESIDENT
WRITE-IN CANDIDATE To vote for a write-in candidate, follow the directions on the long stub of your ballot card.	









“Science Finds, Industry Applies,
Man Conforms”

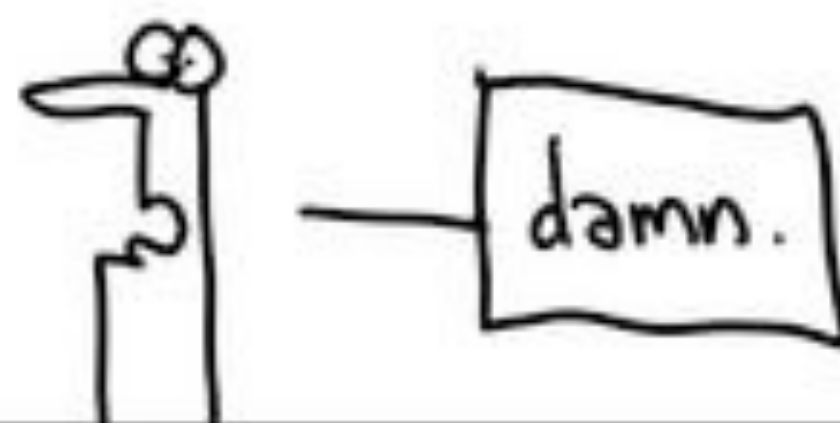
Slogan from the 1933 Chicago World's Fair

“People Propose, Science Studies,
Technology Conforms”

Don Norman’s person-centered motto
for the 21st century

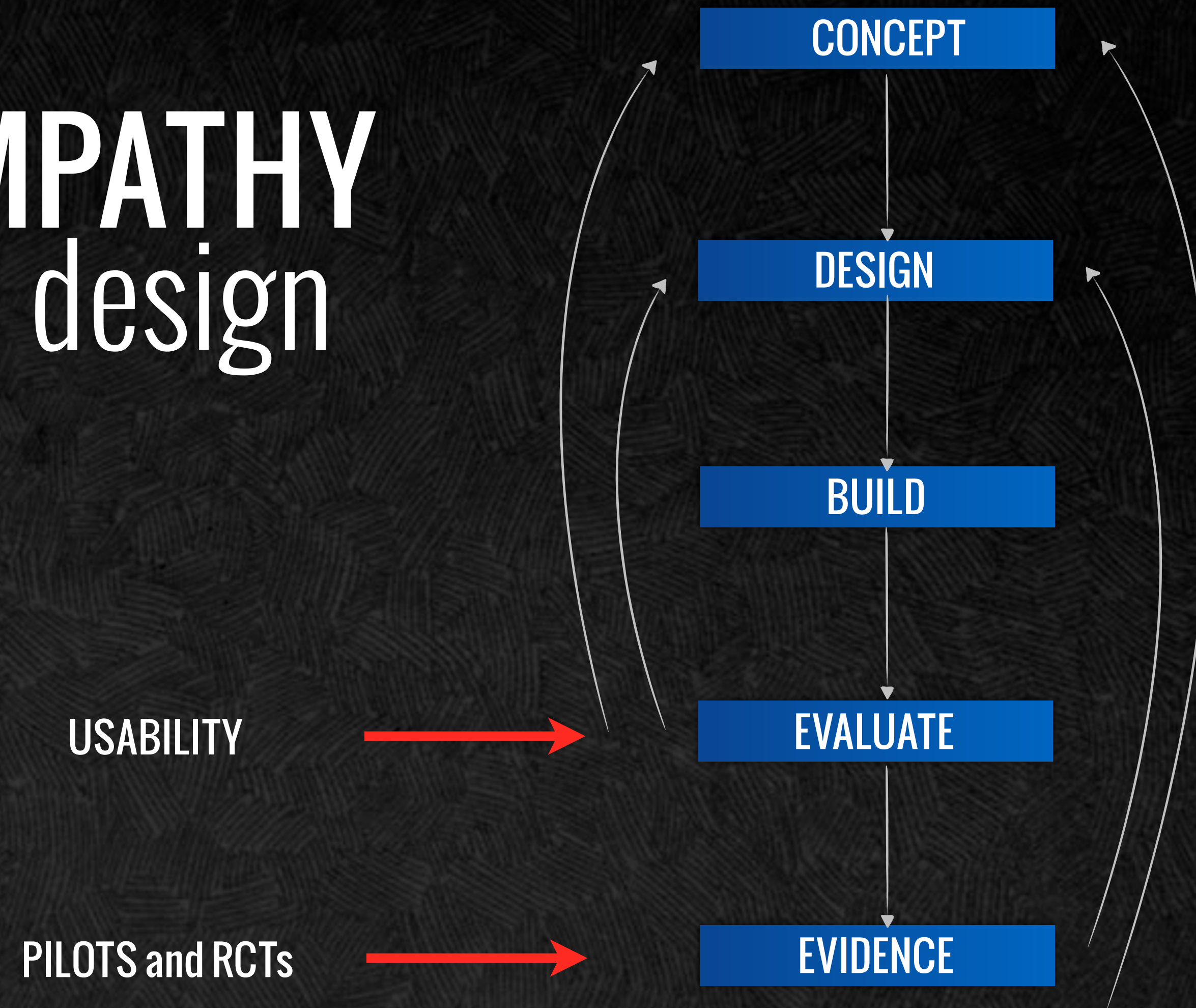
"Things that make us smart" Addison-Wesley, 1993.

technology
changes,
humans
don't.



©hugh

EMPATHY in design





Healthcare Human Factors

University Health Network



Healthcare
Human Factors
University Health Network

EVALUATE

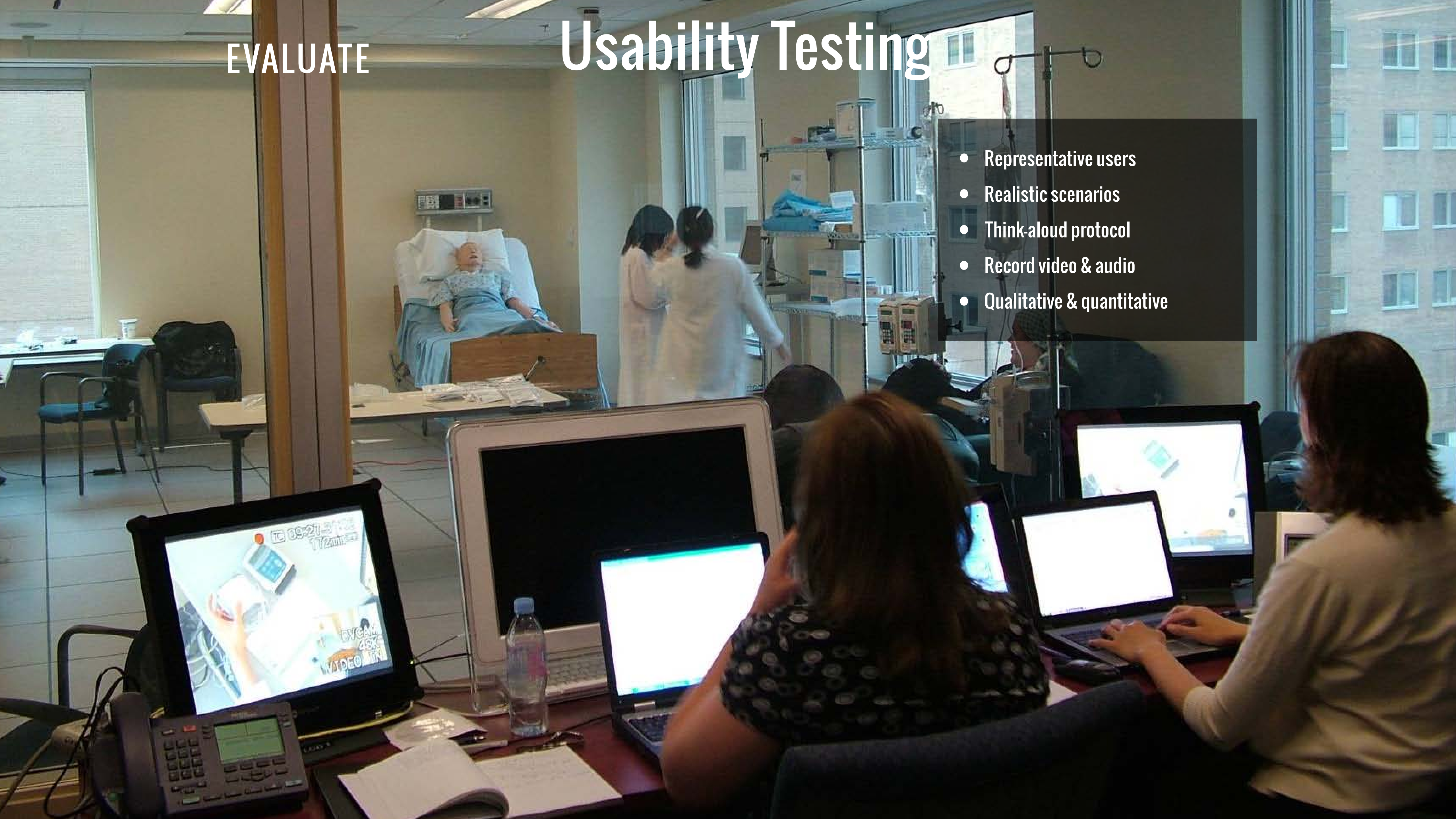
Expert/Heuristic Analysis



EVALUATE

Usability Testing

- Representative users
- Realistic scenarios
- Think-aloud protocol
- Record video & audio
- Qualitative & quantitative



WHAT IF WE CLOSED THESE GAPS?









BANT



Diabetes management app for
adolescents.





bant



8.4 mmol/l
7:45 PM

ONTOUCH ULTRA
ONTOUCH ULTRA
ONTOUCH ULTRA



LeighannMMM DD was 76 before her 45 min hip hop class. Gave 2 snacks – hope it's enough to get her through.
#diabetes #bgnow

about 7 hours ago from TweetDeck



diabetesalic **#bgnow** 86

about 7 hours ago from web



cdalexander had a BG reading of 89 mg/dL at 02:36PM (Afternoon) **#bgnow #diabetes**

about 7 hours ago from Twitter4R



rainbow_goddess **#bgnow** 3.2 mmol/l No wonder I feel like going to sleep here at my desk.

about 8 hours ago from web



babscampbell 198 **#bgnow**

about 8 hours ago from TweetDeck



KellyRawlings **@MrMikeLawson** No major diabetes & Twitter coverage, but I direct Diabetic Living readers to **#bgnow** in the Winter issue (publishes Nov. 2)!





Available in ten languages

Nî hão

Zdravstvuite

Néih hóu

Buenos días

Hello

Annyong ashimnikka

Bonjour

Guten Tag



Available on the
App Store

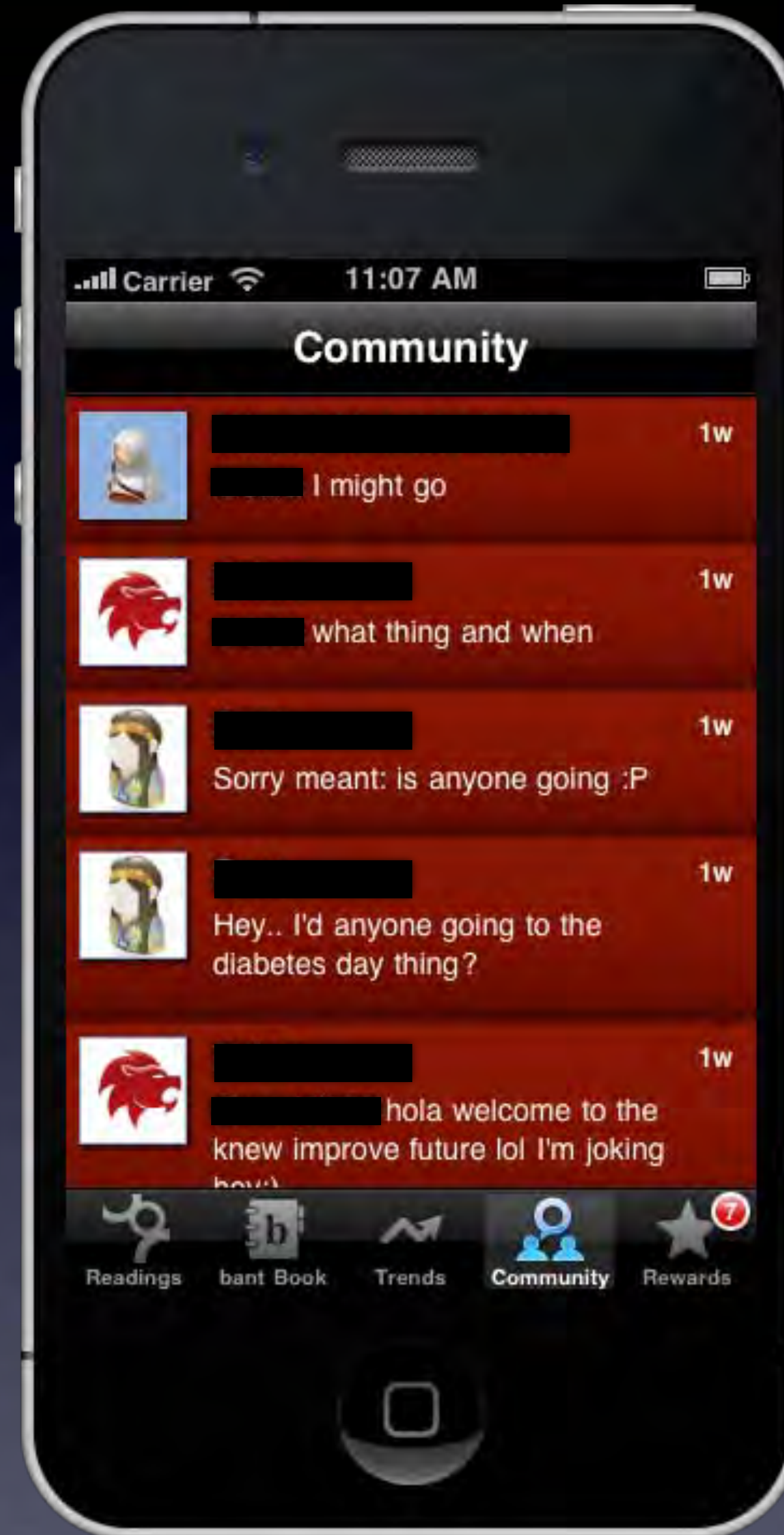
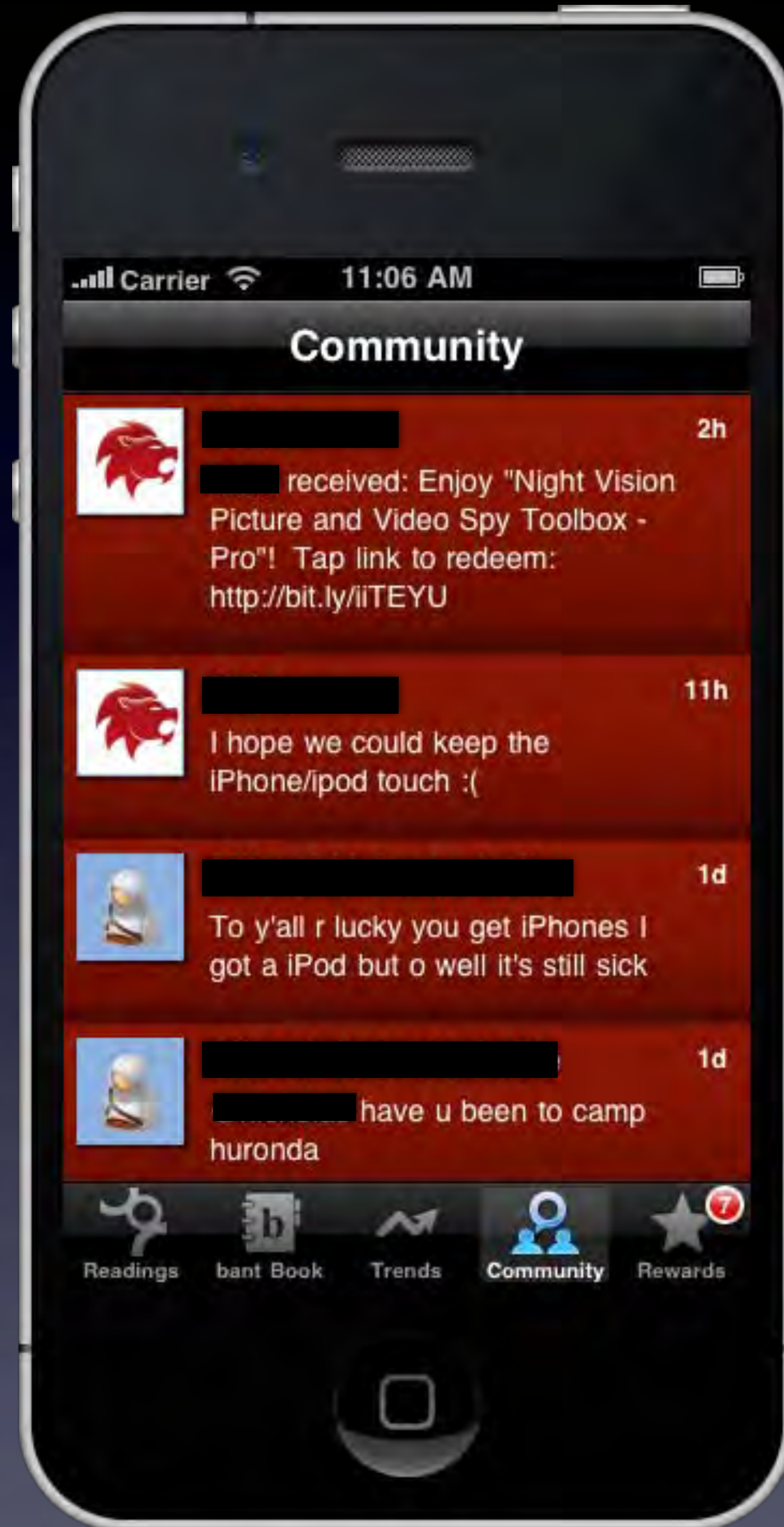
Downloads:
>100,000

**more than
10,000 active
daily users**





bant



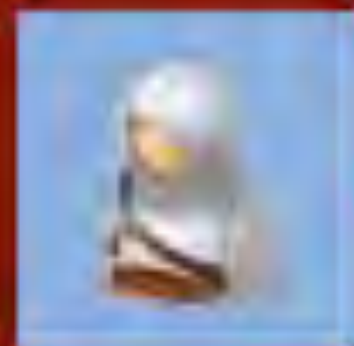
Picture and video copy "Roblox
Pro"! Tap link to redeem:
<http://bit.ly/iiTEYU>



[Redacted]

11h

I hope we could keep the
iPhone/ipod touch :(



[Redacted]

1d

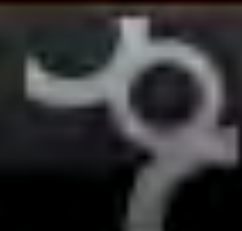
To y'all r lucky you get iPhones I
got a iPod but o well it's still sick



[Redacted]

1d

[Redacted] have u been to camp
huronda



Readings



bant Book



Trends



Community

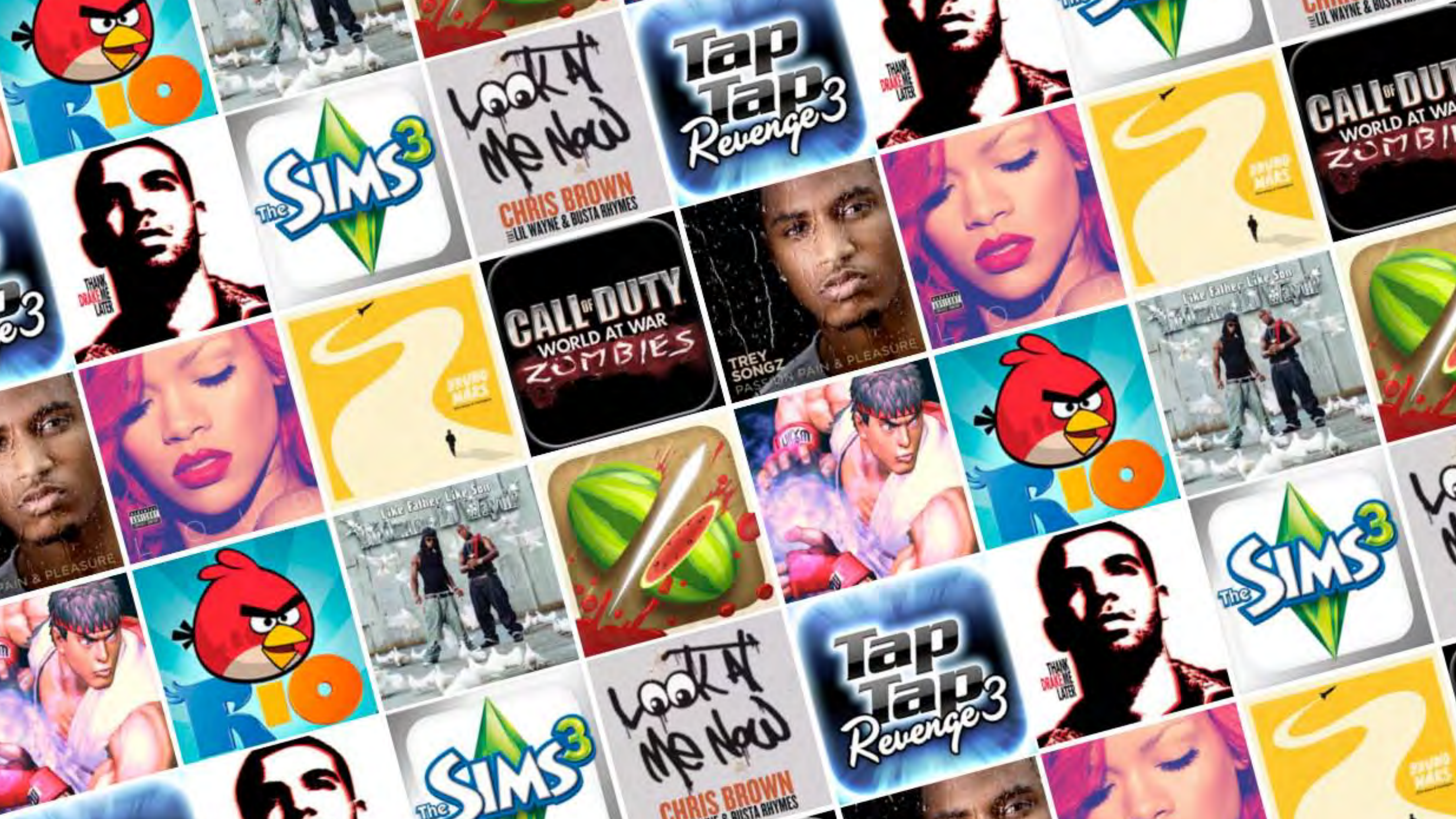


Rewards

7

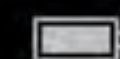


REWARDS

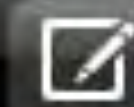


Carrier

11:07 AM



Reward Messages



Experience Points

2h

+100 XP for 4 readings. Sticking to it!



bant Reward

10h

Enjoy "Angry Birds Rio" !!! Tap link to redeem: <http://bit.ly/dNXYZv>



bant Reward

10h

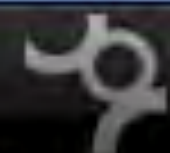
Enjoy "Night Vision Picture and Video Spy Toolbox - Pro"! Tap link to redeem: <http://bit.ly/iiTEYU>



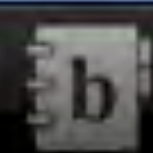
Experience Points

1d

+70 XP for 4 readings. Sticking to it!



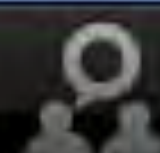
Readings



bant Book



Trends



Community



Rewards

 **49.6%**

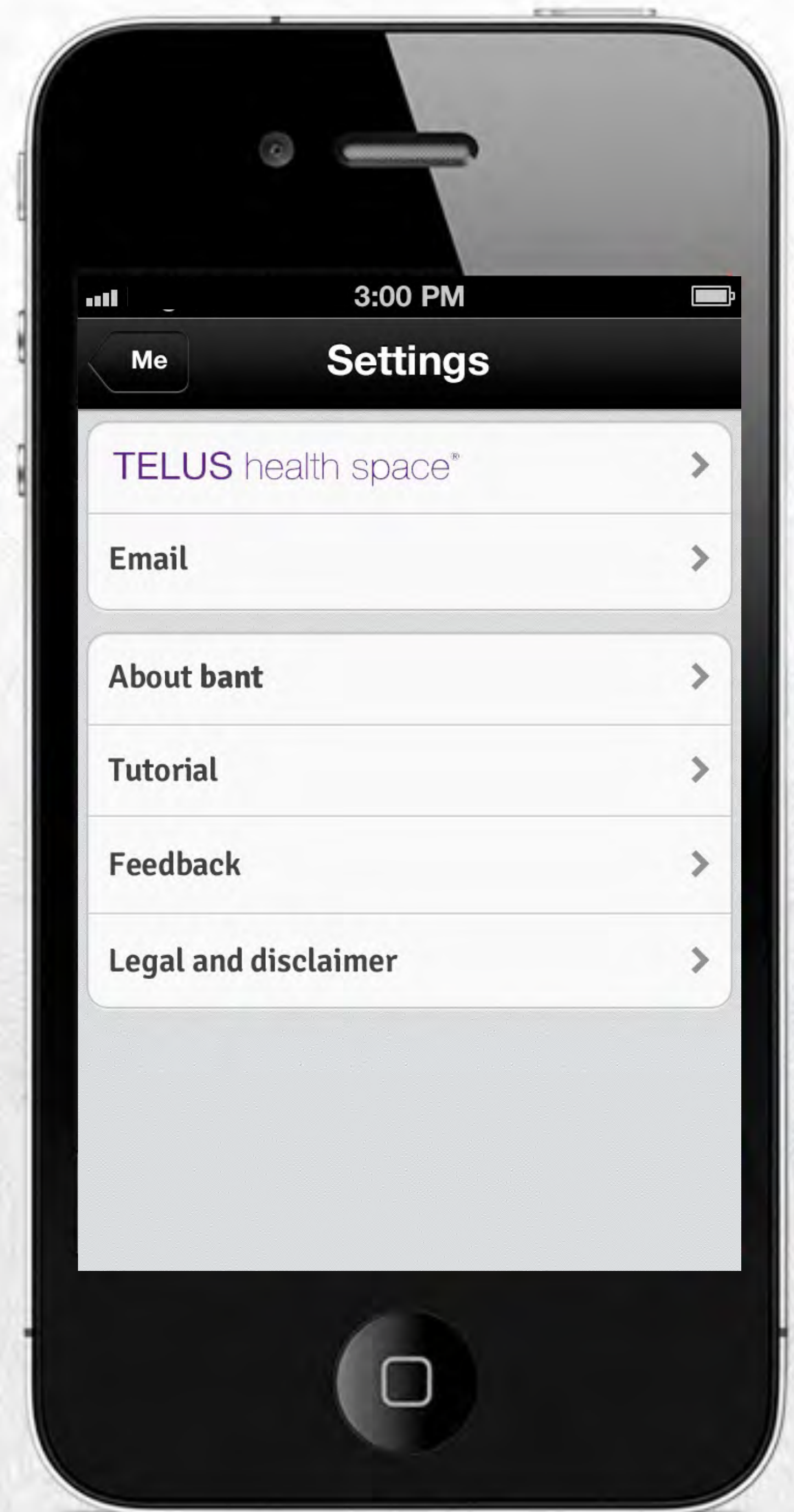
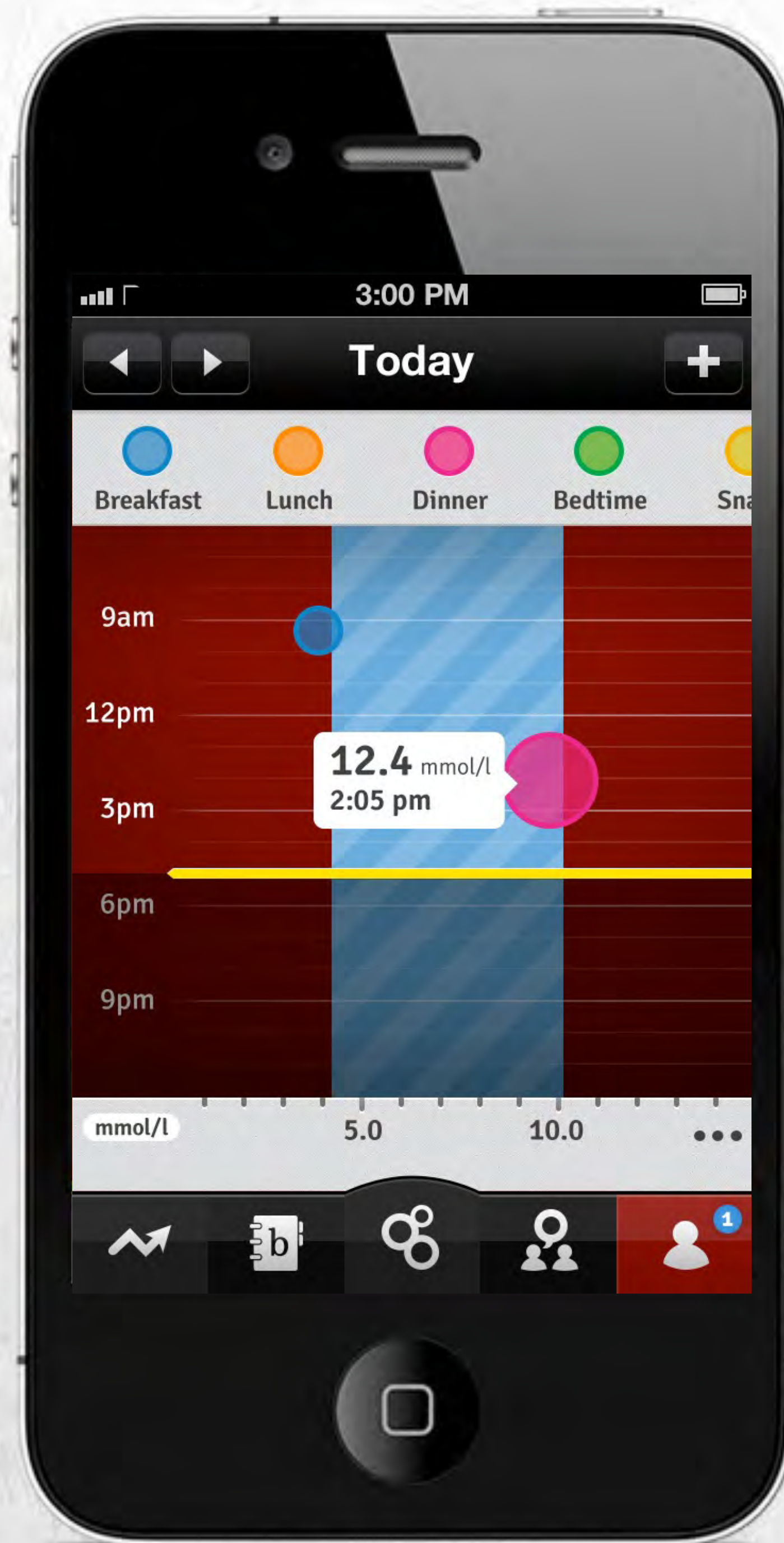
DAILY TESTING FREQUENCY

“... thought about trends and what to do when the alert popped up”

“... I tested more often at lunch”

“... rewards motivated me to test more”

“... she initiated more conversations about her blood sugars”



banter



Kevin @kevin

30m

Have been noticing that the #tests is displayed after transferring a reading.



Elizabeth Hughes @eHughes

1d

testing refresh with new asynchronous methods. #tests



Danny Bing @Bingster

1d

@Kevin Got a flashing red light on bluglu. Was able to transfer on the second try.



Dr. Banting @drbanting

2d

Try out the new app #bant, now available on the apple app store! #appstore



Dr. Banting @drbanting

3d

Back

Trend Wizard

Done



Out of Range Wizard

1

2

3



4 High Dinner readings

Dec 1- Dec 3

Let's make sure we have this right before we move ahead.

Cause



Food



Activity



Stress



Illness



Insulin



Other

Fix



Adjust basal



Adjust bolus



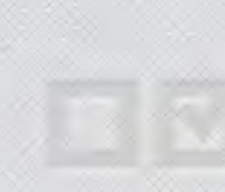
Change ratio



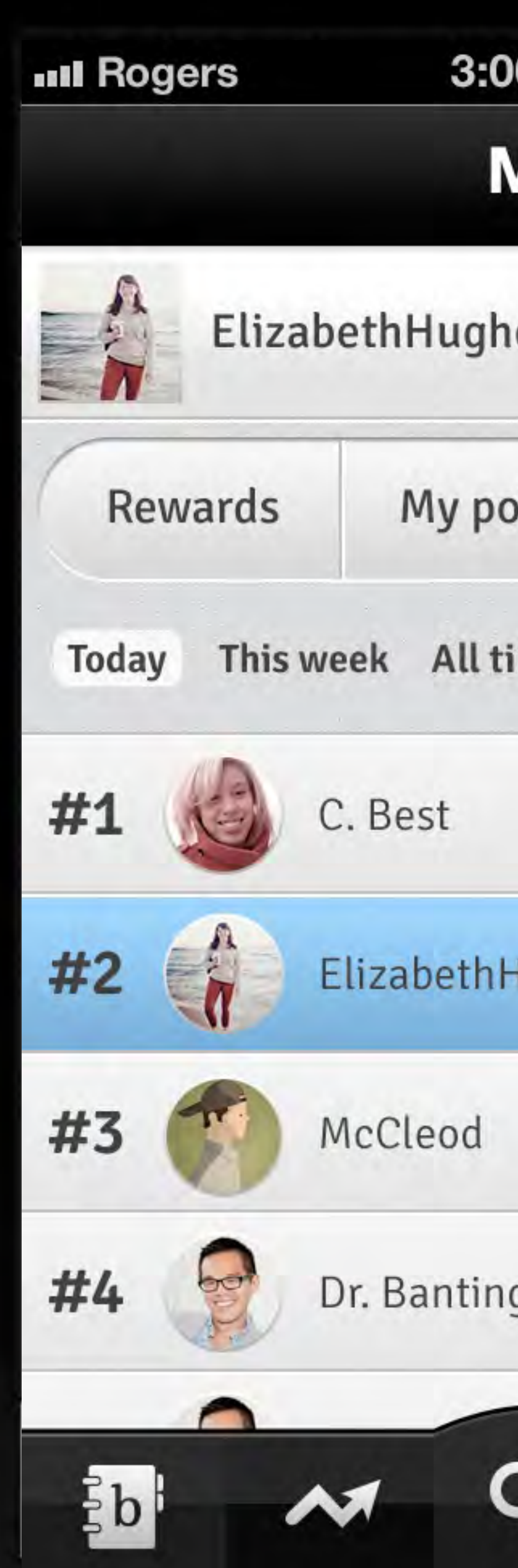
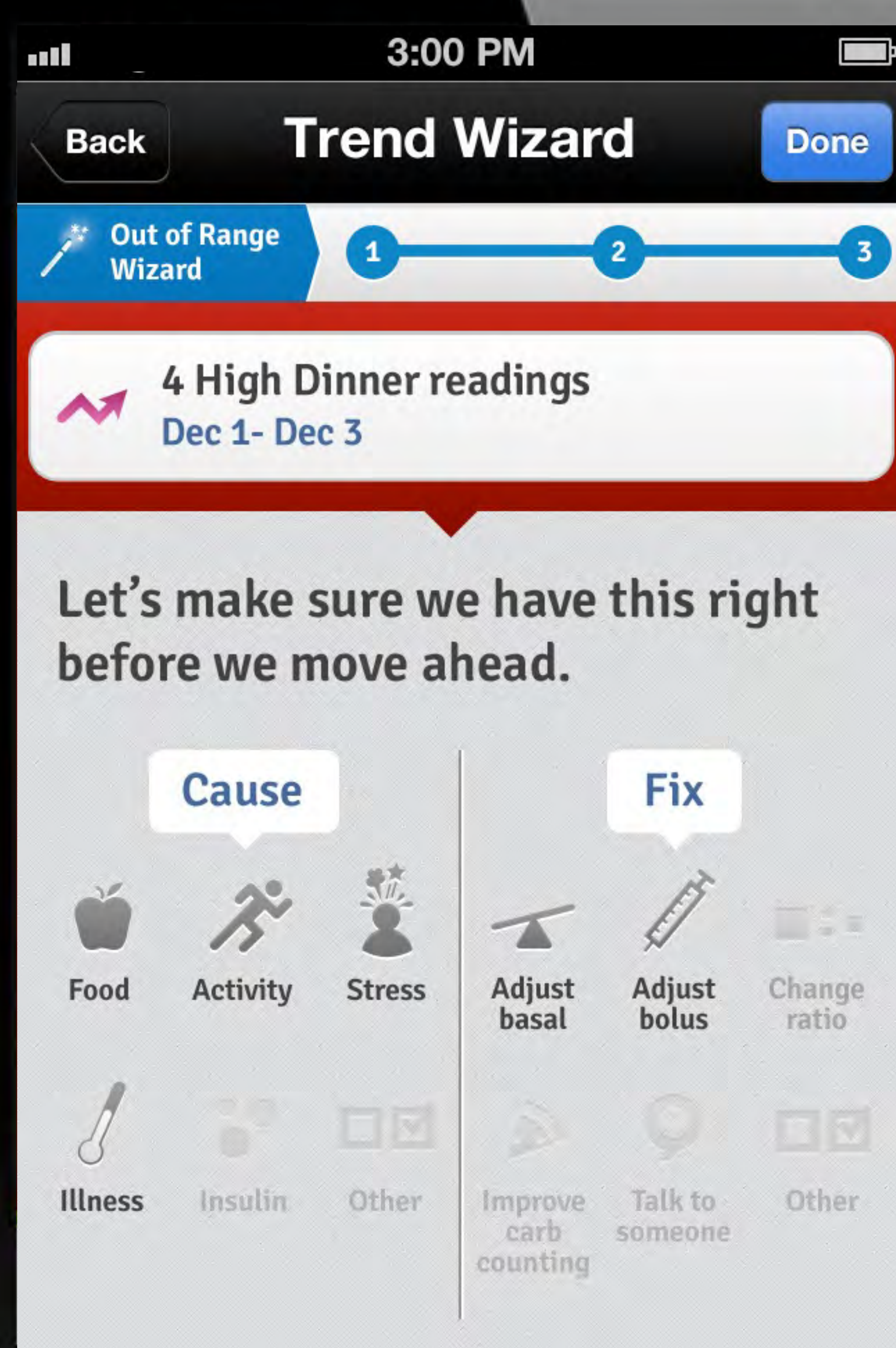
Improve carb counting



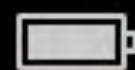
Talk to someone



Other



3:00 PM



Trend Wizard

Done

Range

1

2

3

High Dinner readings

c 1- Dec 3

make sure we have this right
we move ahead.

Cause



Activity



Stress

Adjust
basalAdjust
bolusChange
ratio

Insulin



Other

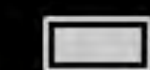
Improve
carb
countingTalk to
someone

Other

Fix



3:00 PM



Me



ElizabethHughes

4300

Rewards

My points

Leaderboard

Today

This week

All time

You are #2 of 75

#1



C. Best

4380

#2



ElizabethHughes

4300

#3



McCleod

4190

#4



Dr. Banting

3200



1

Points

Done

Awesome!

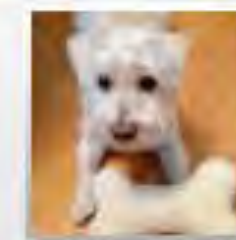


+460



Pro Tip! Fix a trend by getting the next 3 readings for that label in-range. Tap the trend button above to find out more.

Me



mel



8670

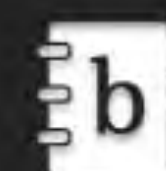
Rewards

My Points

Leaderboard



Welcome to bant! Take your readings to travel the path and earn rewards, review your progress and share how you're doing all in one place!





Woohoo!

Keep up the great work!

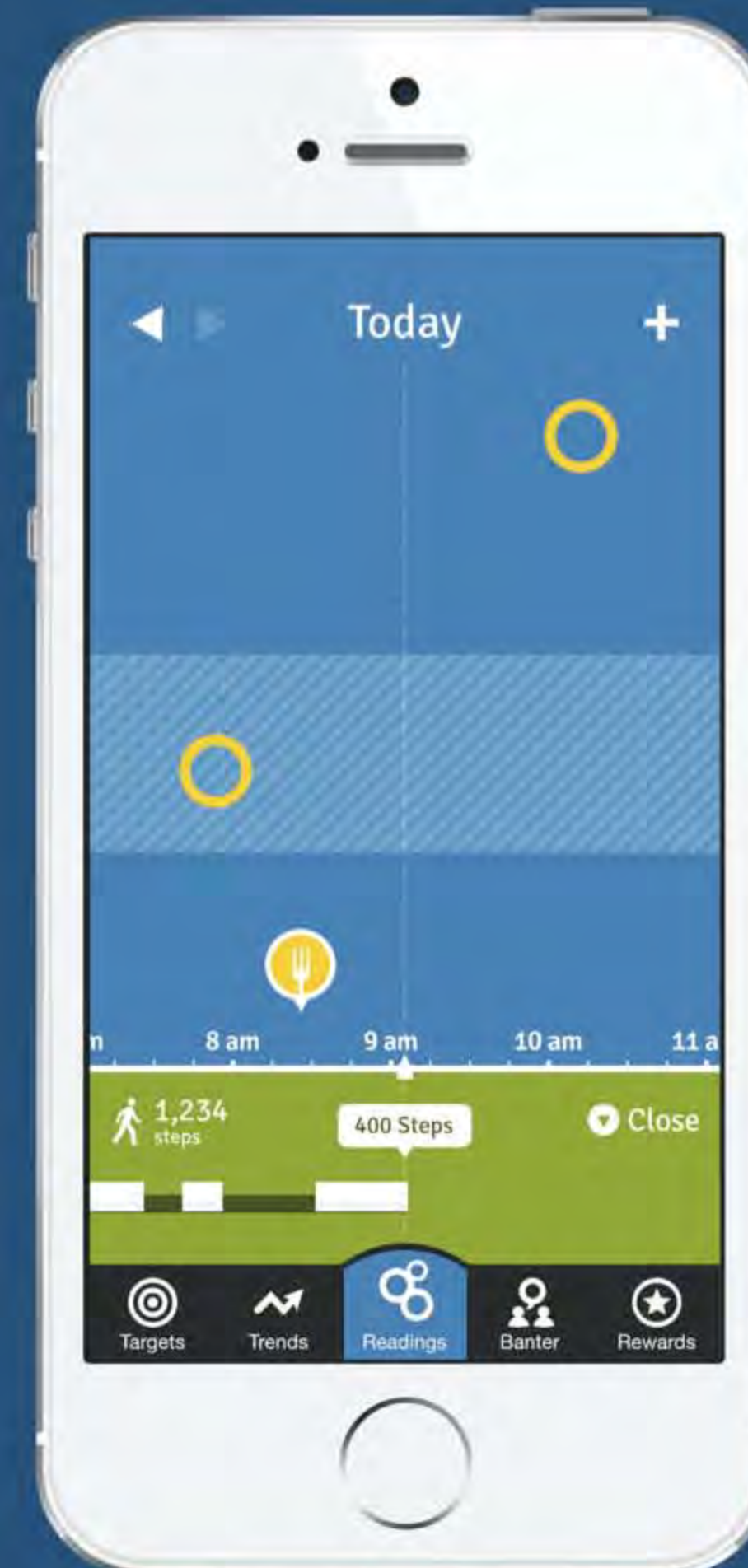
 **Pro Tip!** Take 5 readings a day everyday to earn an easy 300 points.

Done

BANT 2



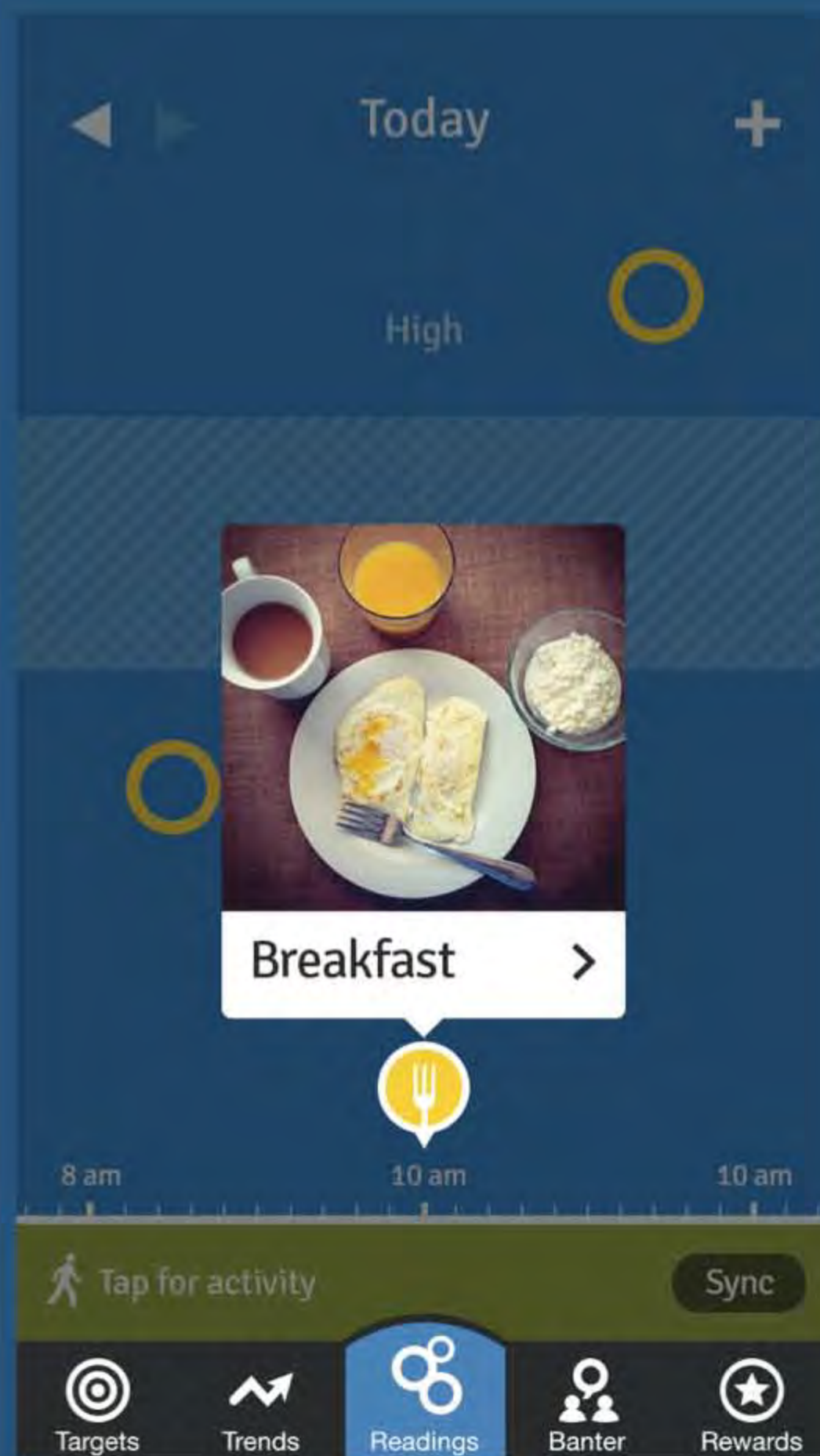
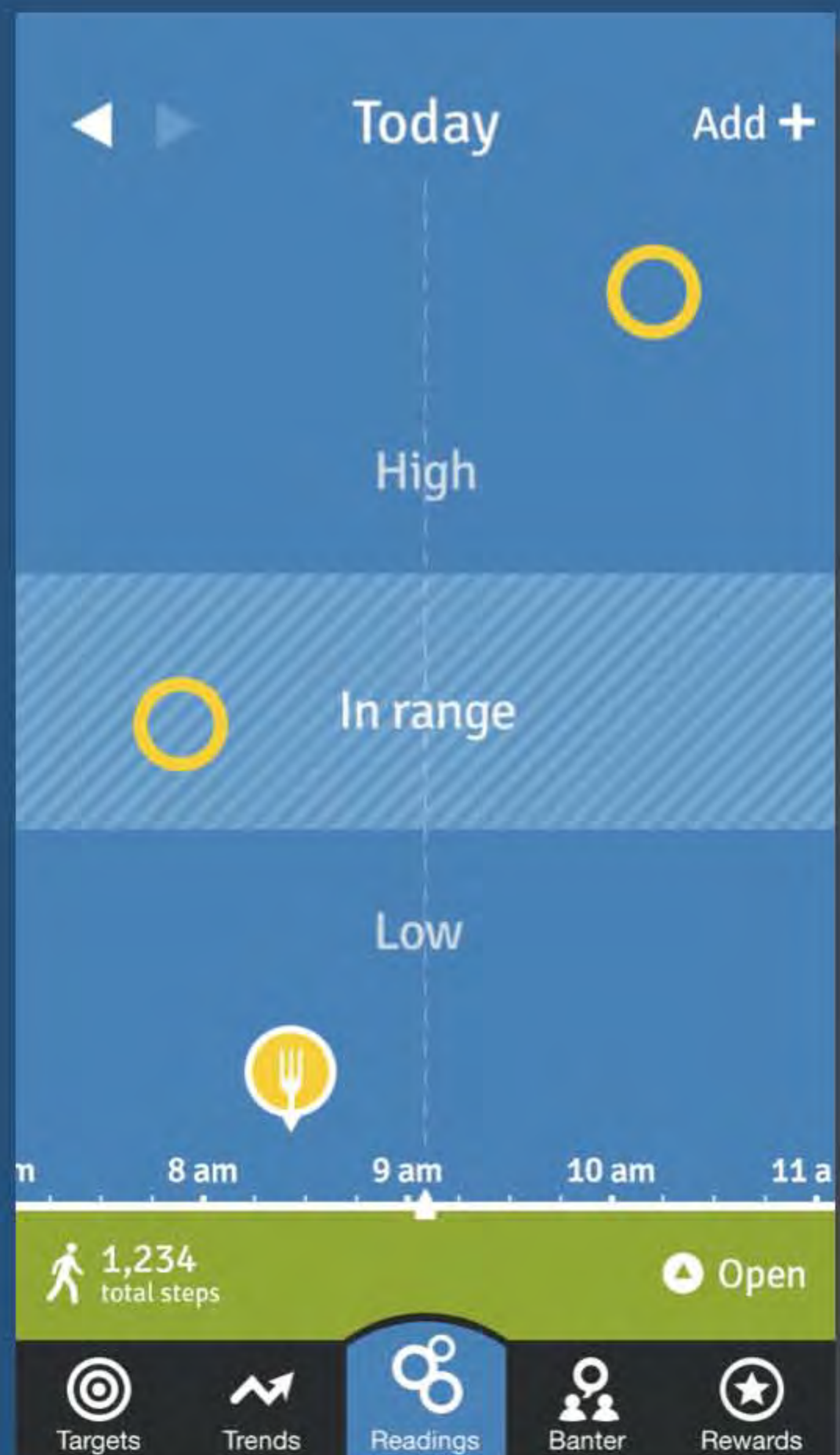
Diabetes management app for
type 2 diabetes.





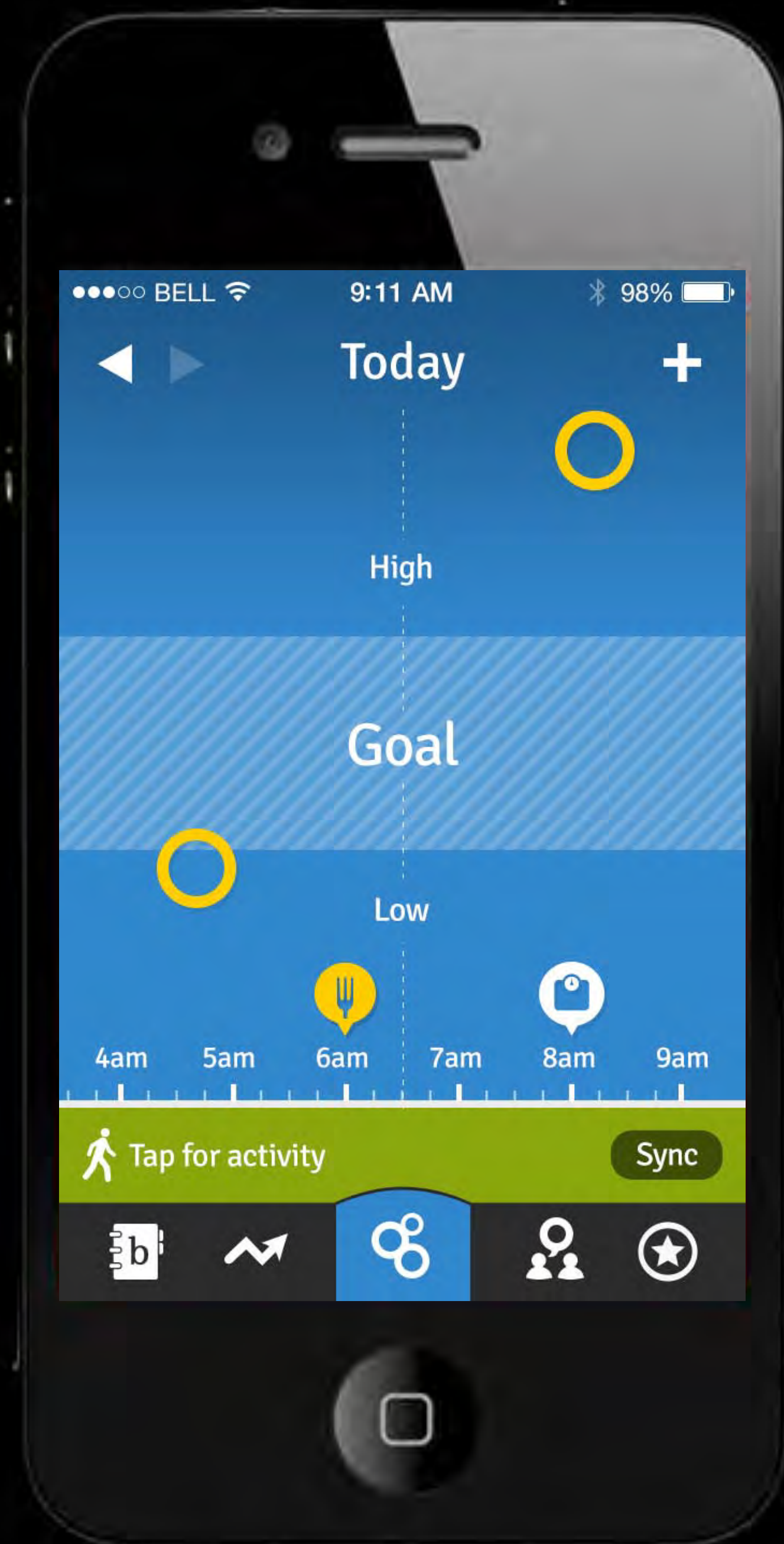
SELF-MANAGEMENT OF TYPE 2 DIABETES

- App customization through profile setup process
- Monitoring of blood glucose, steps, diet and weight
- Positive reinforcement
- Goal setting and planning
- Visualization of paired testing (pre and post prandial)
- Trends and analytics
- Information sharing
- Fast & discrete interactions



This screenshot shows the form for adding a meal or snack. At the top is a photo of the meal. Below the photo are two buttons: 'Cancel' and 'Done'. The form contains the following fields:

- Meal Name:** 'Breakfast' with a 'Change' link.
- Time:** '9:11 am' on 'Tuesday, March 19' with a 'Change' link.
- Notes:** A text area with a '+' icon and the placeholder 'Add meal or snack notes...'.



bant for
type II diabetes

Add a reading



Blood Glucose



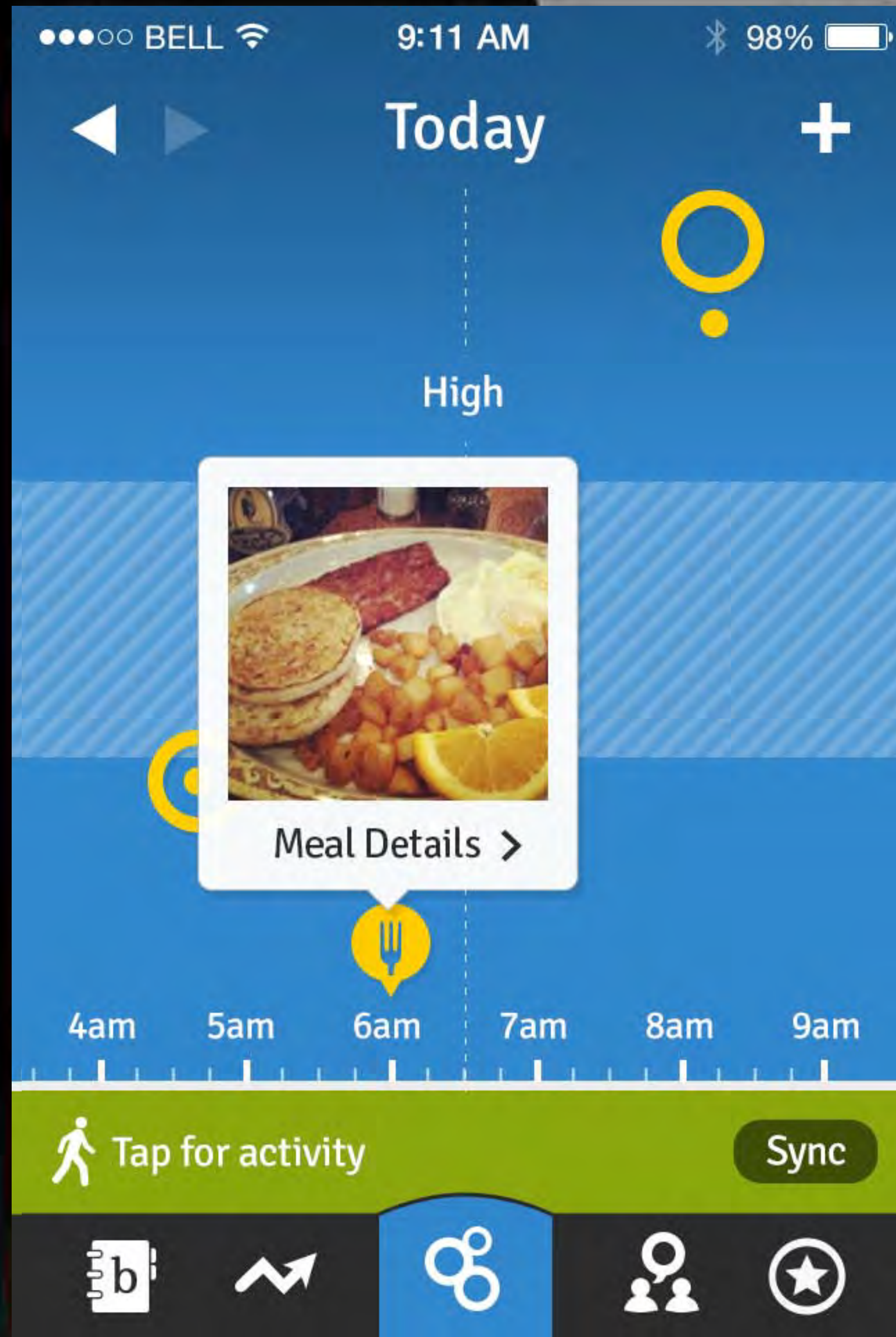
Meal or Snack



Sync Activity Monitor

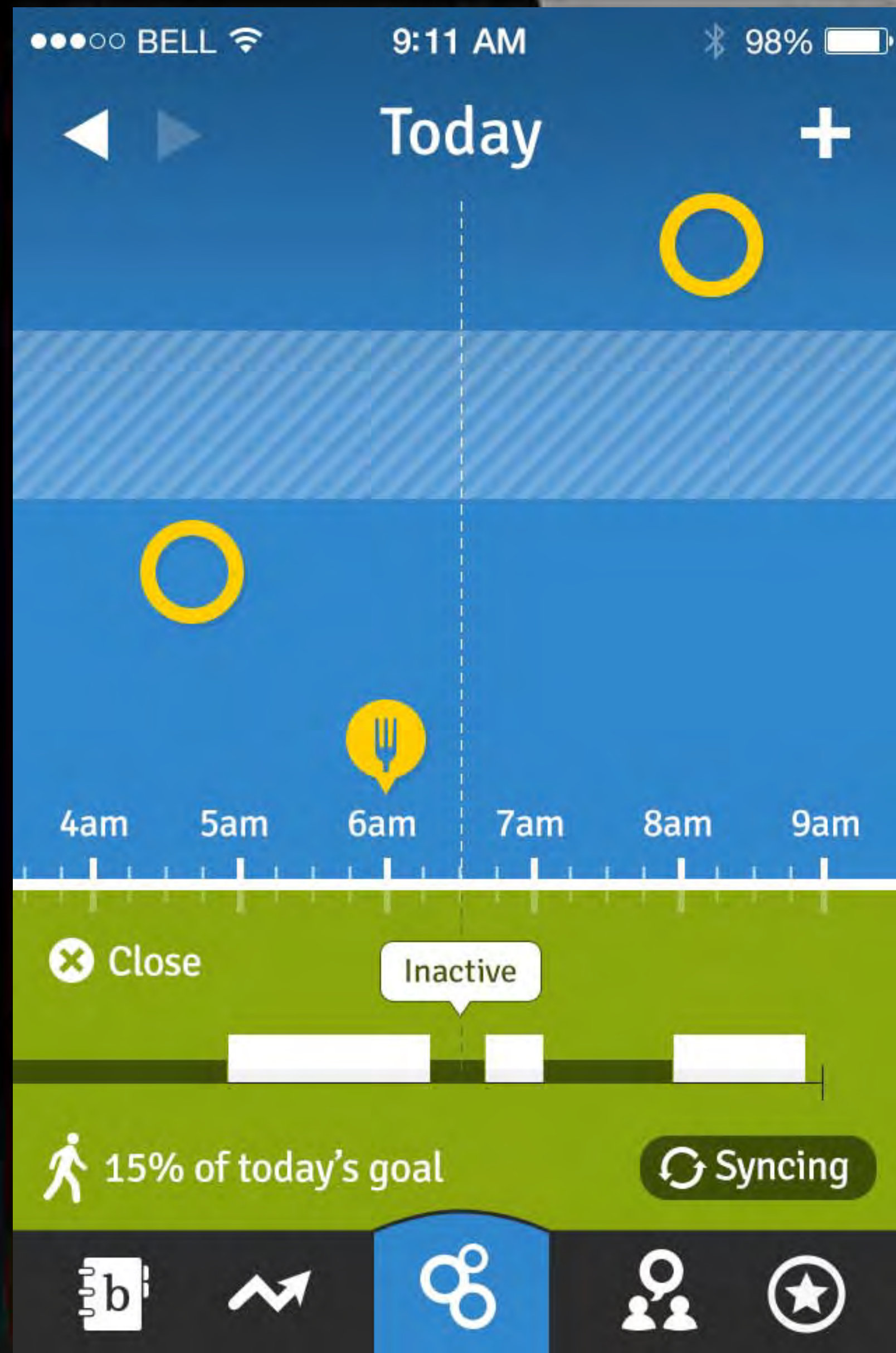


Weight

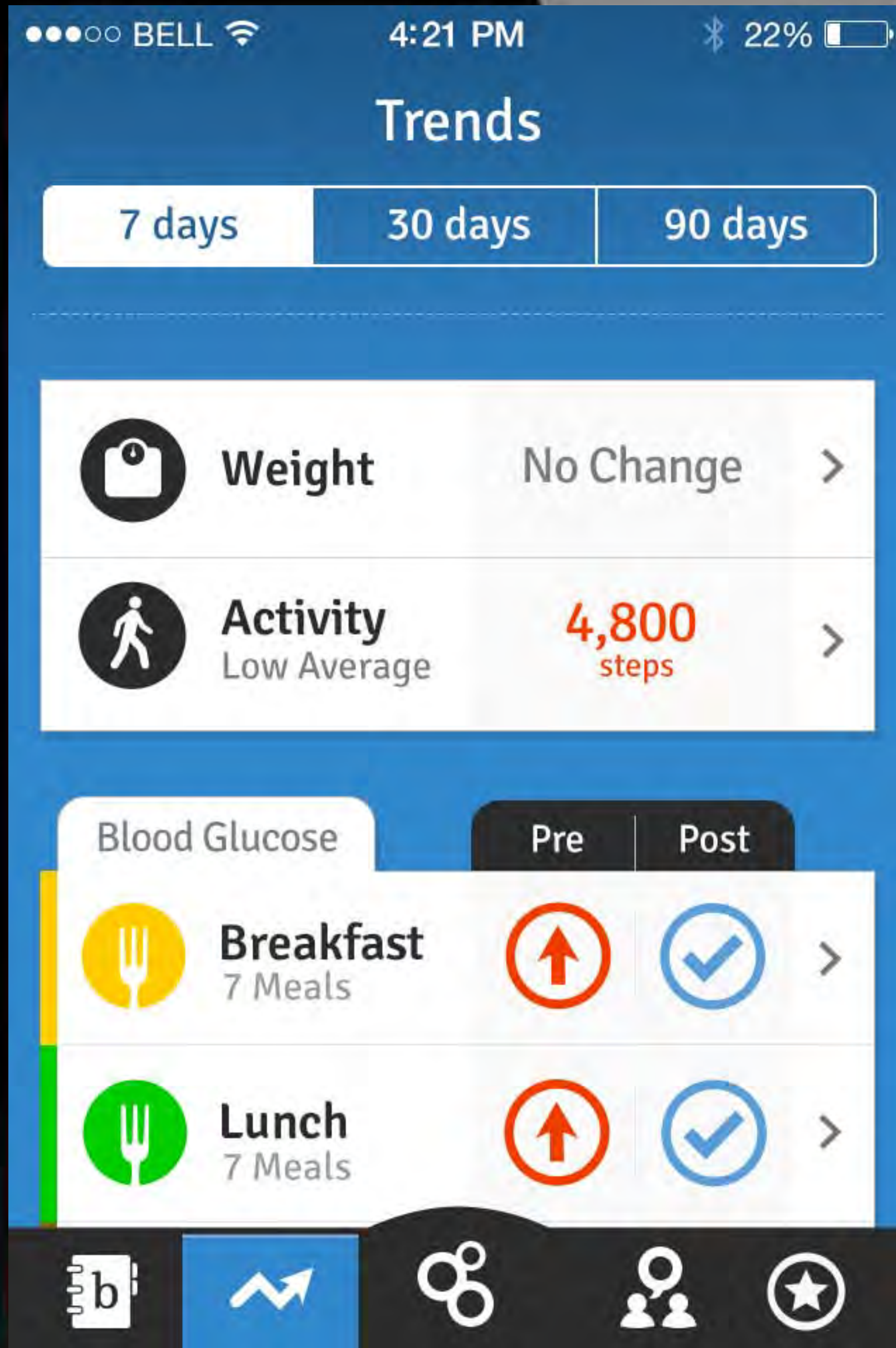


track meals
VS
BG





track activity
VS
BG



trends

< Back

Breakfast

7-Day Average

Pre-Meal



38.3
mmol/l

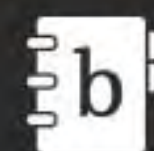
Post-Meal



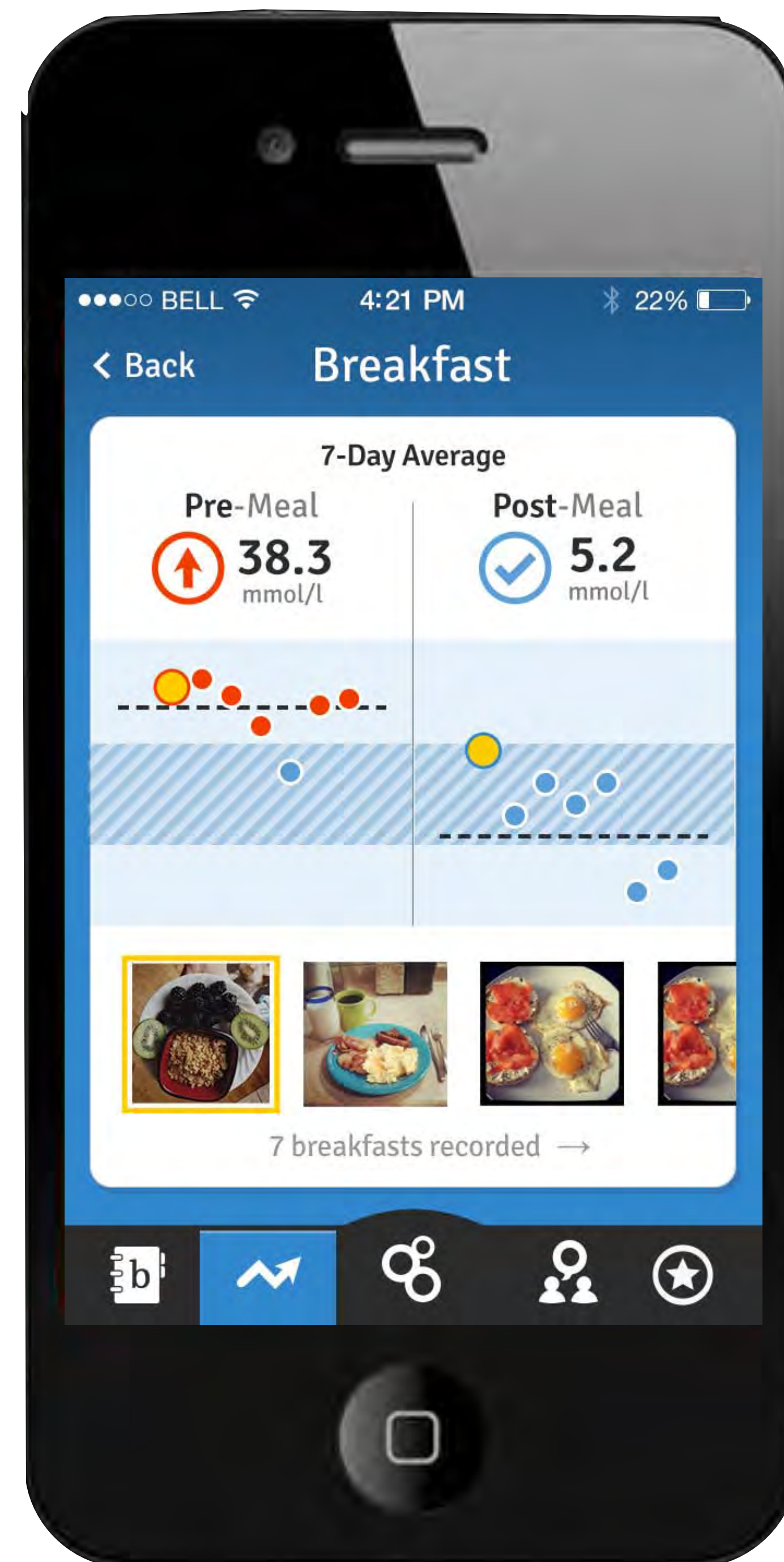
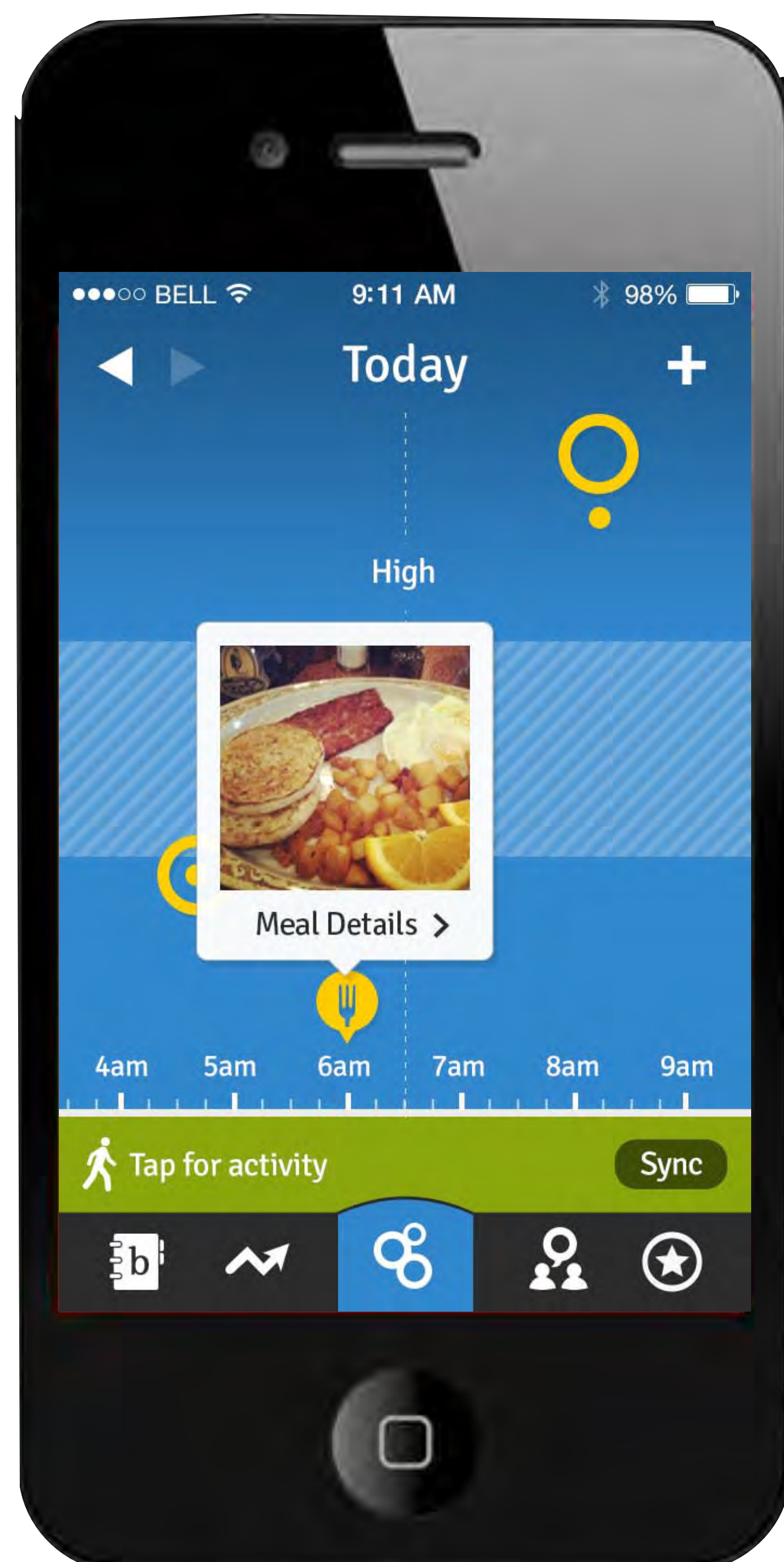
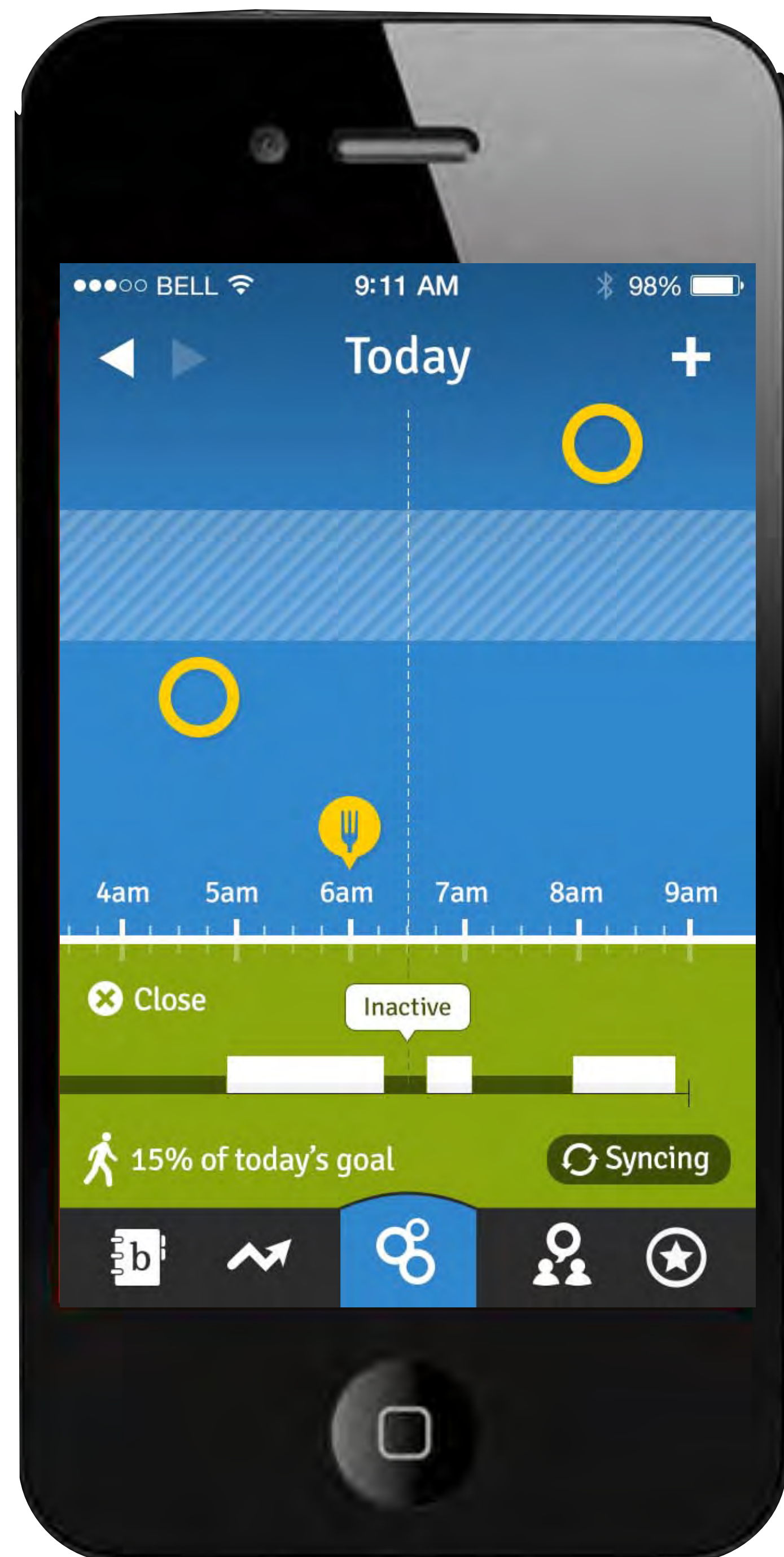
5.2
mmol/l



7 breakfasts recorded →



detailed
analysis

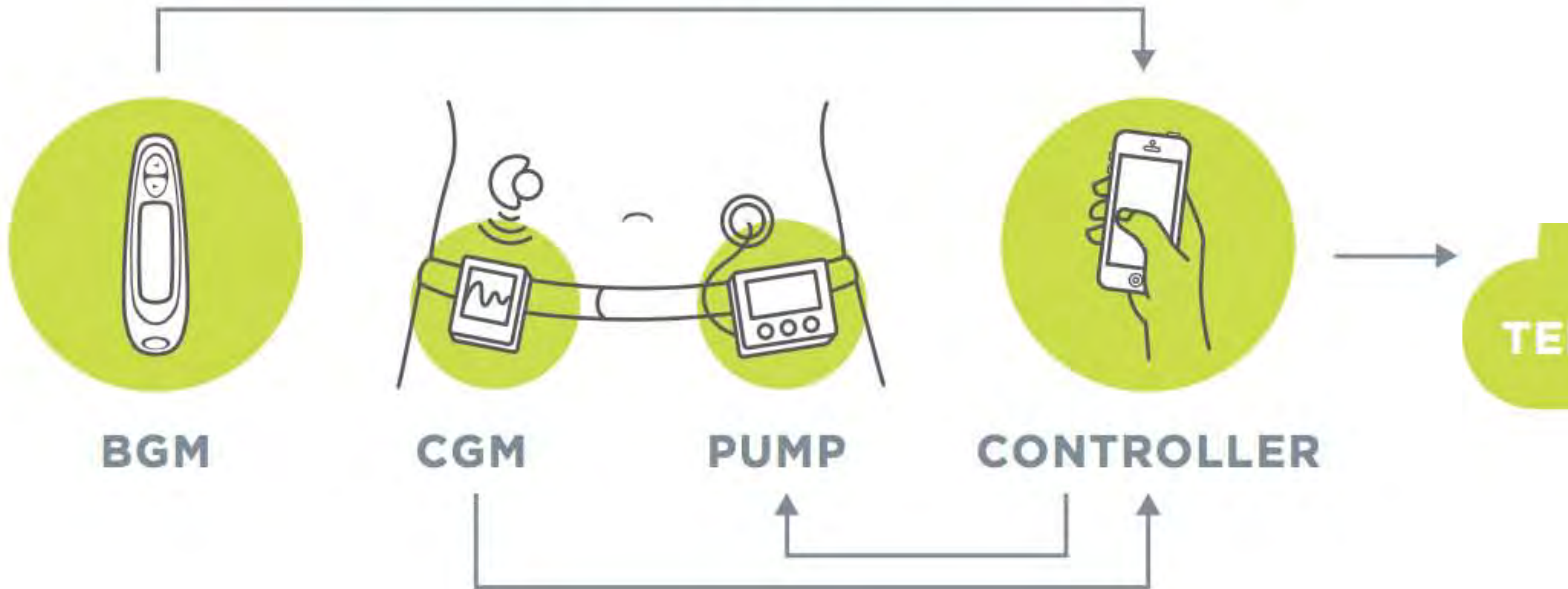




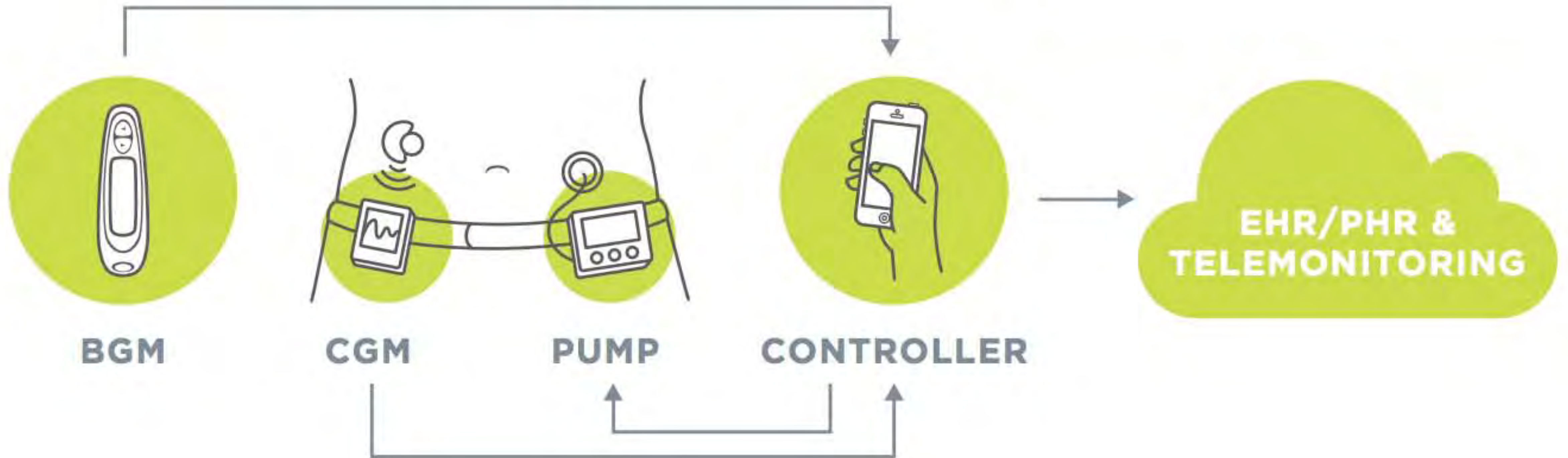
REWARDS

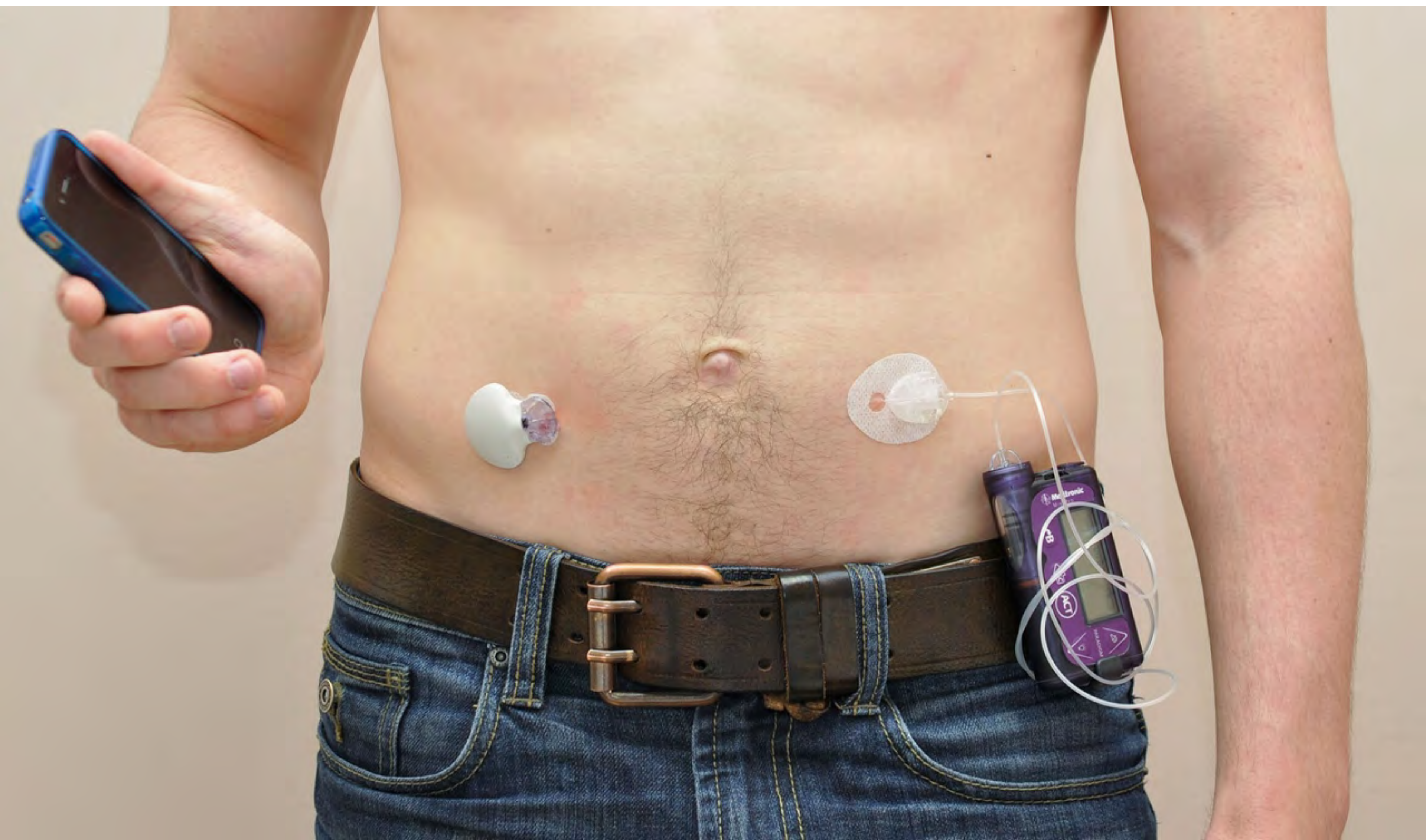
Collect points by engaging in positive behaviours, like taking your readings and achieving your goals, then redeem them for gift cards!

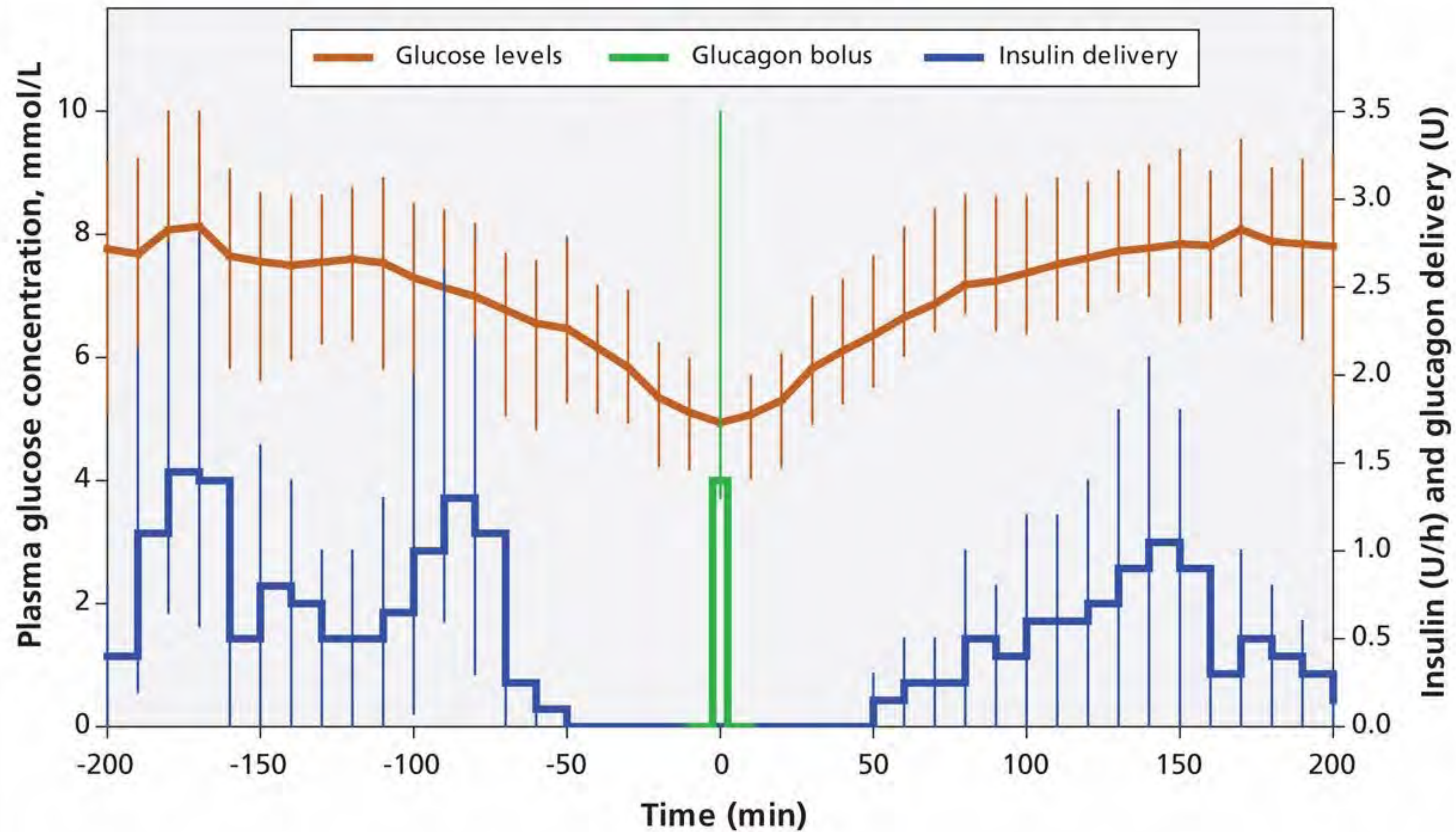
THE ARTIFICIAL PANCREAS



THE ARTIFICIAL PANCREAS











to the Dr who cures

Diabetes

Toronto ont



BANTING



Teddy Ryder
1922



July 1922



July 1923



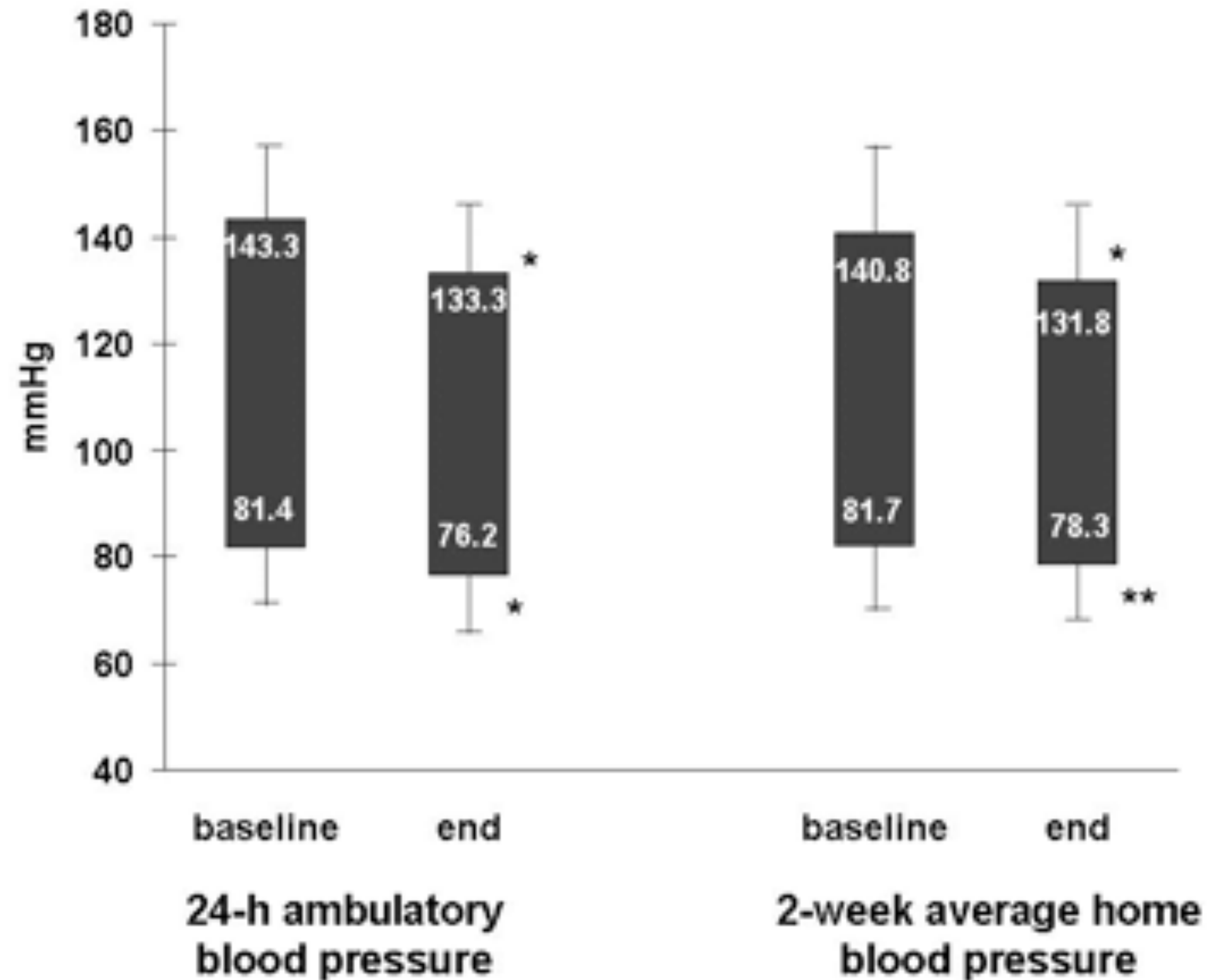


**BLOOD PRESSURE
TRANSMITTED
AUTOMATICALLY
TO BLACKBERRY**

Pilot Results

Diabetic Hypertension

American Journal of Hypertension,
20(9), pp. 942-948, 2007



Effect of Home Blood Pressure Telemonitoring With Self-Care Support on Uncontrolled Systolic Hypertension in Diabetics

Alexander G. Logan, M. Jane Irvine, Warren J. McIsaac, Andras Tisler, Peter G. Rossos,
Anthony Easty, Denice S. Feig, Joseph A. Cafazzo

Abstract—Lowering blood pressure reduces cardiovascular risk, yet hypertension is poorly controlled in diabetic patients. In a pilot study we demonstrated that a home blood pressure telemonitoring system, which provided self-care messages on the smartphone of hypertensive diabetic patients immediately after each reading, improved blood pressure control. Messages were based on care paths defined by running averages of transmitted readings. The present study tests the system's effectiveness in a randomized, controlled trial in diabetic patients with uncontrolled systolic hypertension. Of 244 subjects screened for eligibility, 110 (45%) were randomly allocated to the intervention (n=55) or control (n=55) group, and 105 (95.5%) completed the 1-year outcome visit. In the intention-to-treat analysis, mean daytime ambulatory systolic blood pressure, the primary end point, decreased significantly only in the intervention group by 9.1 ± 15.6 mmHg (SD; $P < 0.0001$), and the mean between-group difference was 7.1 ± 2.3 mmHg (SE; $P < 0.005$). Furthermore, 51% of intervention subjects achieved the guideline recommended target of $<130/80$ mmHg compared with 31% of control subjects ($P < 0.05$). These improvements were obtained without the use of more or different antihypertensive medications or additional clinic visits to physicians. Providing self-care support did not affect anxiety but worsened depression on the Hospital Anxiety and Depression Scale (baseline, 4.1 ± 3.76 ; exit, 5.2 ± 4.30 ; $P = 0.014$). This study demonstrated that home blood pressure telemonitoring combined with automated self-care support reduced the blood pressure of diabetic patients with uncontrolled systolic hypertension and improved hypertension control. Home blood pressure monitoring alone had no effect on blood pressure. Promoting patient self-care may have negative psychological effects. (*Hypertension*. 2012;60:00.)

blood pressure ■ hypertension ■ diabetes mellitus ■ blood pressure ■ self-care ■ depression





NO CHANGE



- 9.1 mmHg systolic
- 4.6 mmHg diastolic

NO ADDITIONAL MEDS

NO ADDITIONAL VISITS

SELF AWARENESS
MED ADHERENCE

Original Paper

Mobile Phone-Based Telemonitoring for Heart Failure Management: A Randomized Controlled Trial

Emily Seto^{1,2}, PhD, PEng; Kevin J Leonard^{1,2}, PhD, MBA; Joseph A Cafazzo^{1,2,3}, PhD, PEng; Jan Barnsley², PhD;
Caterina Masino¹, MA; Heather J Ross^{4,5}, MD, MHSc, FRCPC

¹Centre for Global eHealth Innovation, University Health Network, Toronto, ON, Canada

²Department of Health Policy, Management and Evaluation, University of Toronto, Toronto, ON, Canada

³Institute of Biomaterials and Biomedical Engineering, University of Toronto, Toronto, ON, Canada

⁴Department of Medicine, University of Toronto, Toronto, ON, Canada

⁵Divisions of Cardiology and Transplant, University Health Network, Toronto, ON, Canada

Corresponding Author:

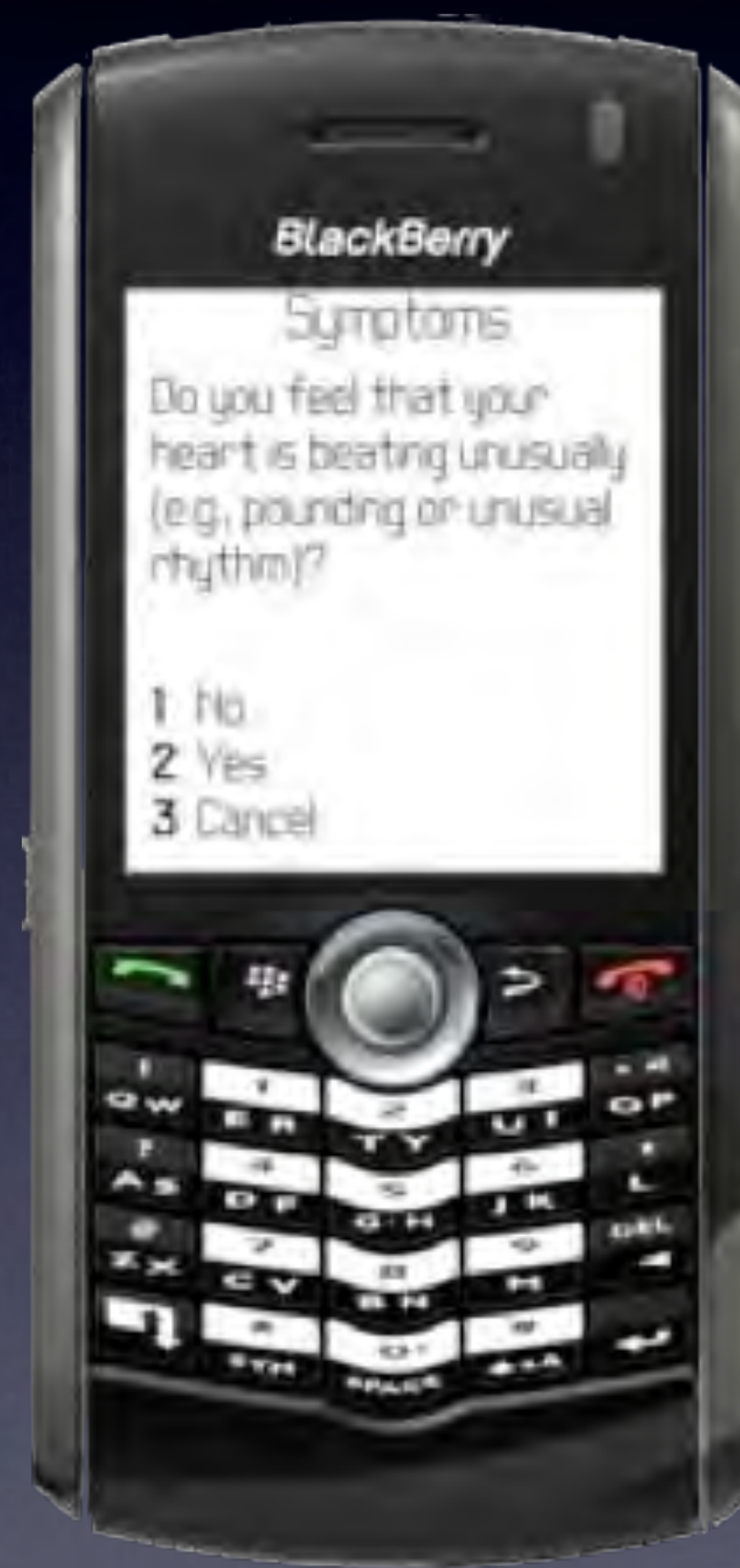
Emily Seto, PhD, PEng

Centre for Global eHealth Innovation
University Health Network
TGH/RFE Bldg, 4th Fl.
190 Elizabeth St.
Toronto, ON, M5G 2C4
Canada

Phone: 1 416 340 4800 ext 6409
1 416 340 3595



Congestive Heart Failure Client











Symptoms

Have you fainted?

- 1 No
- 2 Yes
- 3 Cancel

Symptoms

Has your breathing at
night worsened?

- 1** No
- 2** Yes
- 3** Cancel

 BlackBerry

Summary

Weight **154.4** (-0.2)

BP **105**
78

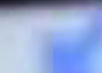
Pulse **74** /min

Sympt. **Abnormal**

Contact HF Clinic/ family
Dr. Go to Emerg Dept if
you feel you should

Press 1 for menu

BlackBerry

Details Needed 

110 / 80

Pulse: 74 /min

Taken Today 10:00 AM

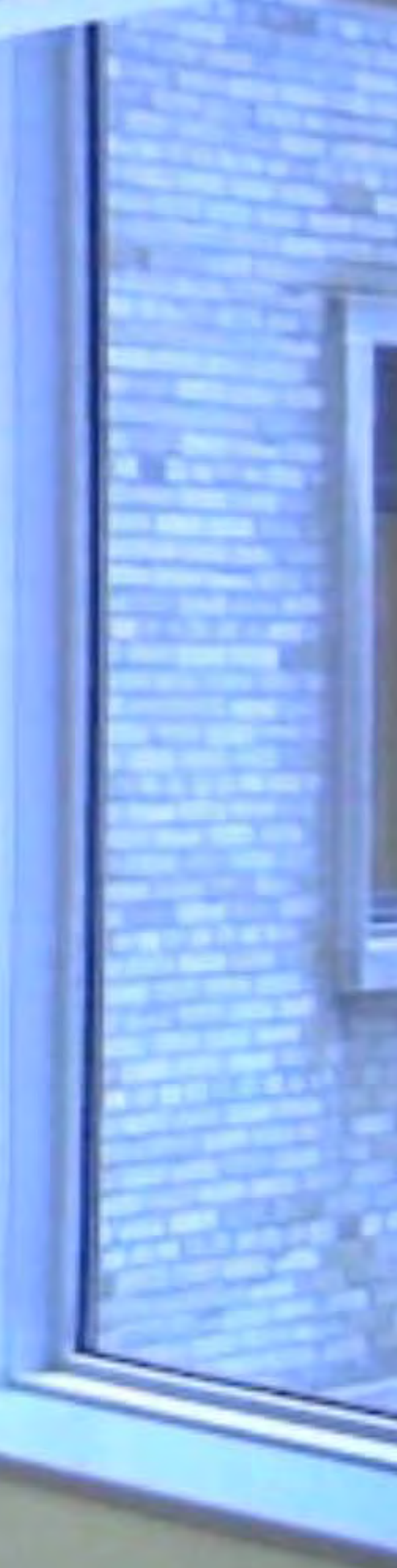
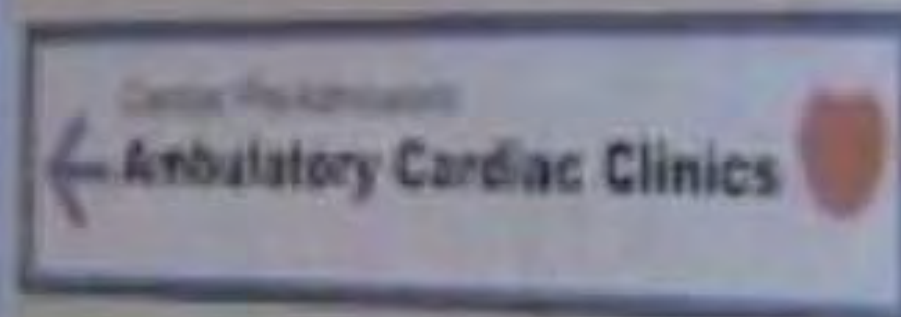
Was this?

- 1 First thing in the morning
- 2 During the day

EXIT

EXIT

→ Elevators





Fred |

Heart Failure Patient

Study Participant



Heather Ross MD, MHSc, FRCP(C)

Project Clinical Champion

Medical Director, Cardiac Transplant Program

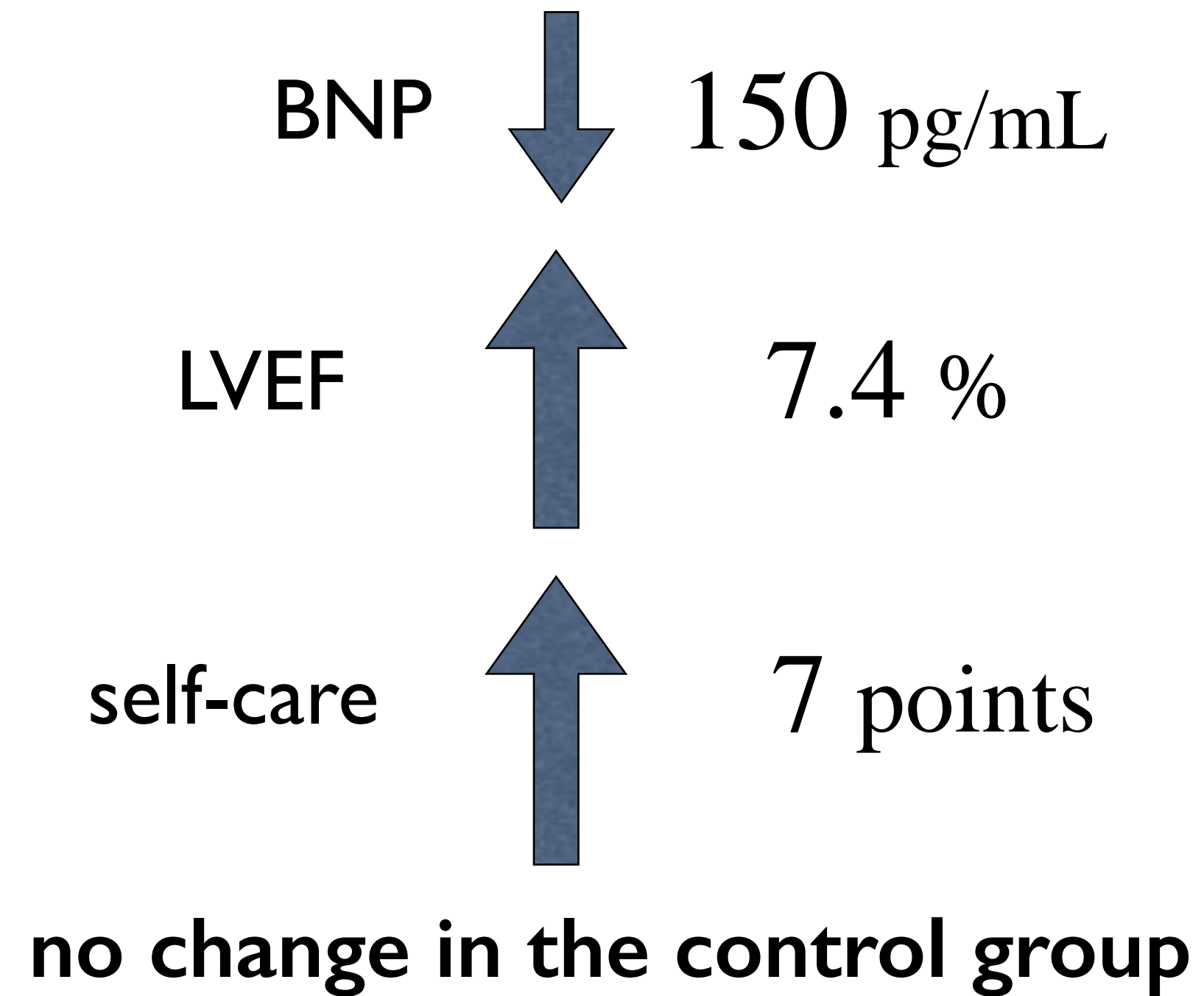
University Health Network

RCT Study design

- N=100
- duration 6 months
- daily measurements before 10 am - reminder call
- alert algorithm - messages direct to cardiologist
- control group - usual care

RCT Results

Congestive Heart Failure





medly♡≡





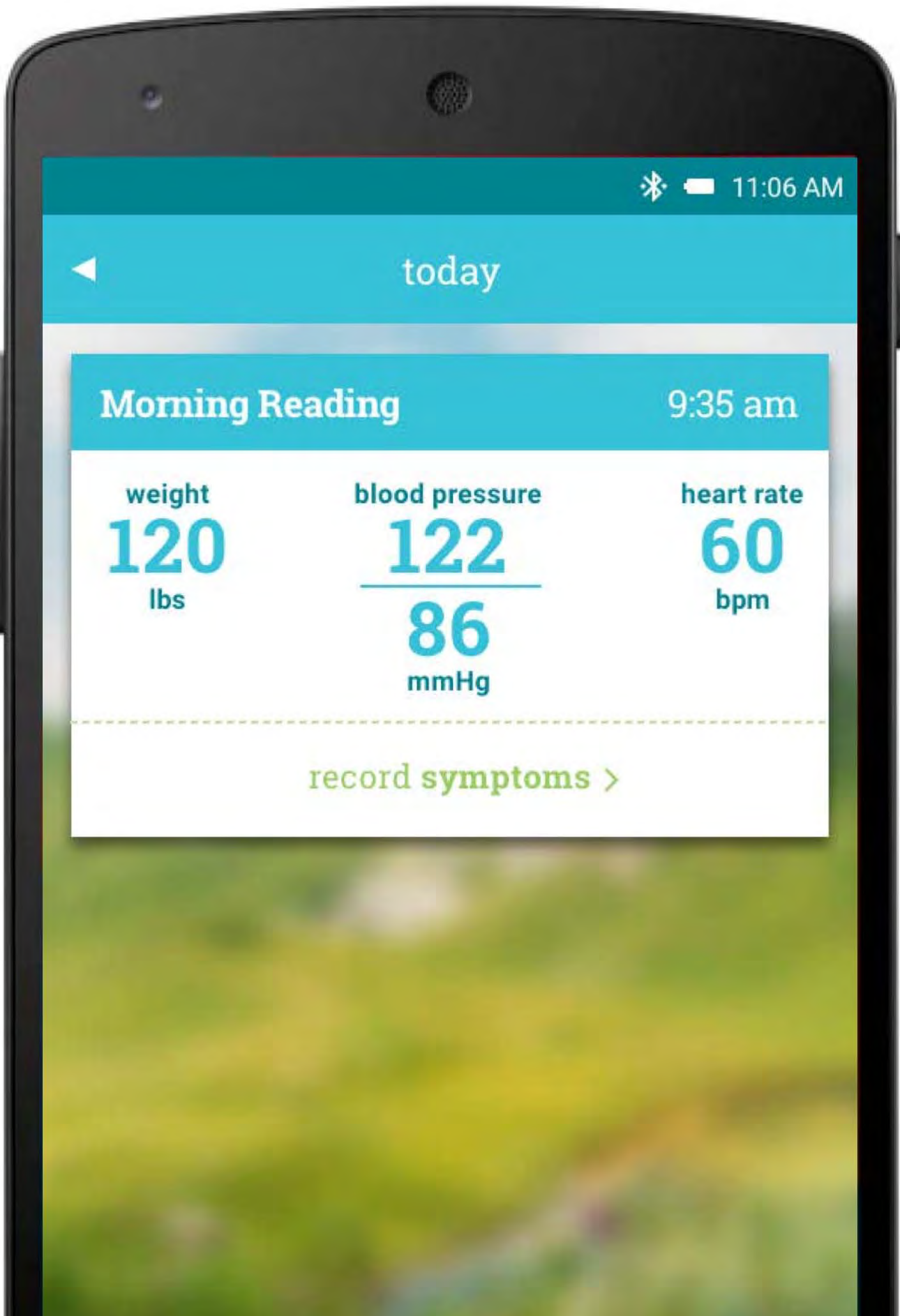
The Medly Kit

- Patients record their symptoms and vital signs with a Bluetooth-enabled blood pressure cuff and weight scale
- Data transfers wirelessly with no manual input
- Medly transfers patient readings to the clinic and generates alerts



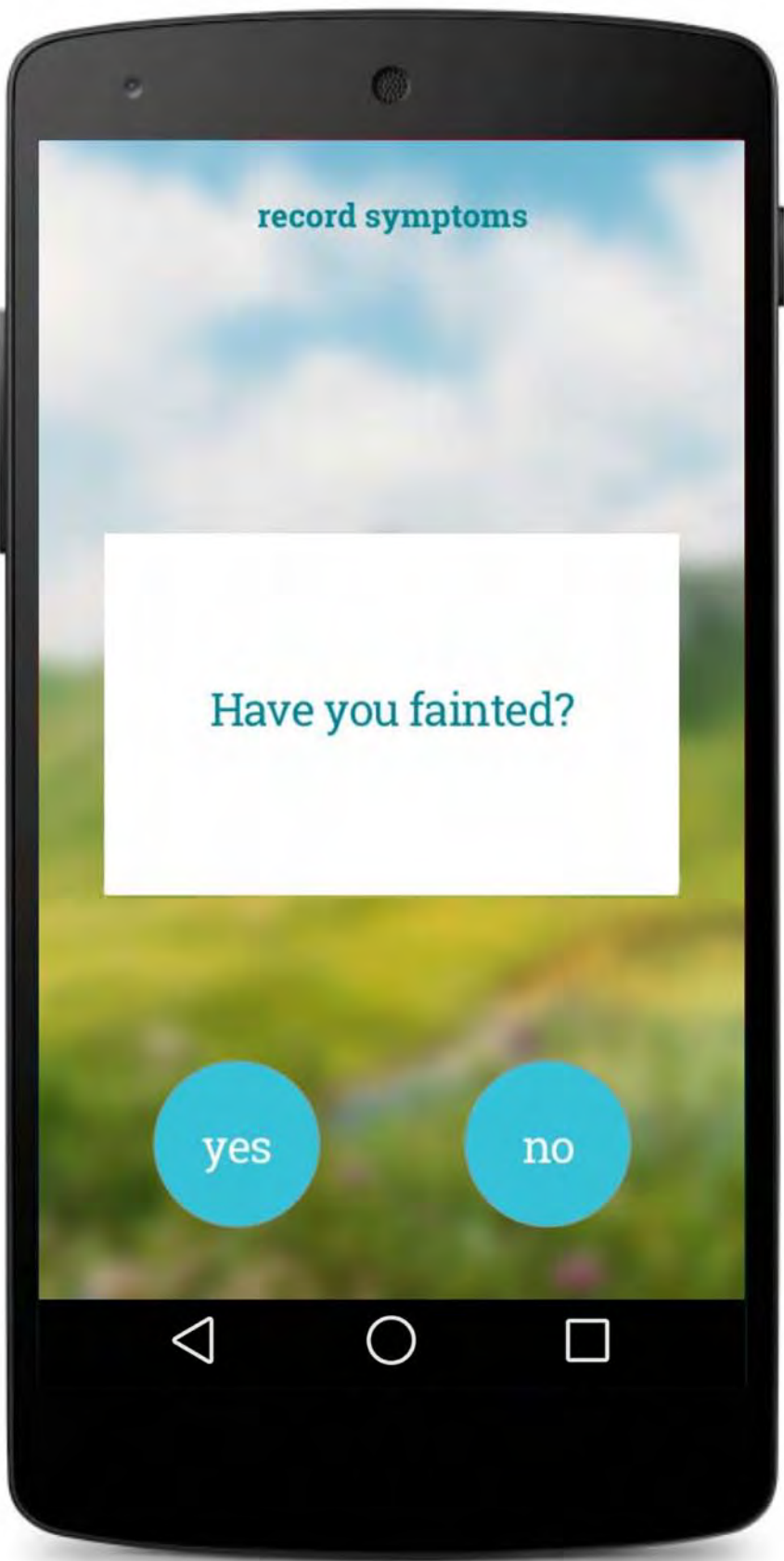
HOME PAGE

Shows your vital signs and symptoms. At a glance, you can see how you are doing.



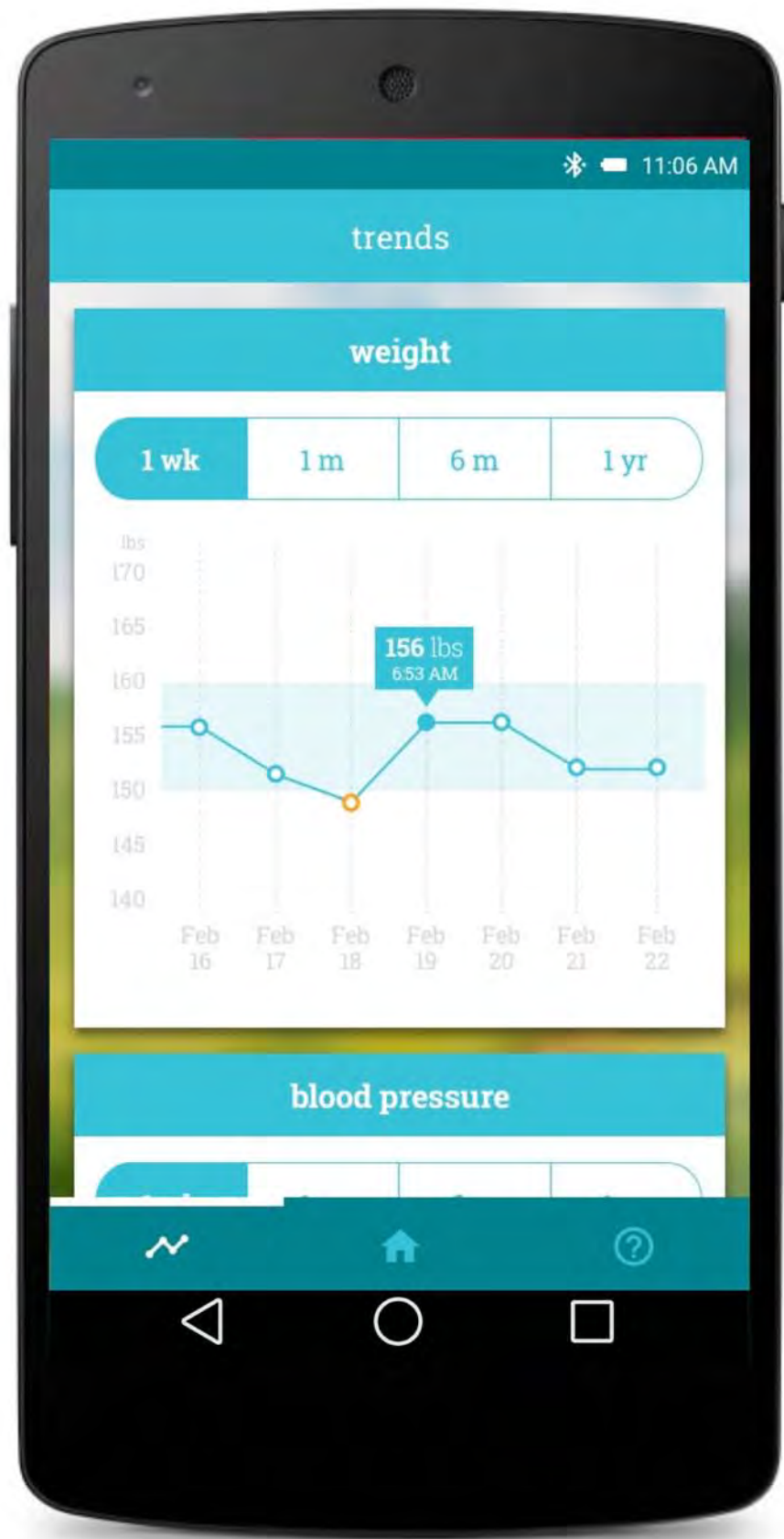
SYMPTOMS

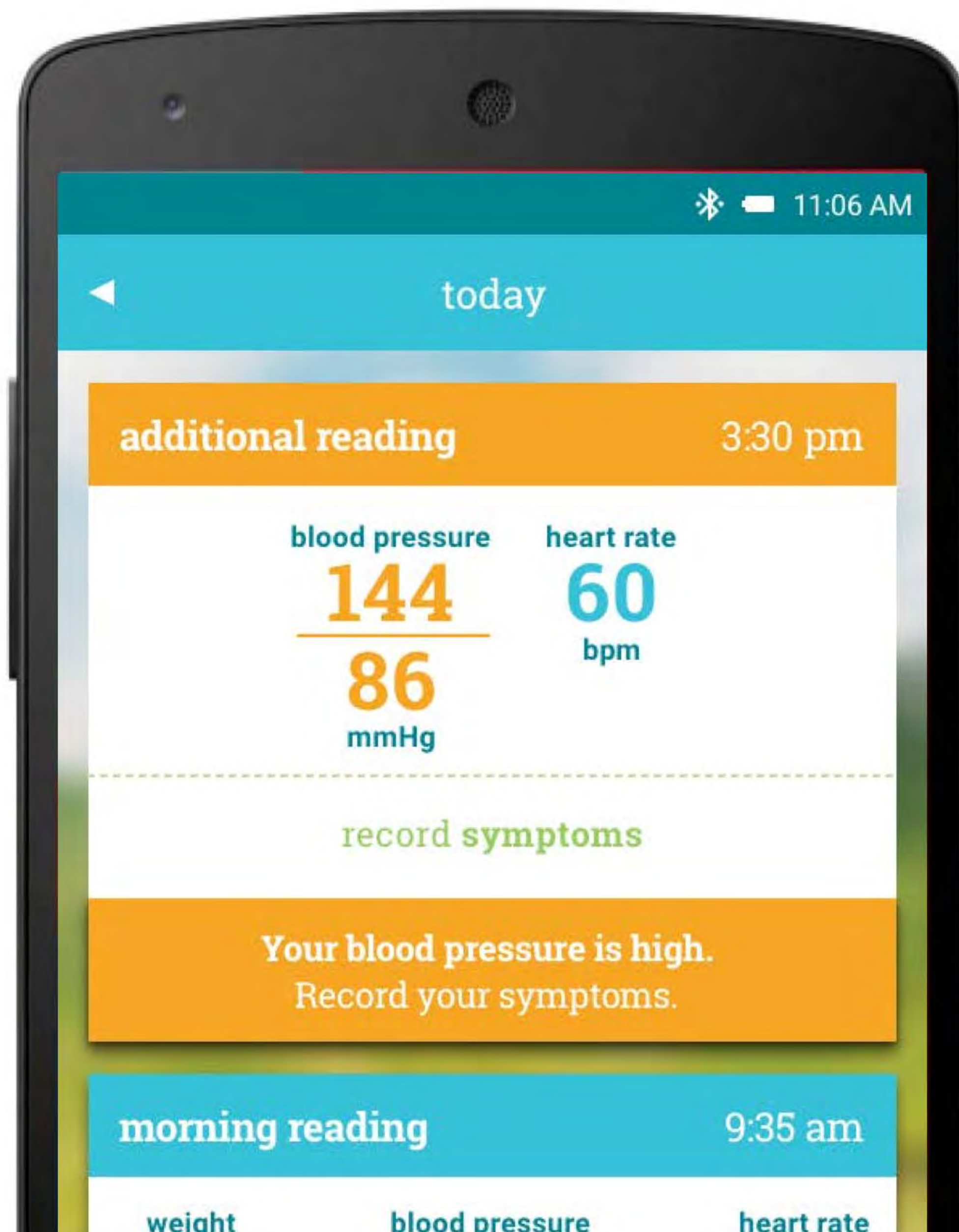
Symptoms survey for self-monitoring.



TRENDS

Graphs readings to highlight trends and patterns.





11:06 AM



today

additional reading

3:30 pm

blood pressure

144

86

mmHg

heart rate

60

bpm

record symptoms

Your blood pressure is high.

Record your symptoms.

morning reading

9:35 am

weight

blood pressure

heart rate



RCT Results - Summary

Diabetes During Pregnancy

Change in TM group versus controls

blood glucose

in T2DM only

more readings

in GDM & T2DM



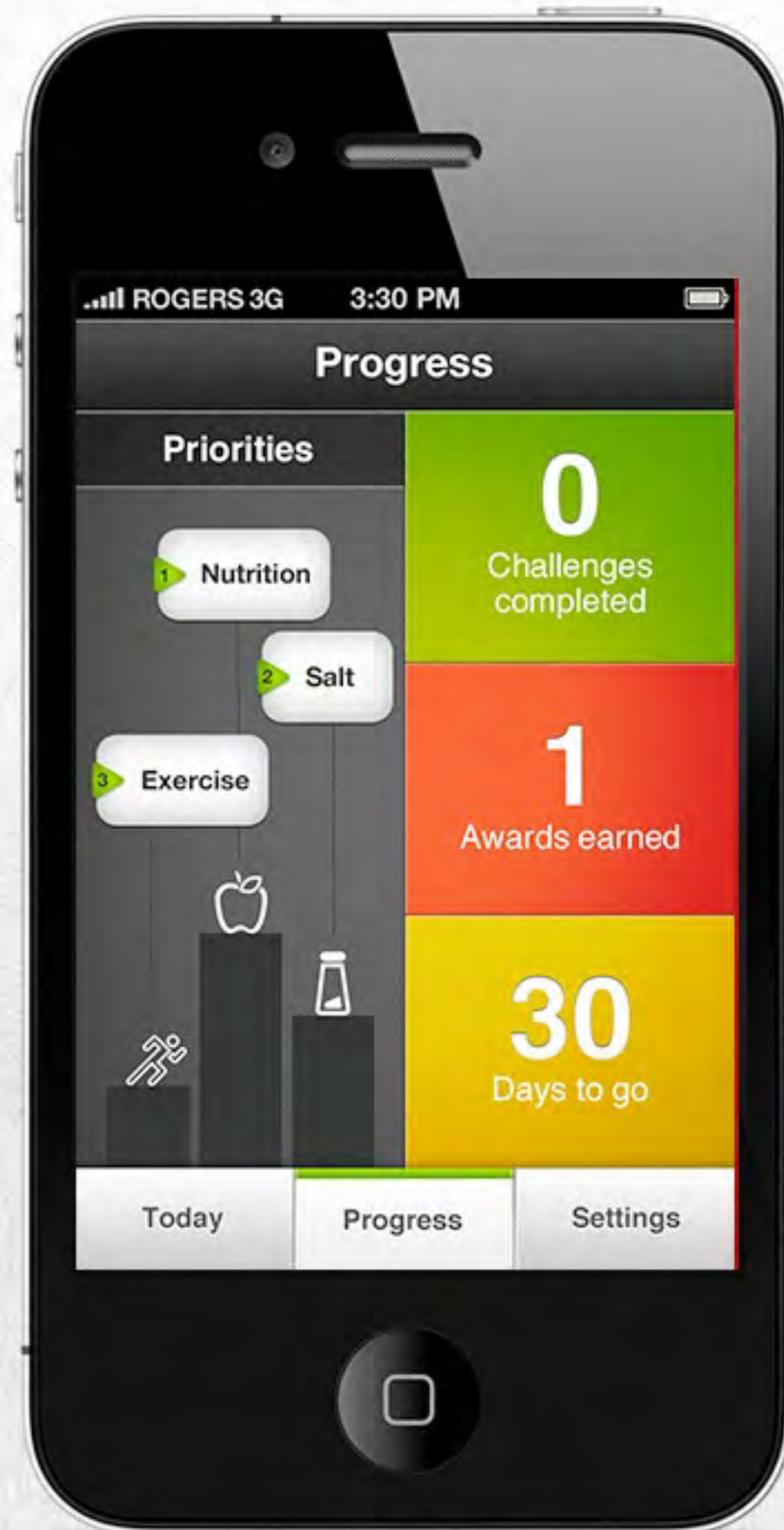
30 DAYS

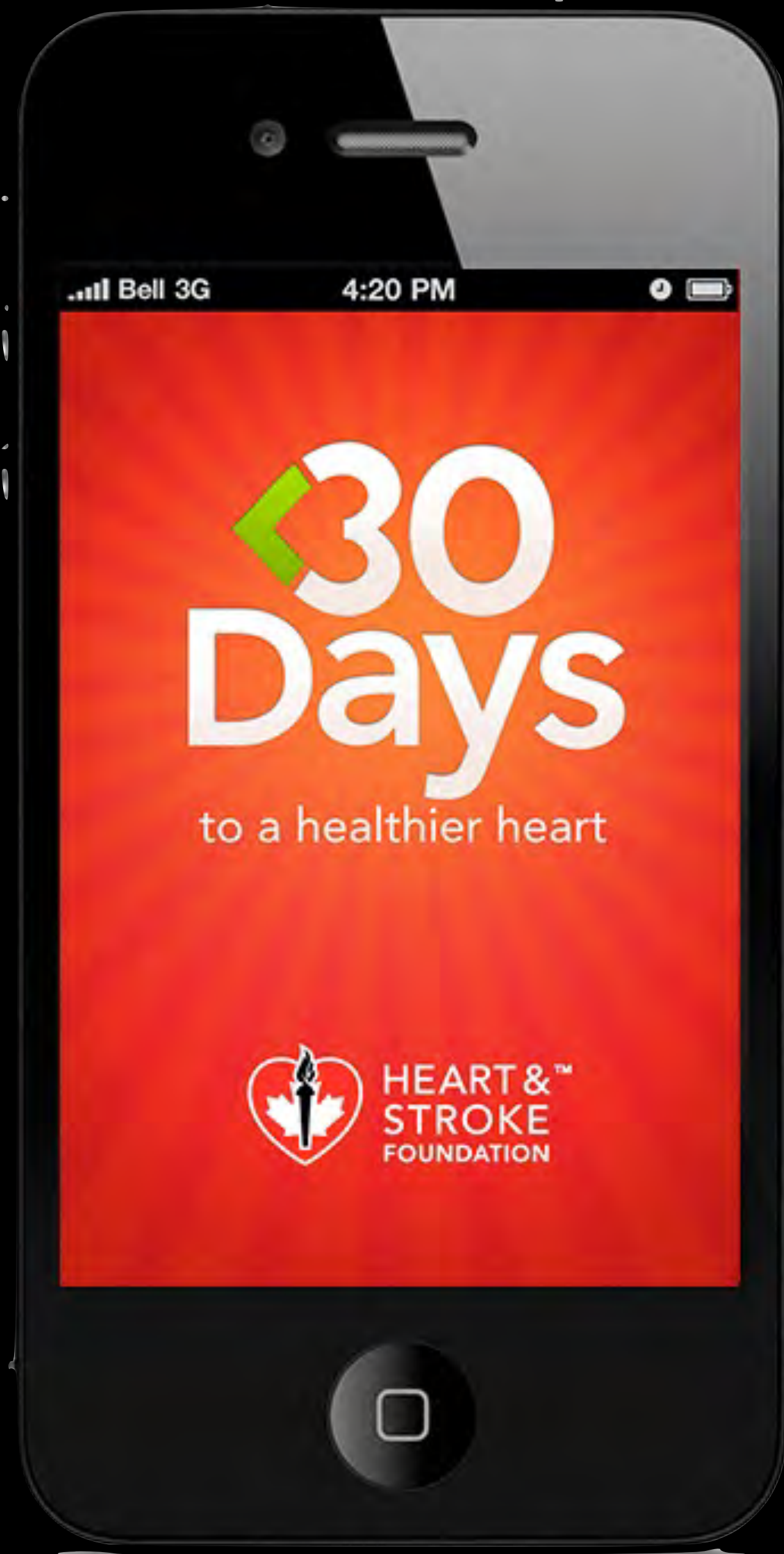


Risk assessment app for
cardiovascular disease.





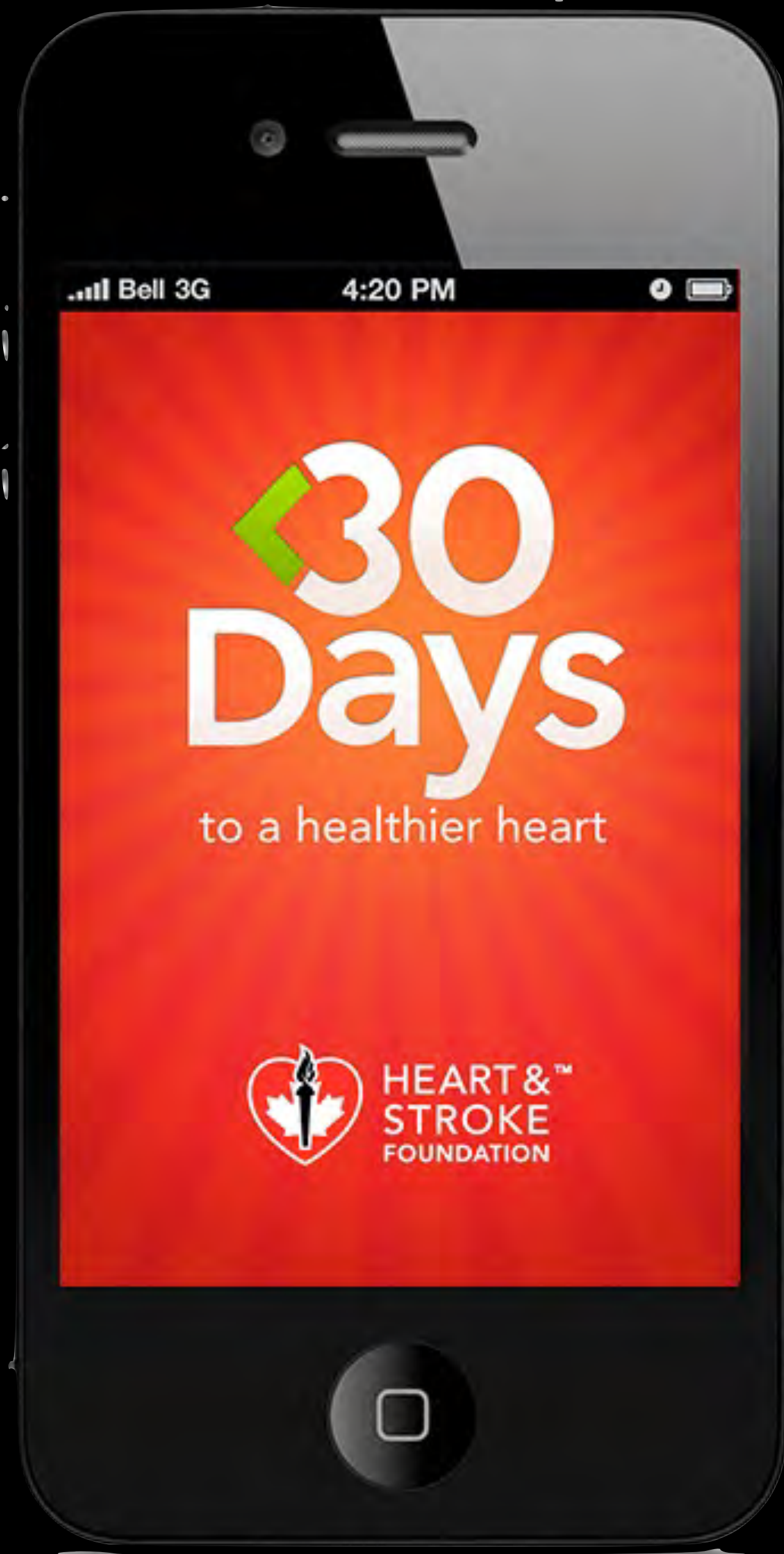




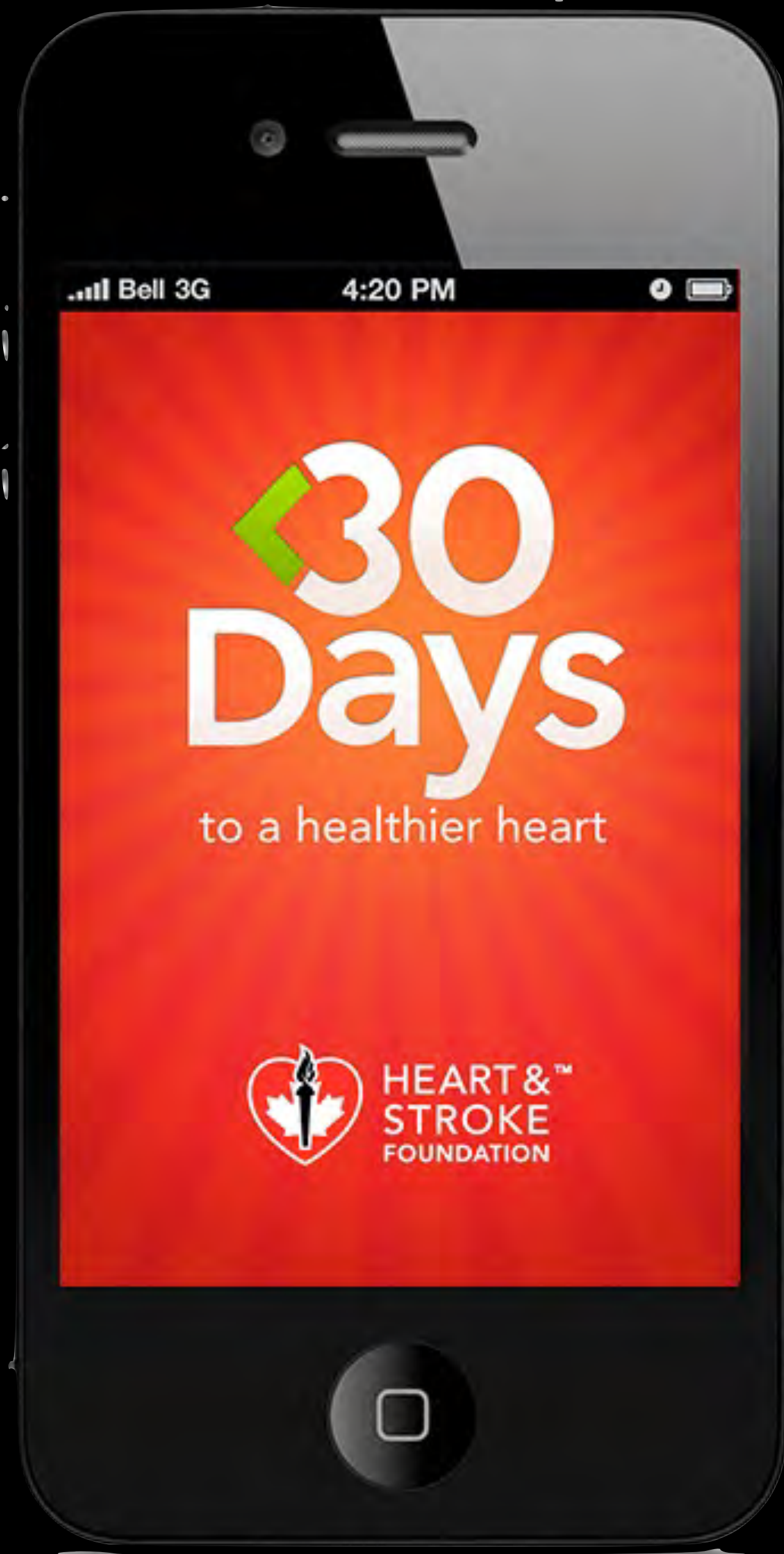
70,000 downloads

15,000 > 2 weeks

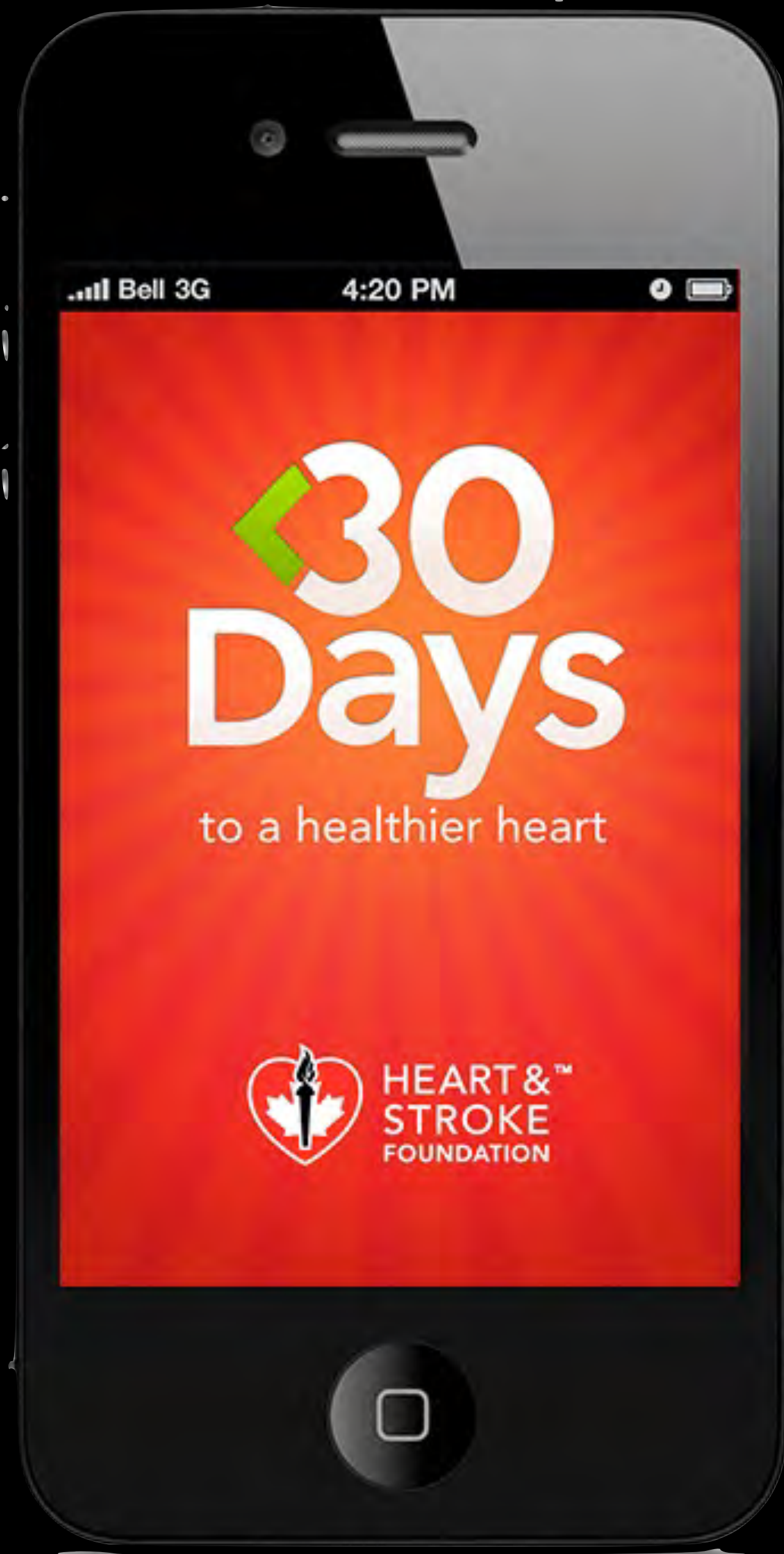
6,000 all 30 days



#1 downloader:
young women



most frequent user:
older woman



used the longest:
older men

<30 Days

To a Healthier Heart



30 Days

To a Healthier Heart

30 Jours

Vers un cœur en santé



1/15

Do you feel any of these issues are affecting your personal health?

Tap all that apply to you

Weight

Stress



BADGE ACHIEVED!

**HEALTHY
LIVING
PROMOTED**



PICK A CHALLENGE



PHYSICAL ACTIVITY

1 x 1

Get up at least once an hour,
every hour.

To a Healthier Heart

Vers un cœur en santé



1/15

Do you feel any of these issues are affecting your personal health?

Tap all that apply to you

Weight

Stress

Alcohol

Smoking

Unhealthy Diet

Physical Activity

None of the above



BADGE ACHIEVED!

HEALTHY LIVING PROMOTER

You are a Healthy Living Promoter! You have completed 5 challenges since the beginning of your <30 Days journey.

Share with Your Friends?

Facebook

Twitter

Continue



PICK A CHALLENGE



PHYSICAL ACTIVITY

1 x 1

Get up at least once an hour, every hour.

Why?

Moving a little can help with your circulation.

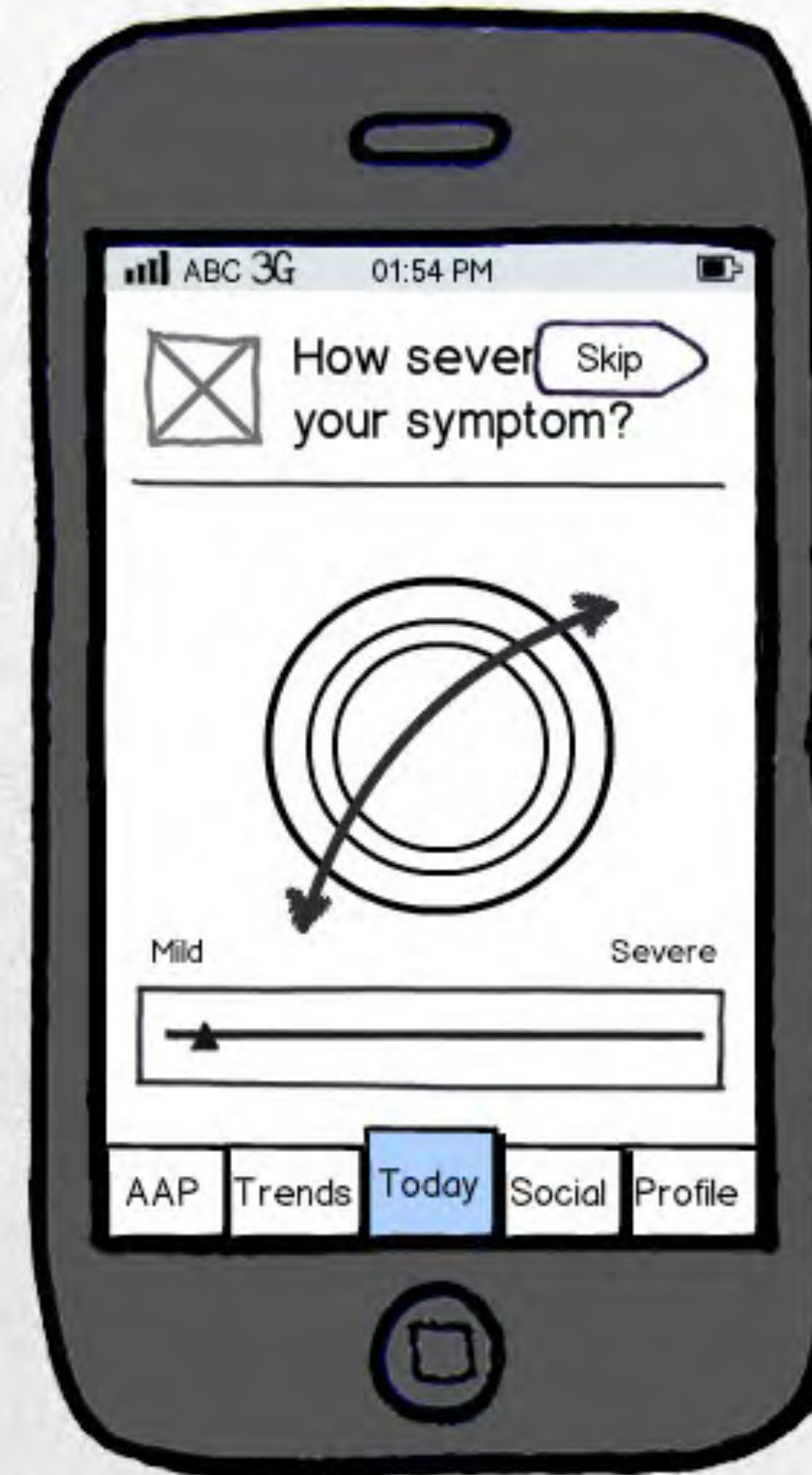
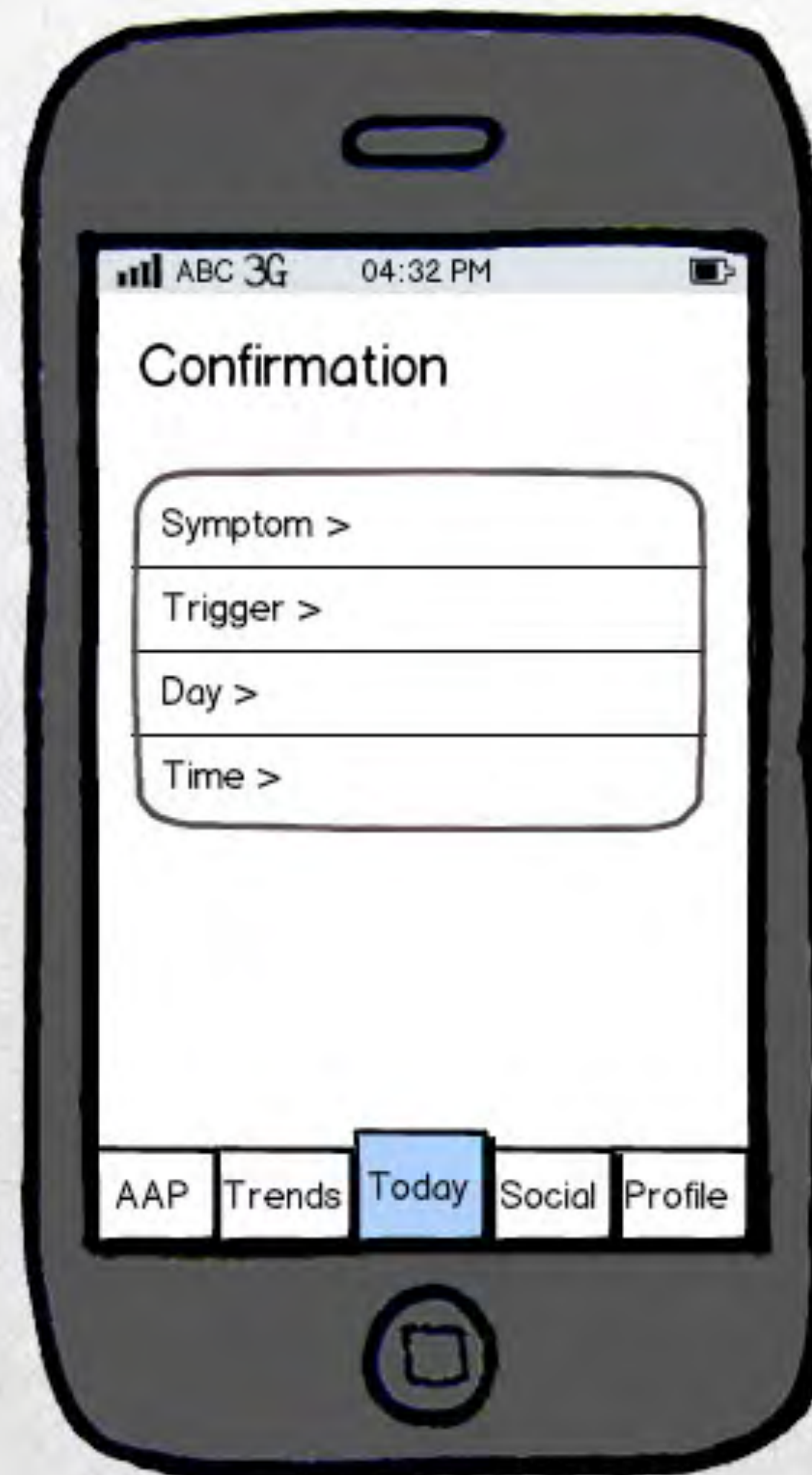
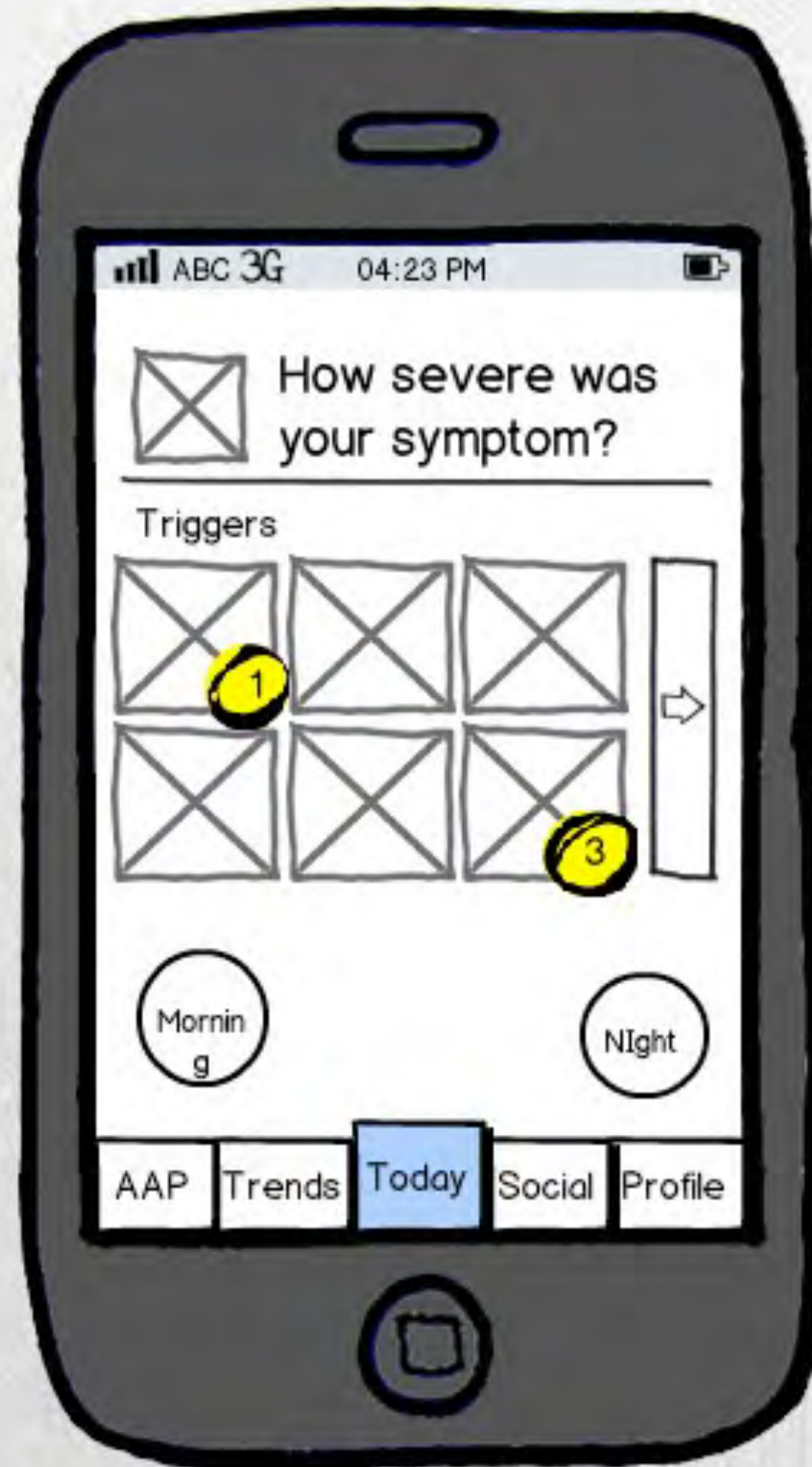


Accept This Challenge

[illegible]



breathe





breathe

Sign in



breathe

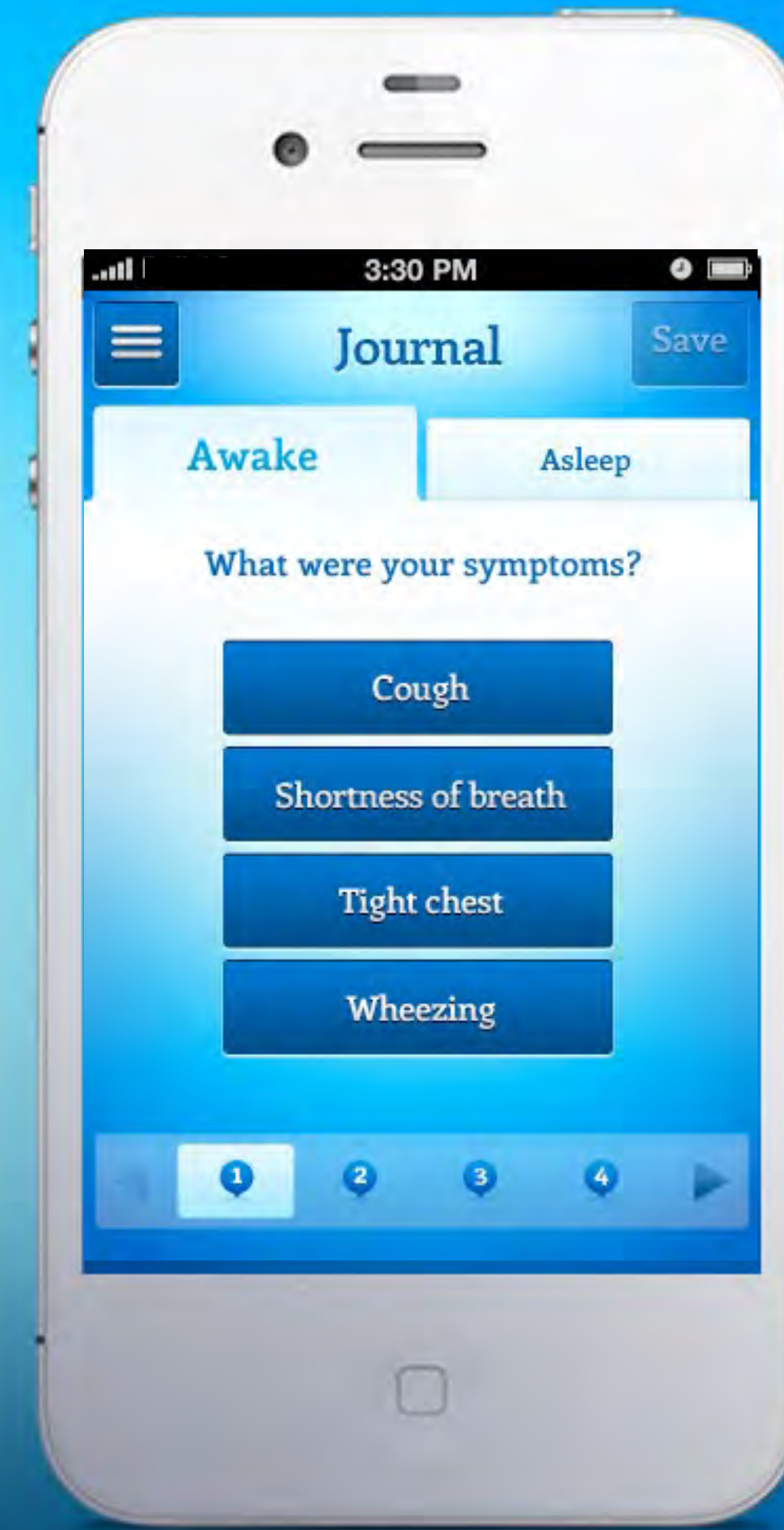
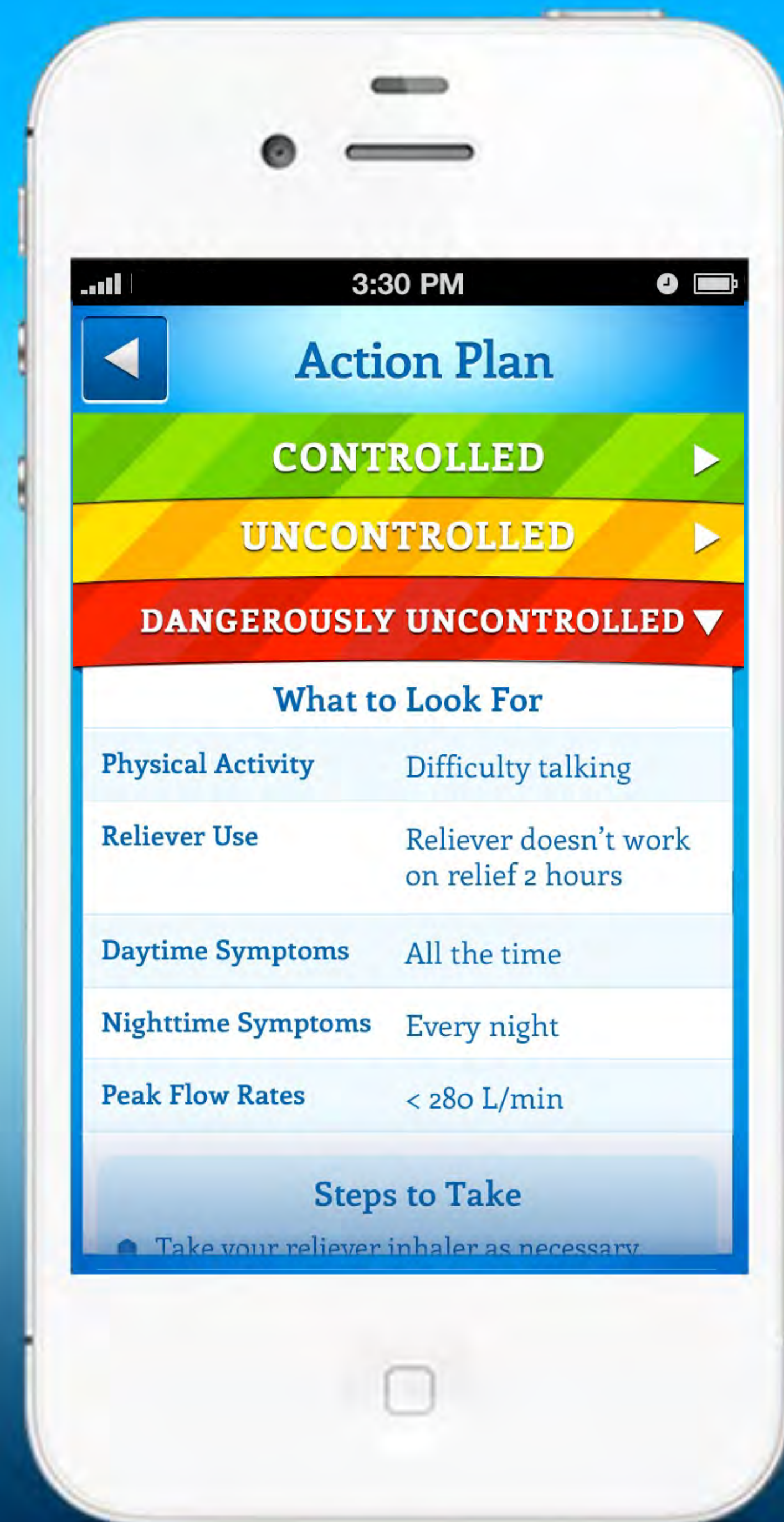




App Definition Statement

Help people **control** their Asthma through tracking, reminders, trend analysis, environmental health factors, and easy access to their Asthma Action Plan.





ICANCOPE

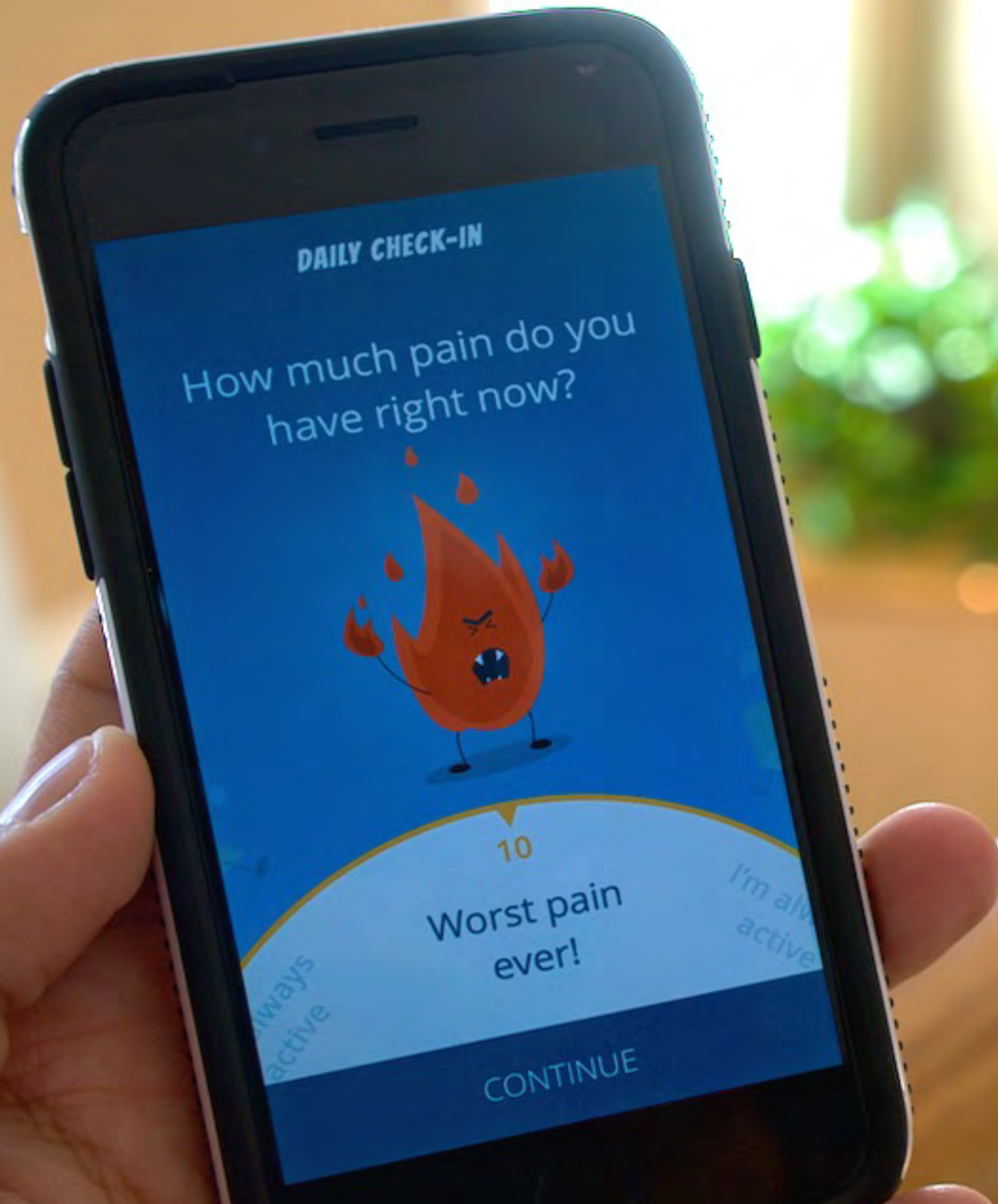
Welcome to iCanCope.
This app will help you
manage your life and
your chronic condition.



LET'S TAKE A LOOK!

Symptoms Monitoring

- Check-in pain, sleep, mood, activity and energy levels
- Identify patterns and trends in pain and function



WHAT'S NEXT?



PERVASIVE TECH



WEARABLES



PERVASIVE TECH



WEARABLES

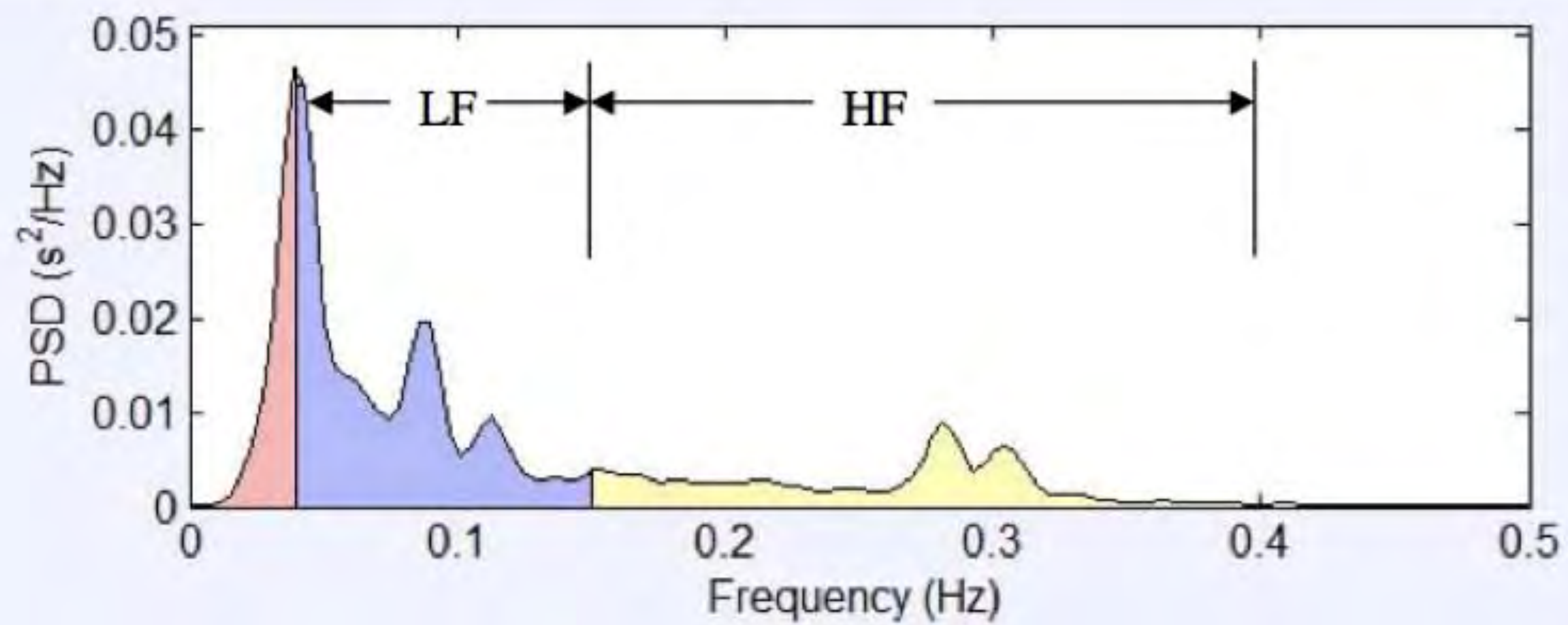




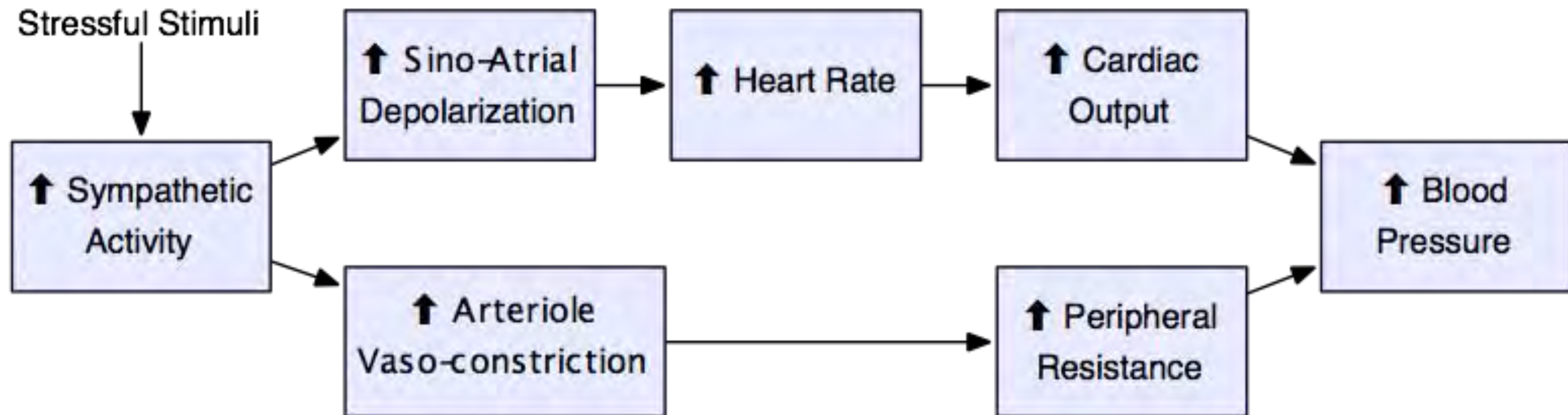




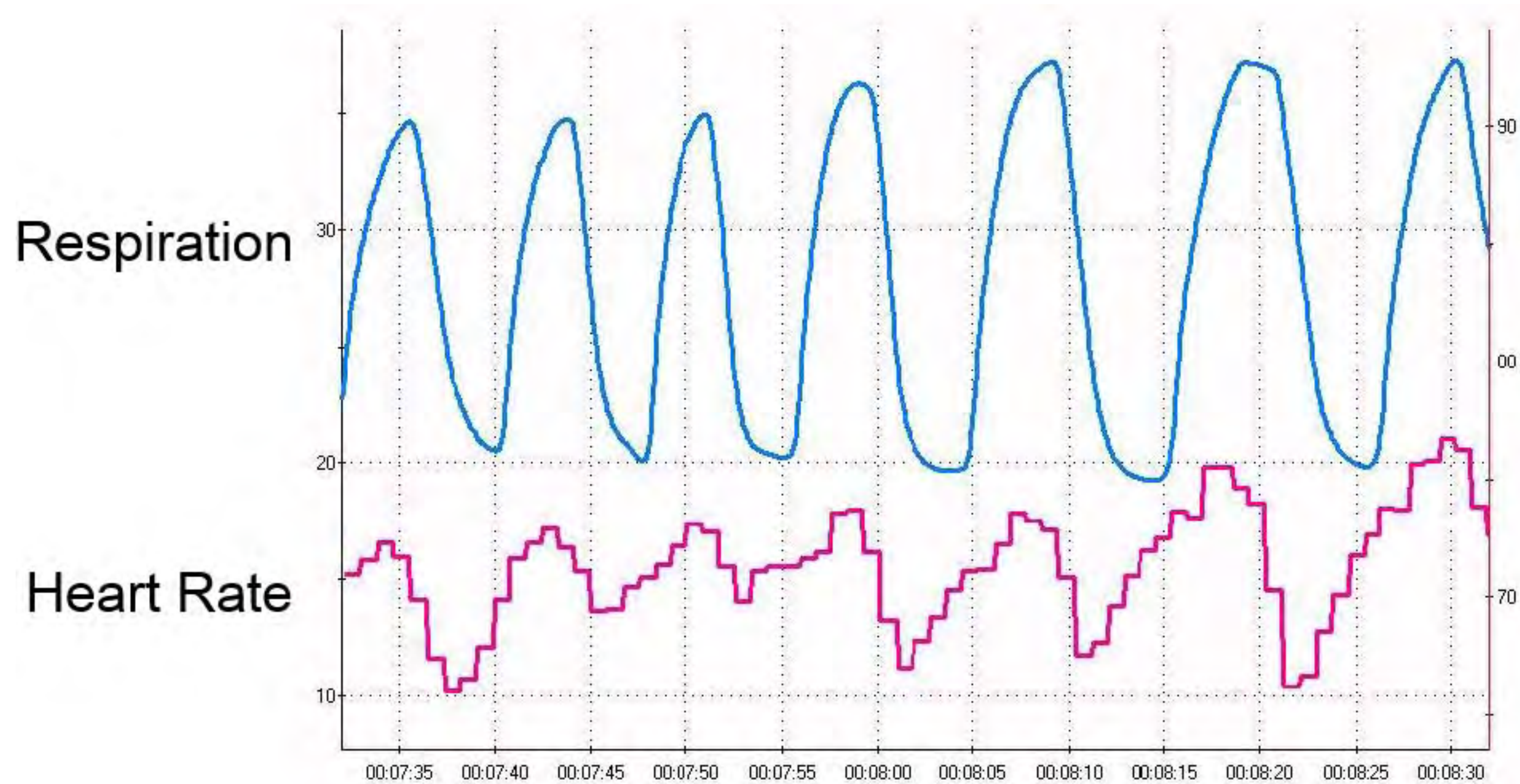




Mental Stress and the Autonomic Nervous System



Paced Breathing to Modify Heart Rate



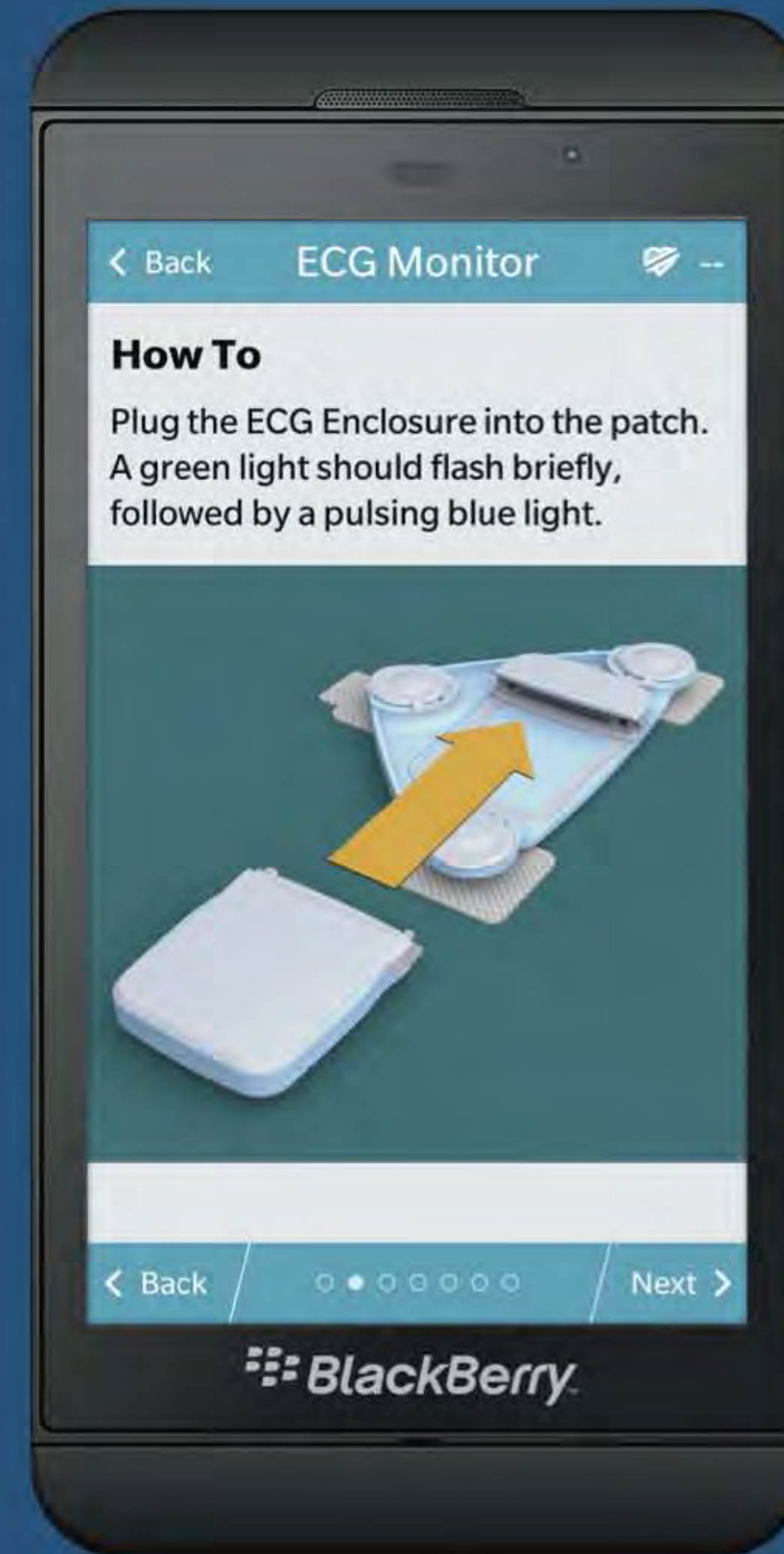
Heart Rate Variability Biofeedback

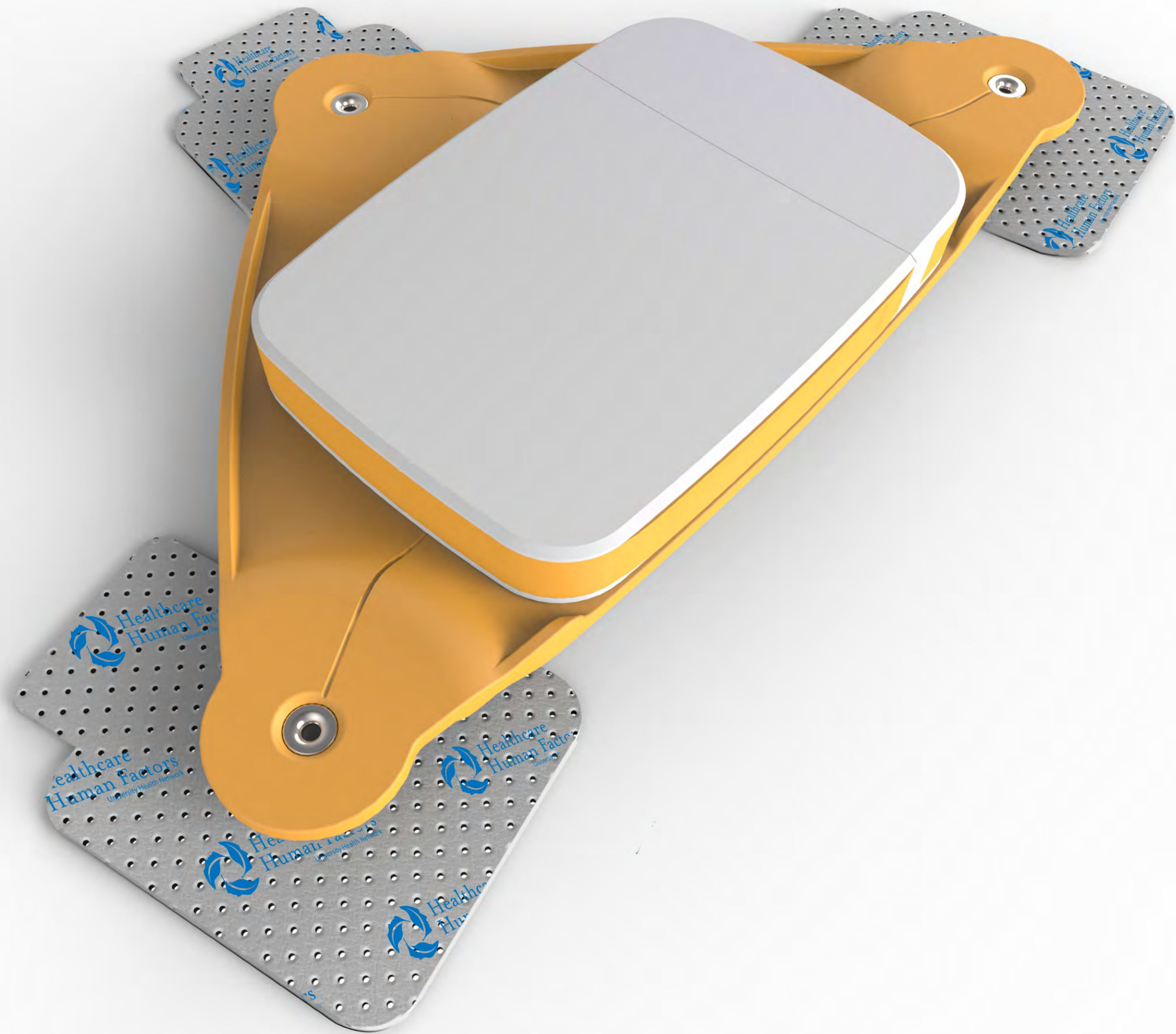


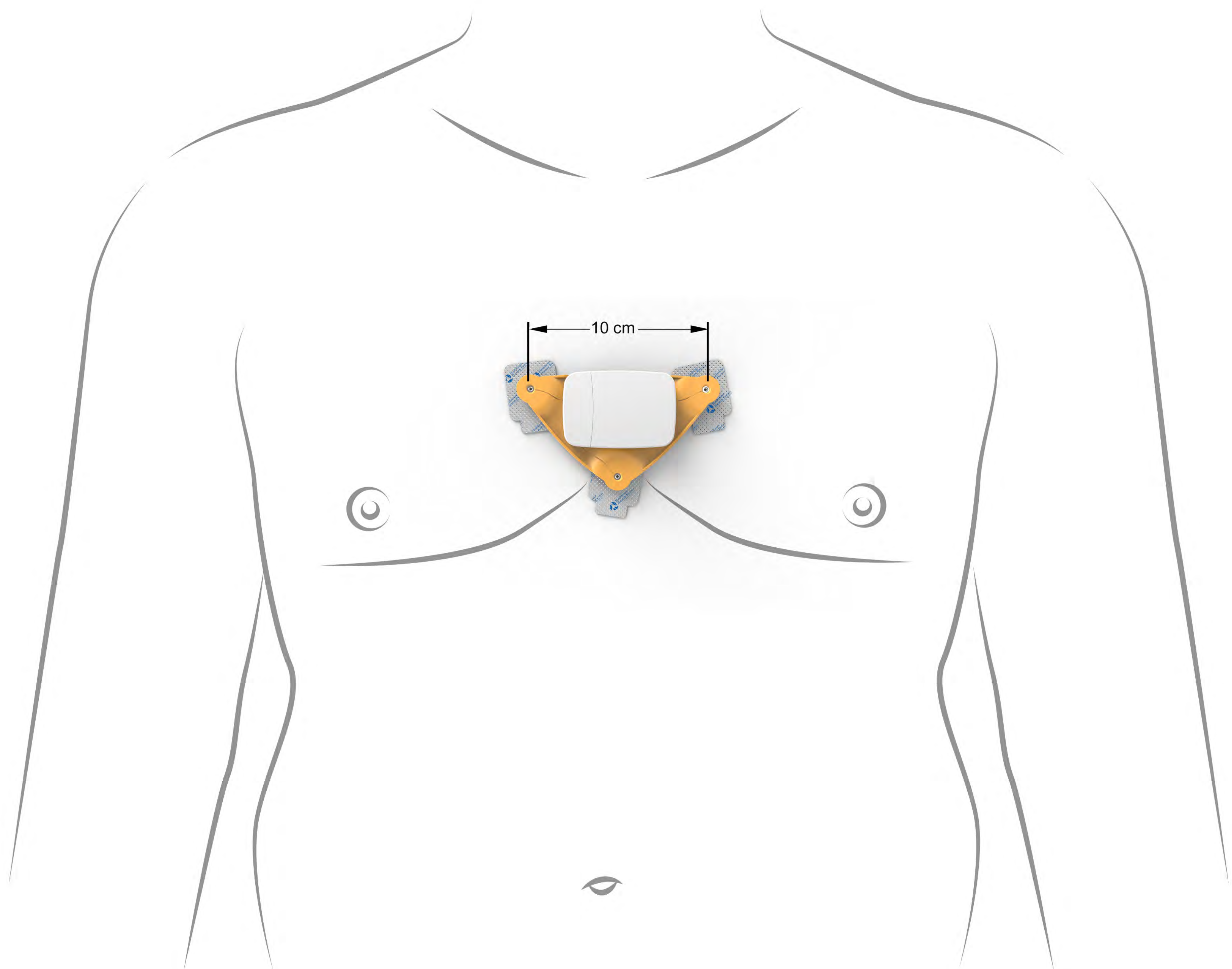
BEAT



An application for a wearable
cardiac sensor.













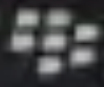


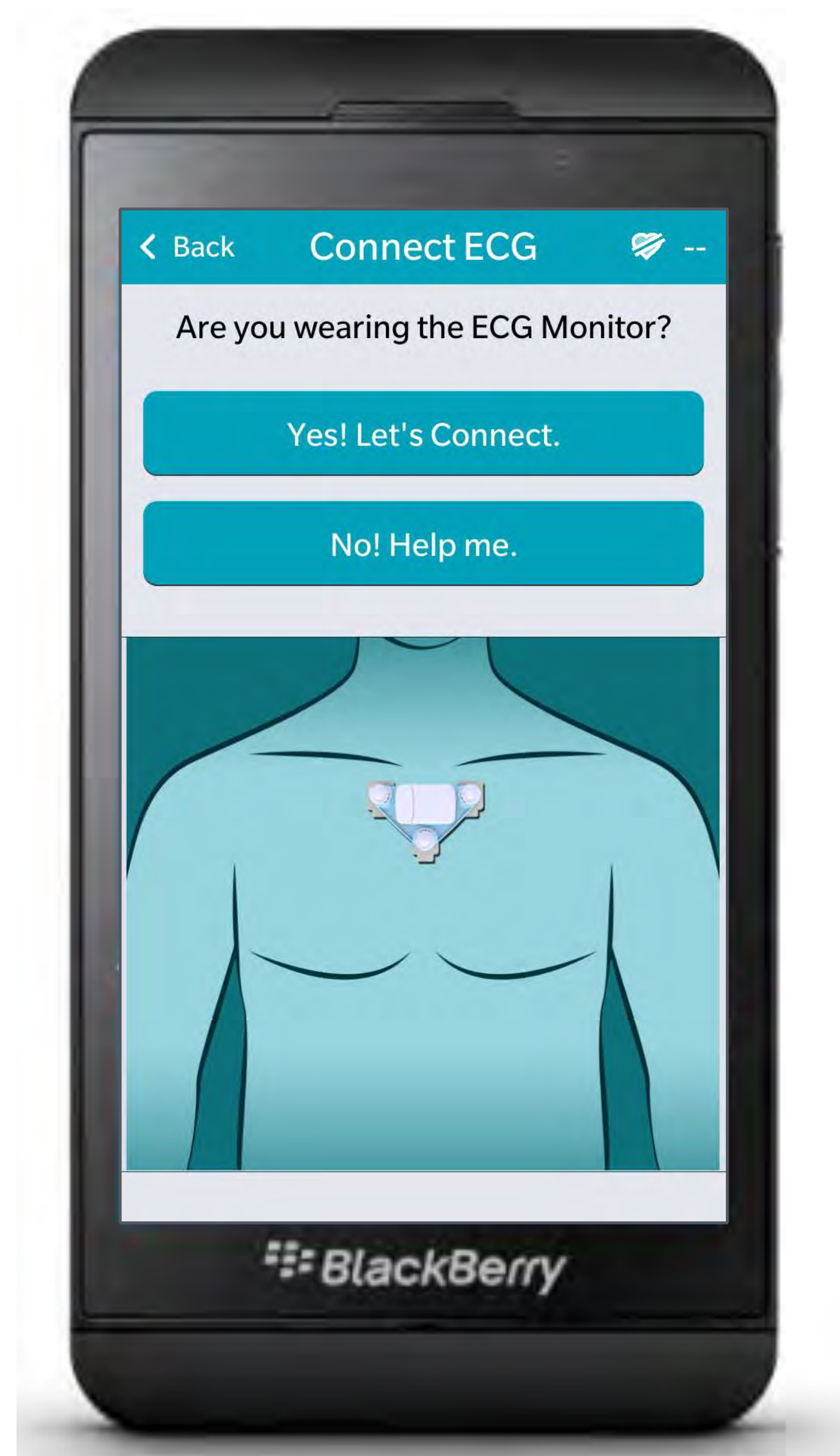
jcafazzo

.....

Login

Exit

 BlackBerry



< Back

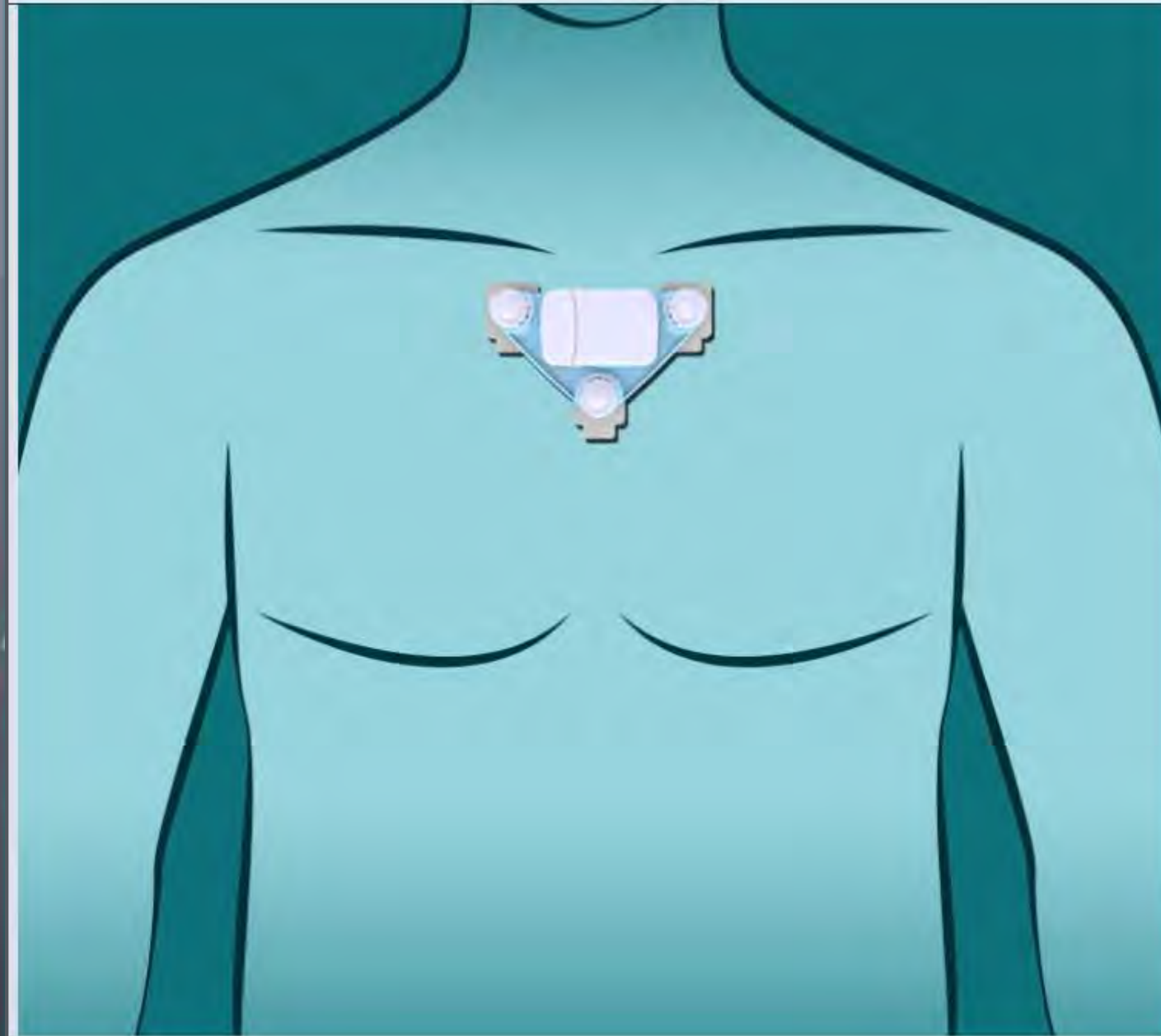
Connect ECG

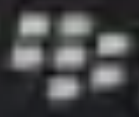


Are you wearing the ECG Monitor?

Yes! Let's Connect.

No! Help me.



 BlackBerry

< Back

ECG Monitor



How To

To setup the ECG monitor you must have 3 electrodes, the Patch and the ECG Enclosure.

Electrodes



Patch



ECG Enclosure



< Back



Next >

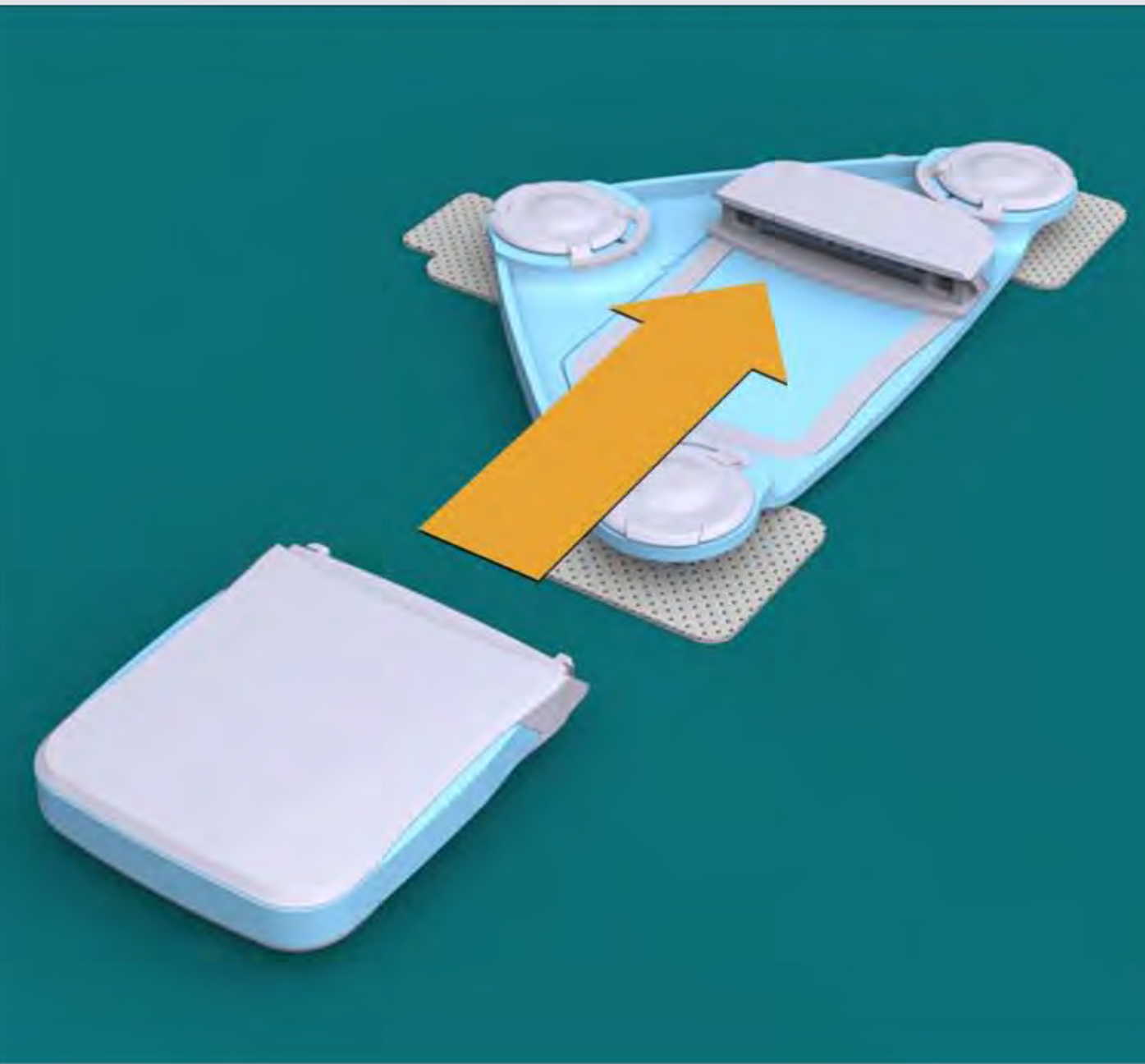
< Back

ECG Monitor



How To

Plug the ECG Enclosure into the patch.
A green light should flash briefly,
followed by a pulsing blue light.



< Back



Next >

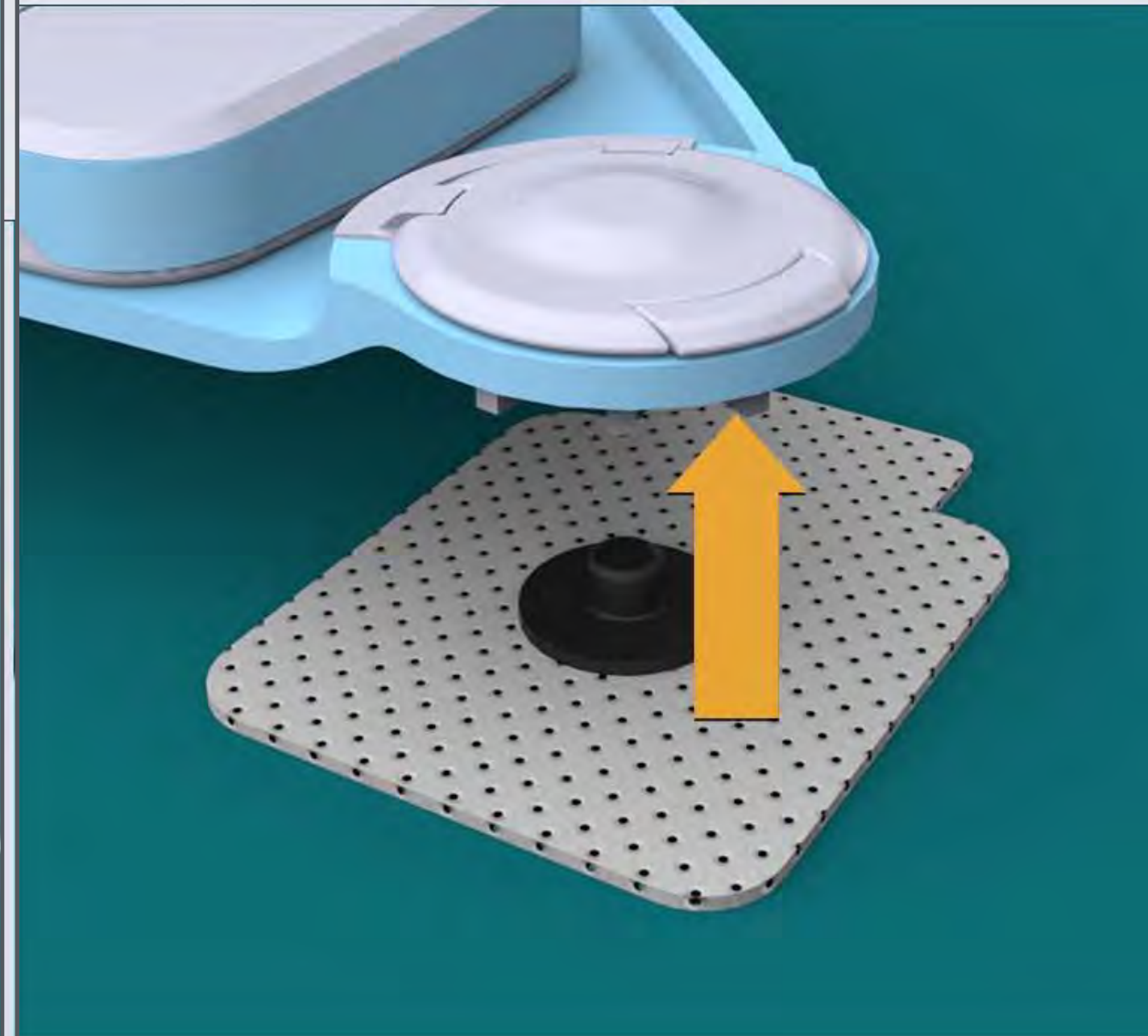
< Back

ECG Monitor



How To

Snap the 3 electrodes on to the back of the Patch and peel off the plastic backing.



< Back



Next >

< Back

Practice

♥ 87

Your Heart Rate



Heart Rate Goal



Breathing Pacer



Breathing Rate

7 breaths per minute ▼

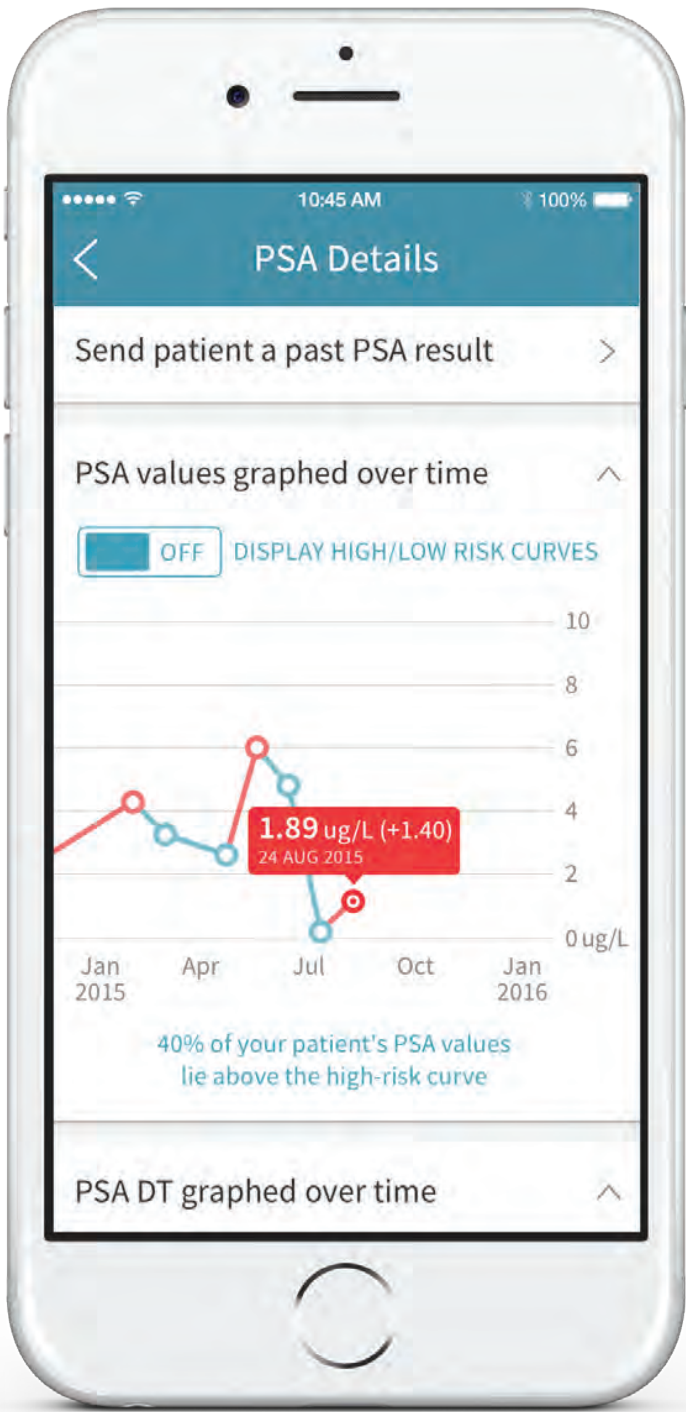
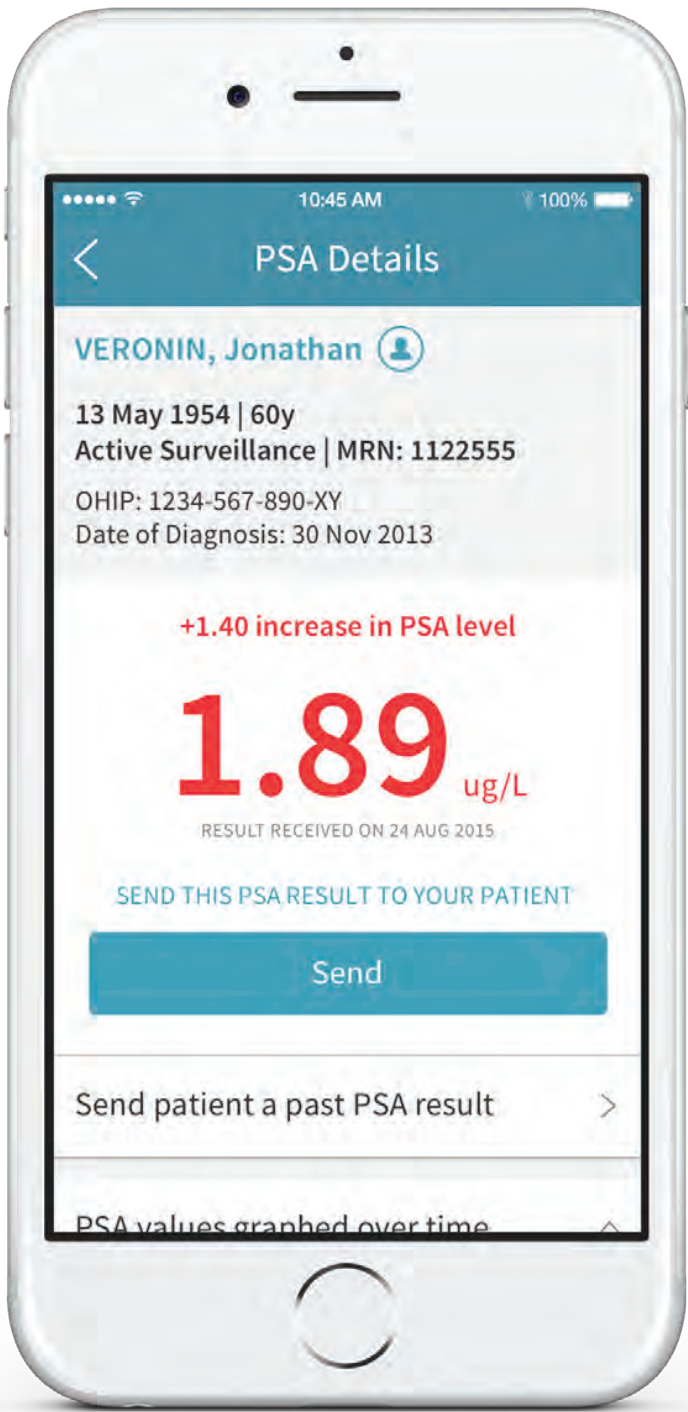
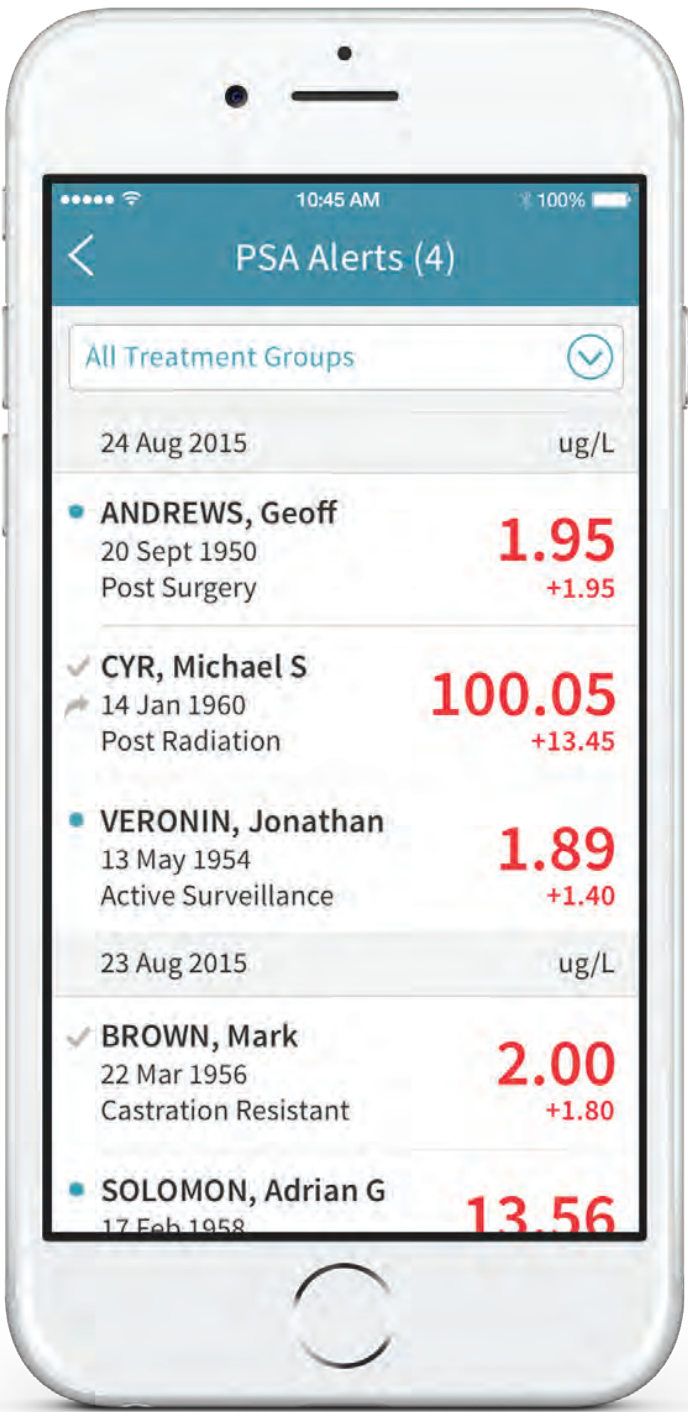
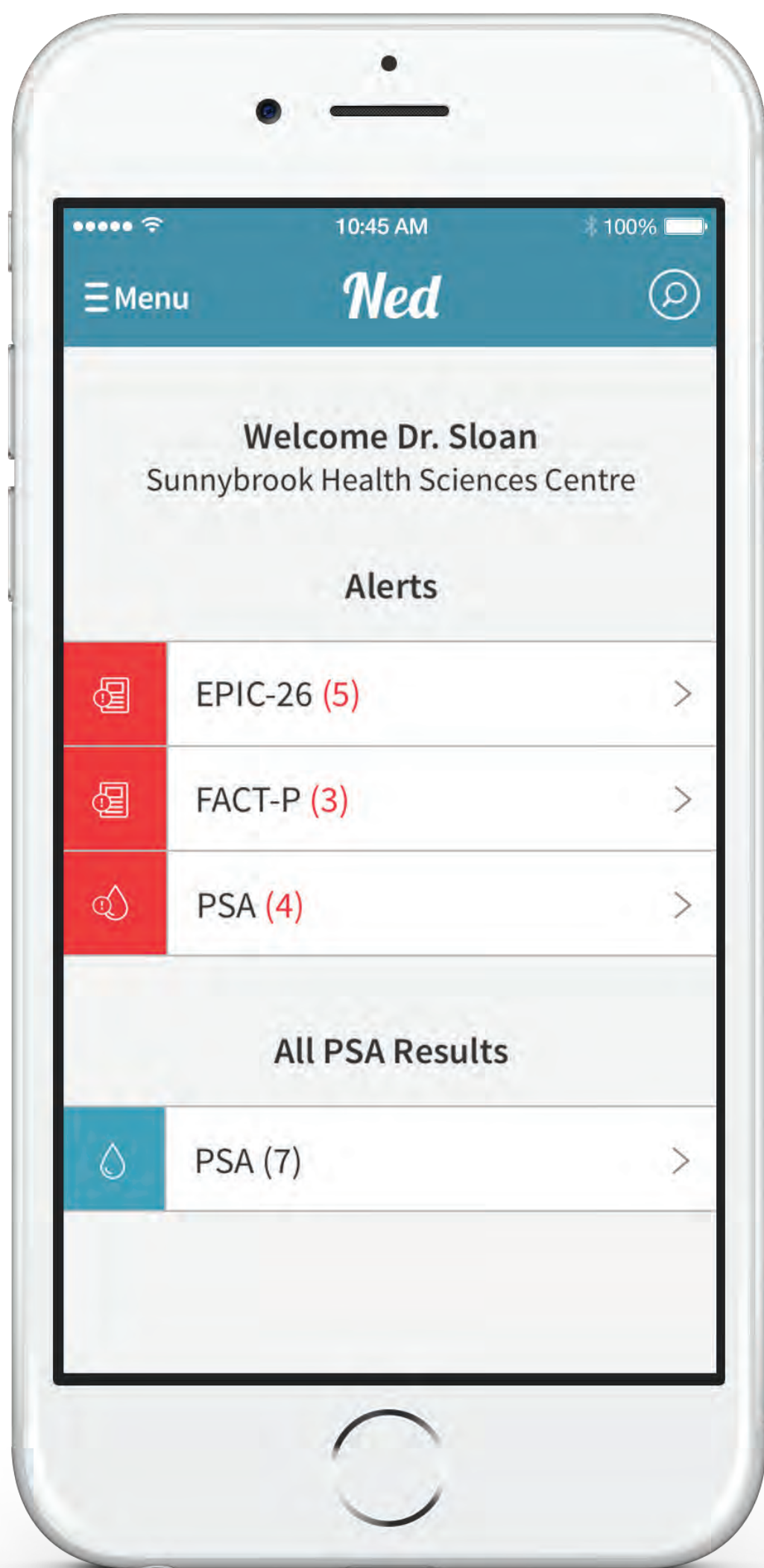
BlackBerry

Ned

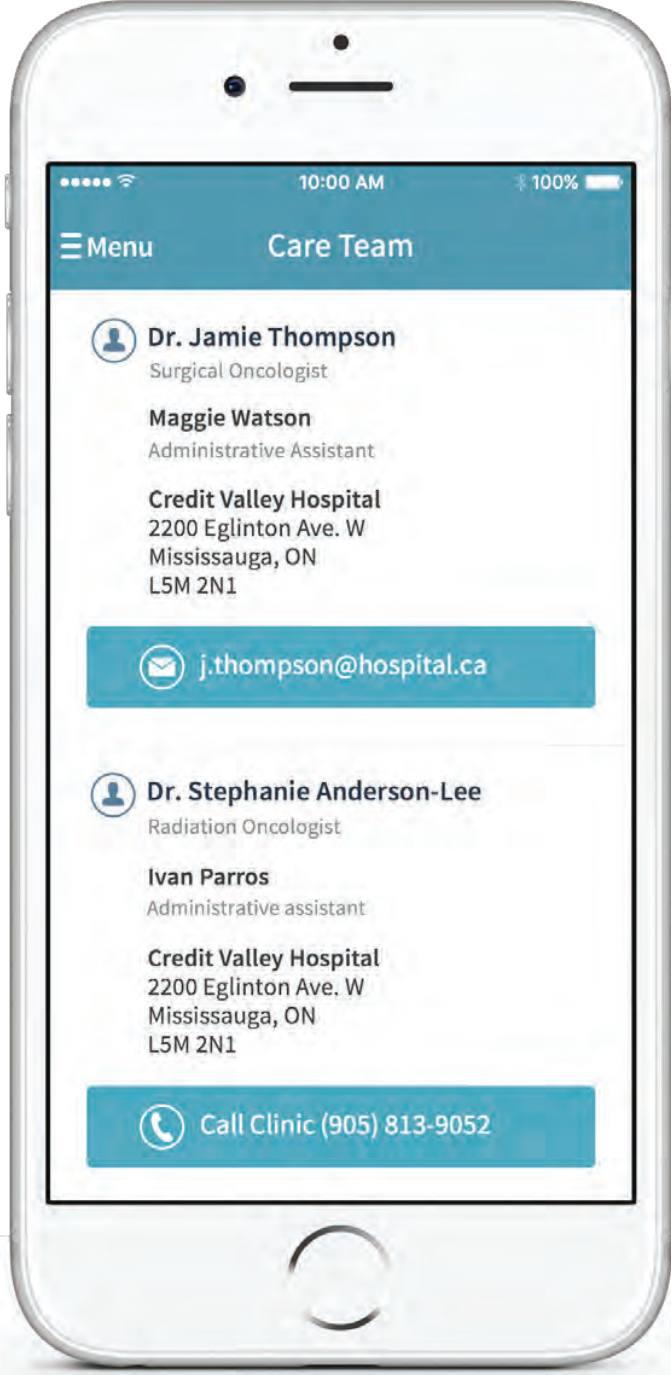
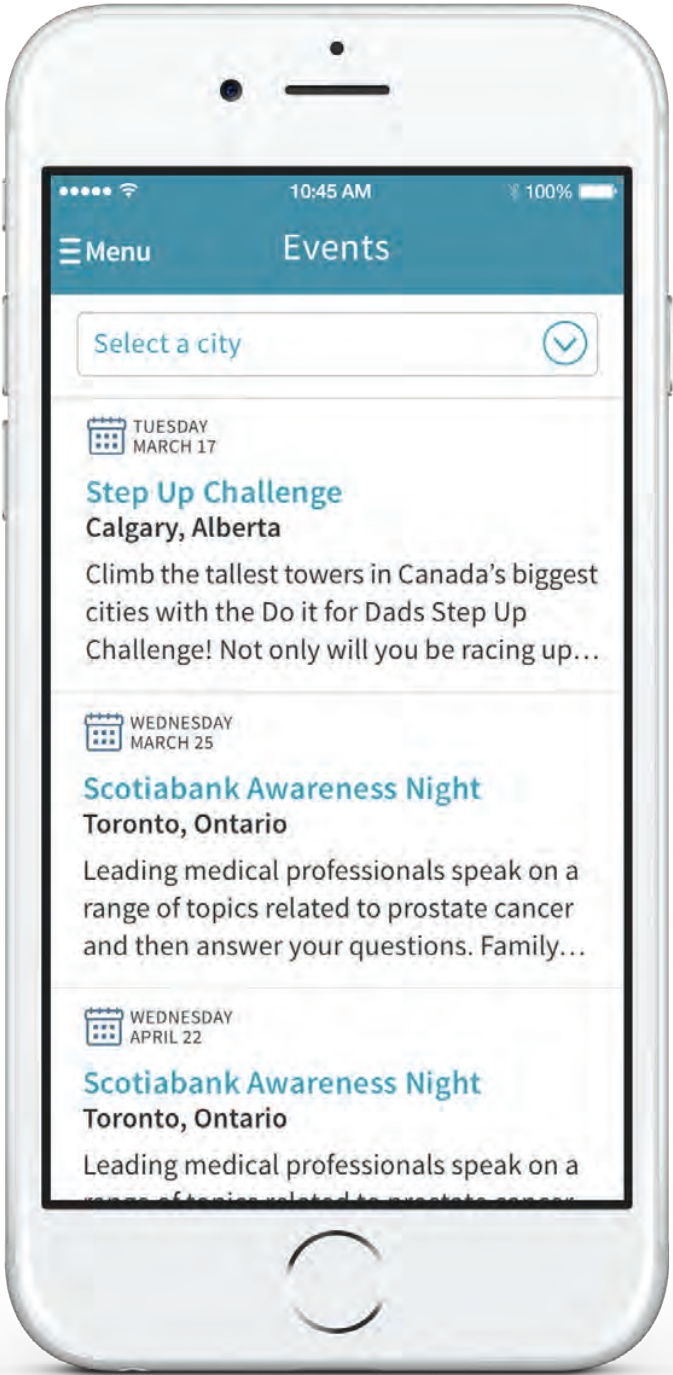
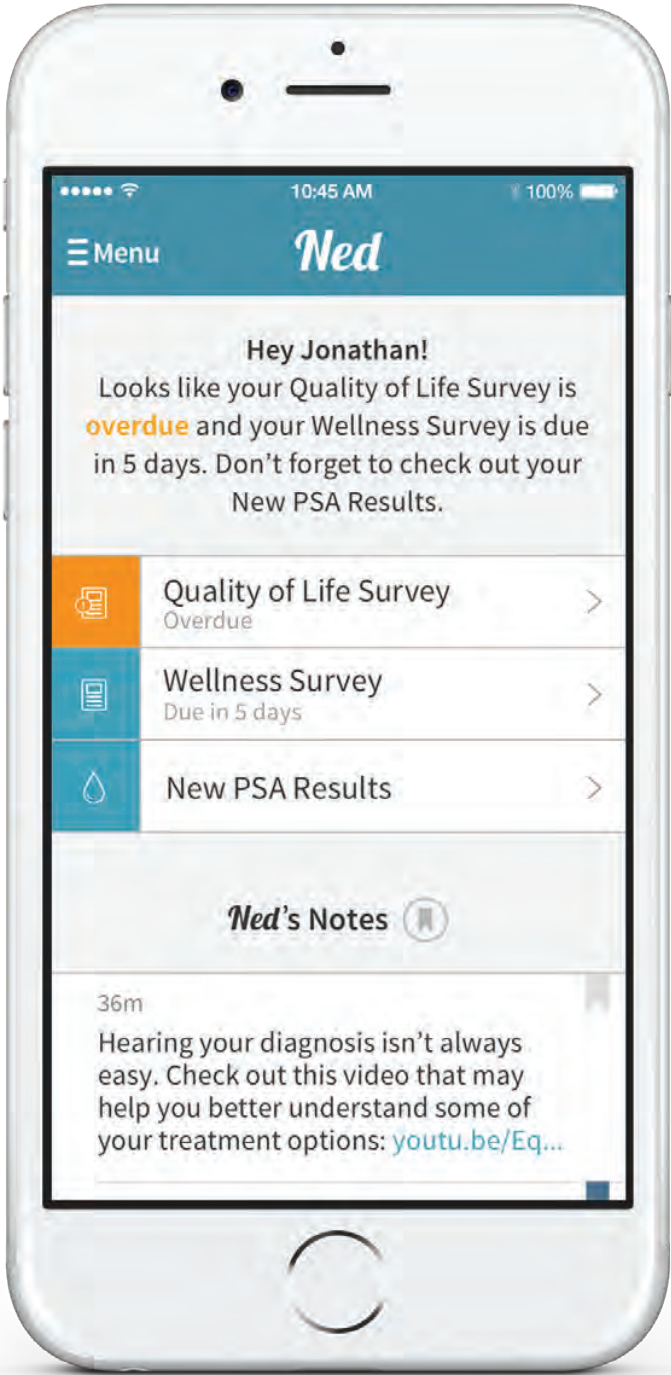
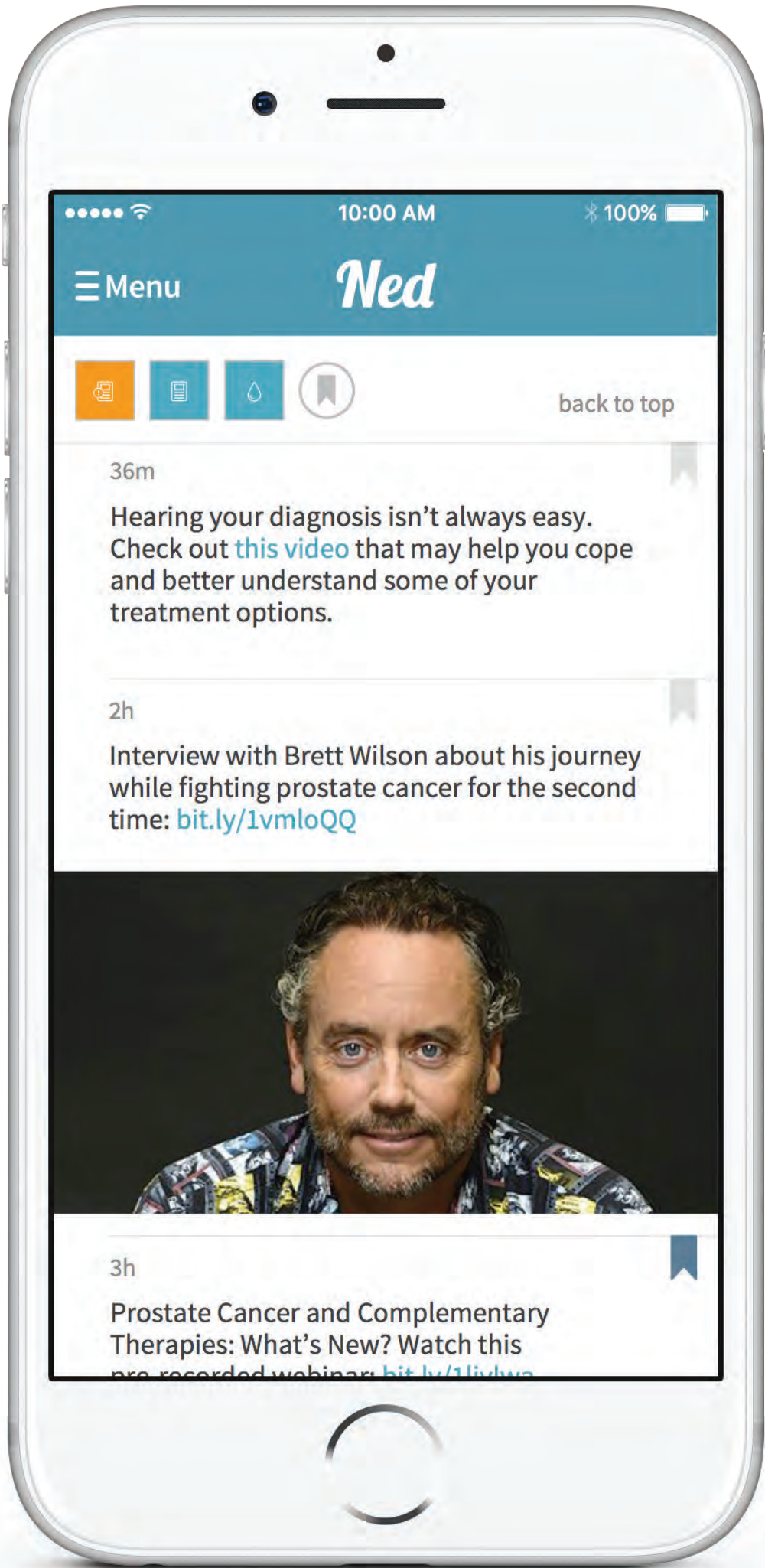
A Companion for Prostate Cancer Survivors

Prepared by:
Dr. Andrew Feifer & Dr. Joseph Cafazzo

Clinician interface



Patient interface



Patient interface



< Quality of Life Survey ⓘ

ADDITIONAL CONCERNS

Indicate your response below as it applies to the past 7 days

My problems with urinating limit my activities

Not at all

A little bit

Somewhat

Quite a bit

Very much

< Question 38 of 39 >

< Wellness Survey ⓘ

BOWEL FUNCTION

How big a problem, if any, has increased frequency of bowel movements been for you?

No problem

Very small problem

Small problem

Moderate problem

Big problem

< Question 11 of 26 >

< Wellness Survey ⓘ

Review Your Responses

URINARY INCONTINENCE ▾

URINARY OBSTRUCTION ▾

BOWEL FUNCTION ▾

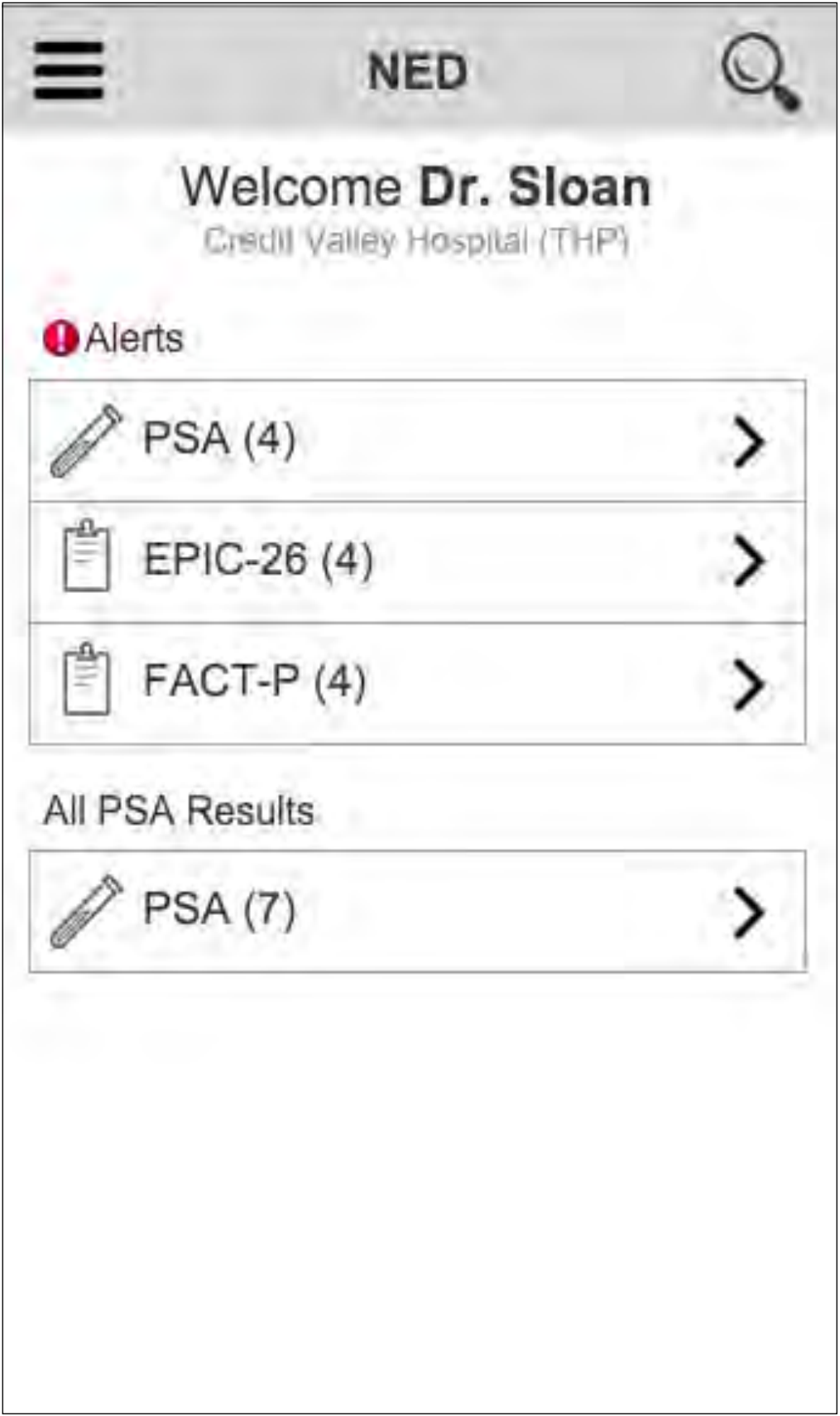
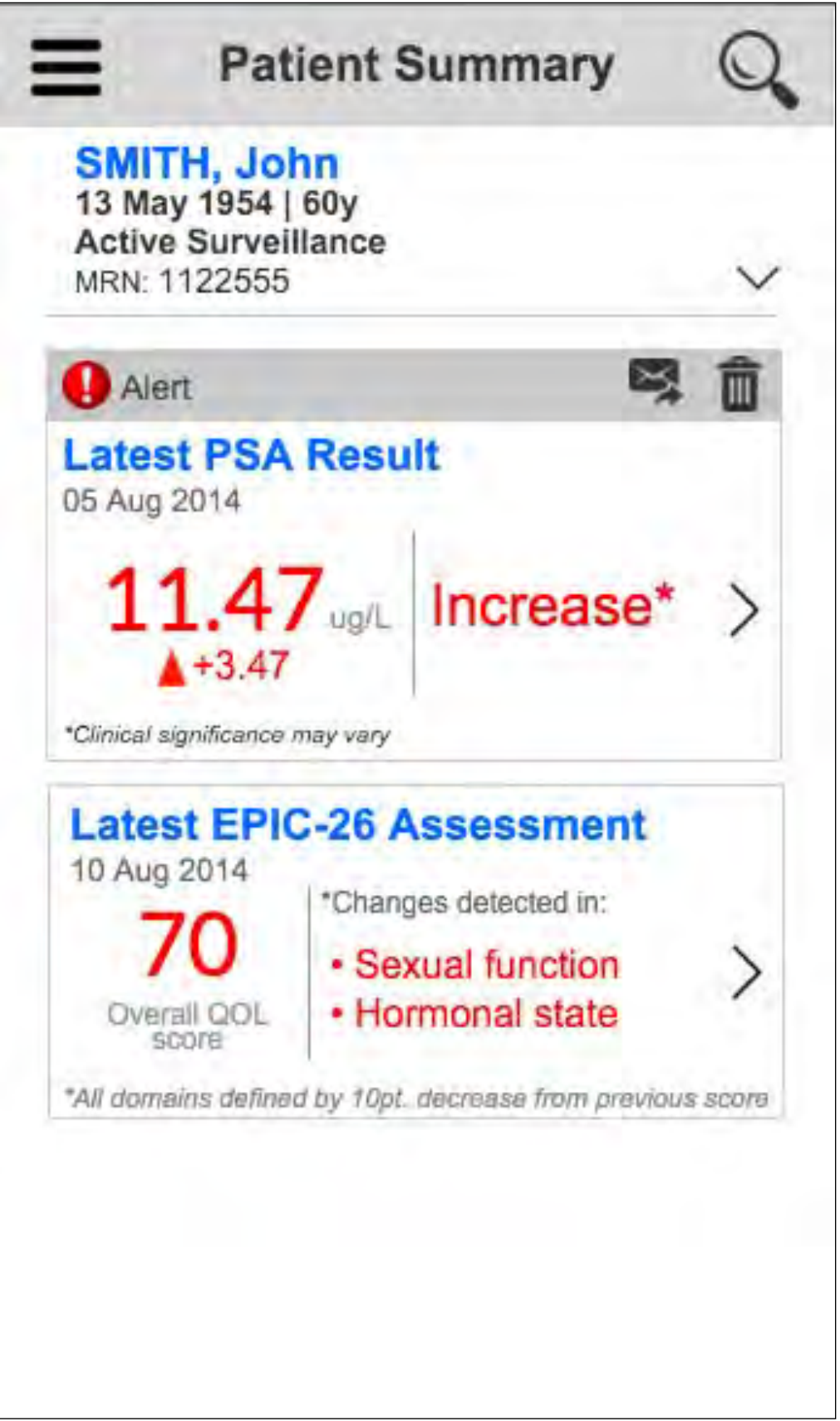
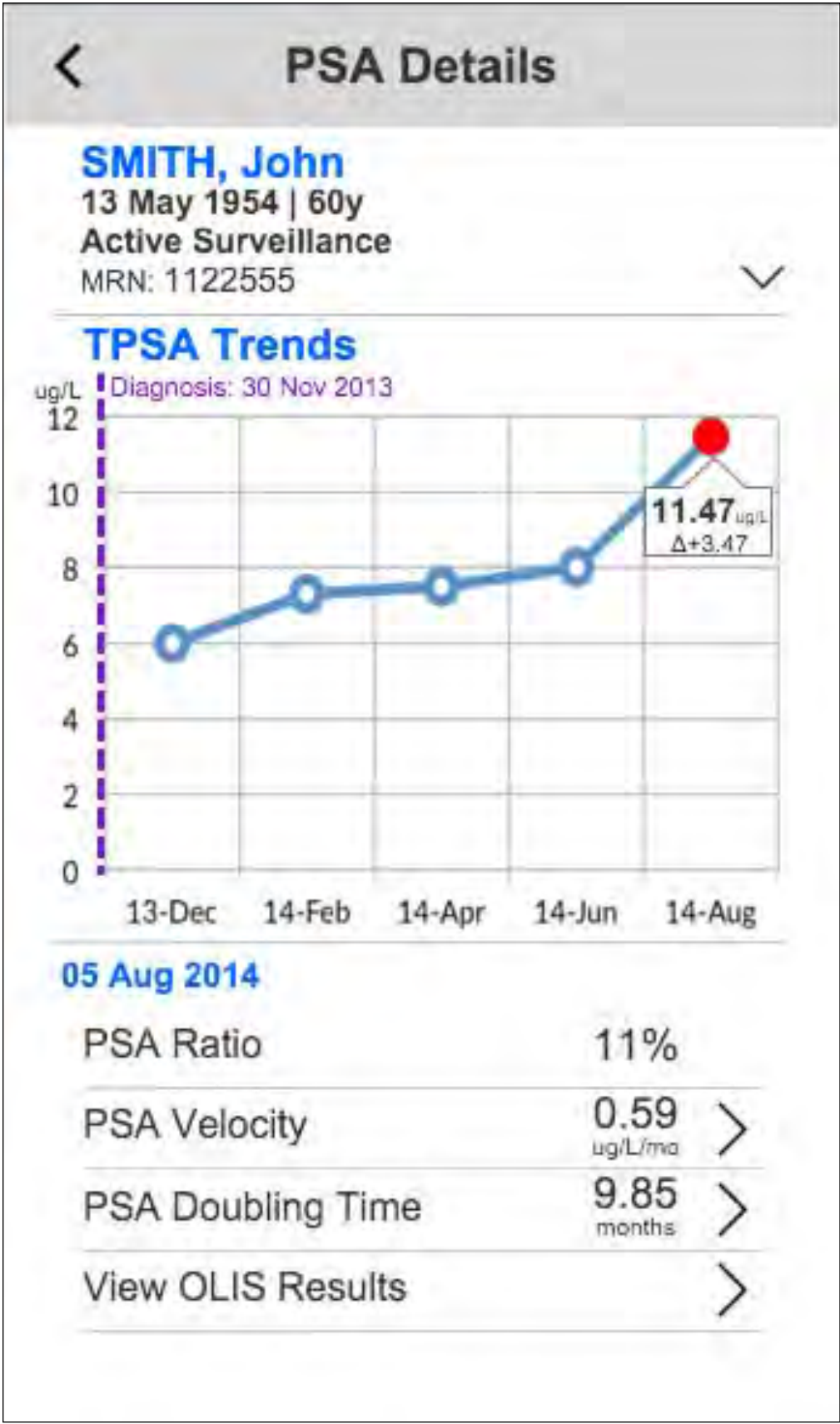
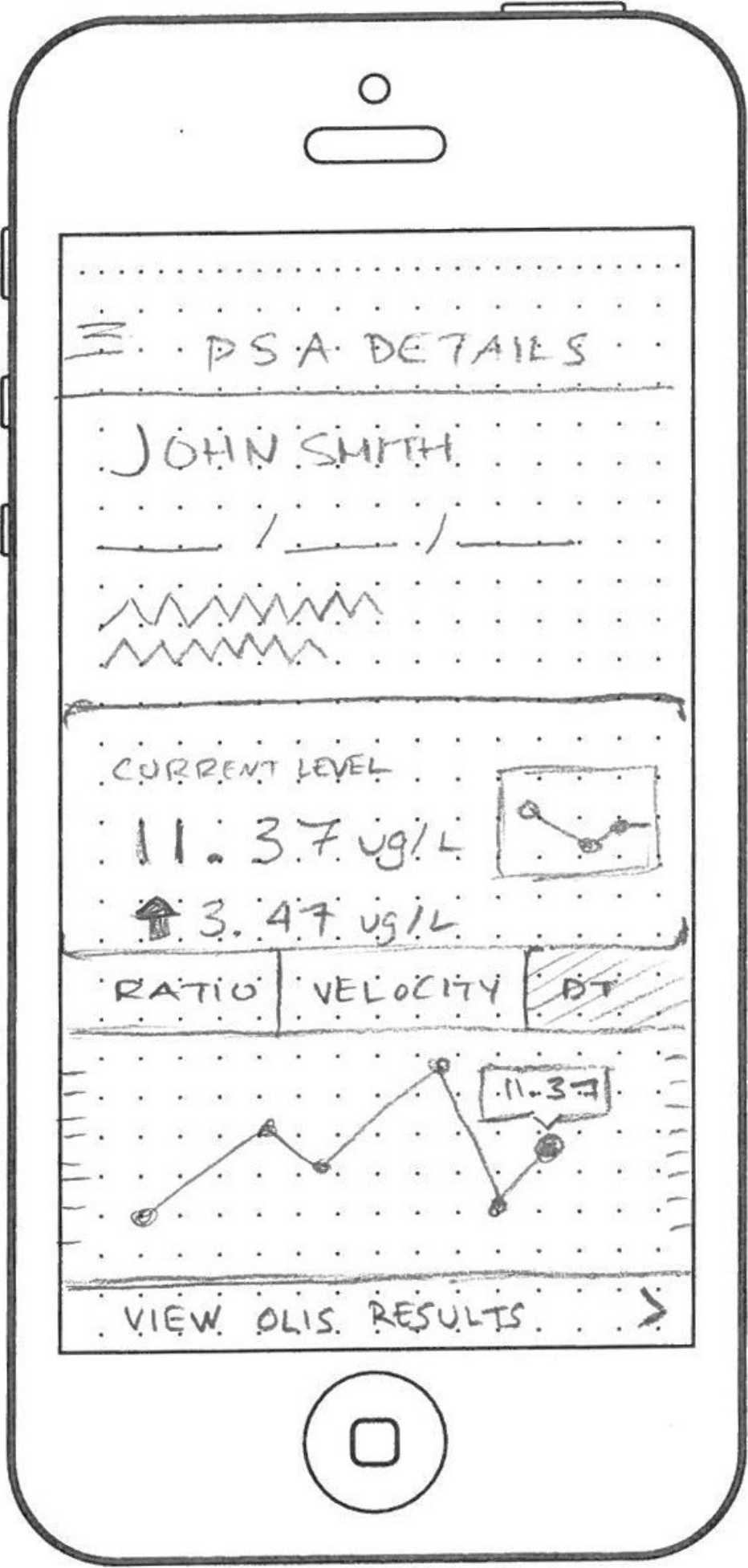
SEXUAL FUNCTION ▴

16 How would you rate your ability to have an erection during the last 4 weeks? Poor

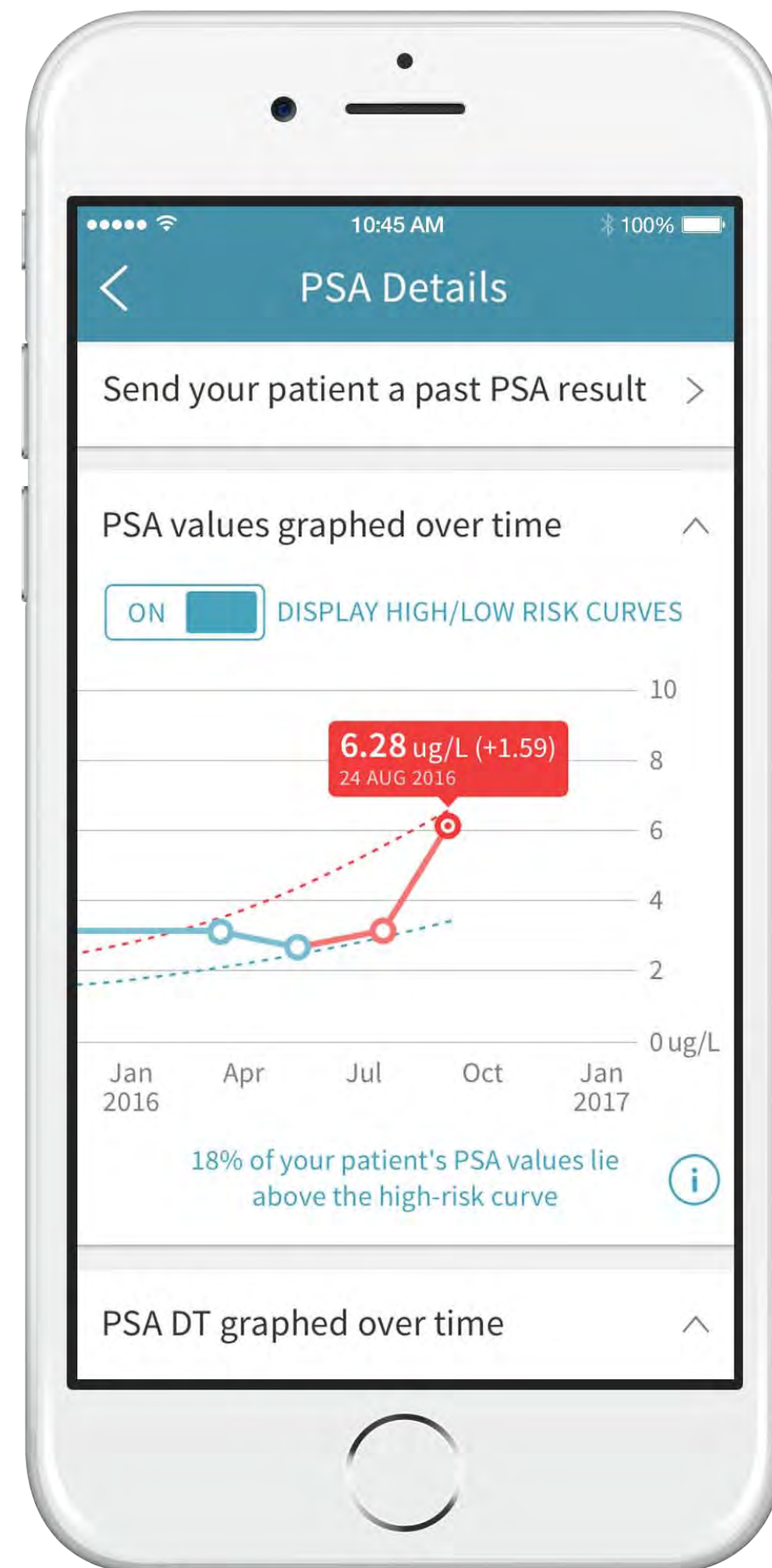
17 How would you rate your ability to reach orgasm (climax) during the last 4 weeks? Poor

18 How would you describe the usual quality of your erections during the last 4 weeks? Firm enough for masturbation and foreplay only

Low fidelity prototypes | *Ned* app



High fidelity prototype | *Ned* app



Menu Ned

back to top

36m
Hearing your diagnosis isn't always easy. Check out [this video](#) that may help you cope and better understand some of your treatment options.

2h
Interview with Brett Wilson about his journey while fighting prostate cancer for the second time: bit.ly/1vmloQQ

3h
Prostate Cancer and Complementary Therapies: What's New? Watch this

Wellness Survey

BOWEL FUNCTION

How big a problem, if any, has increased frequency of bowel movements been for you?

No problem

Very small problem

Small problem

Moderate problem

Big problem

Question 11 of 26

Menu Patient Summary

Andrew, Geoff

20 Sept 1950 | 64y
Post Surgery | MRN: 1122334
OHIP: 1234-567-890-XY
Date of Diagnosis: 15 Oct 2014

Remove this patient from My Patient List

Latest PSA Result >

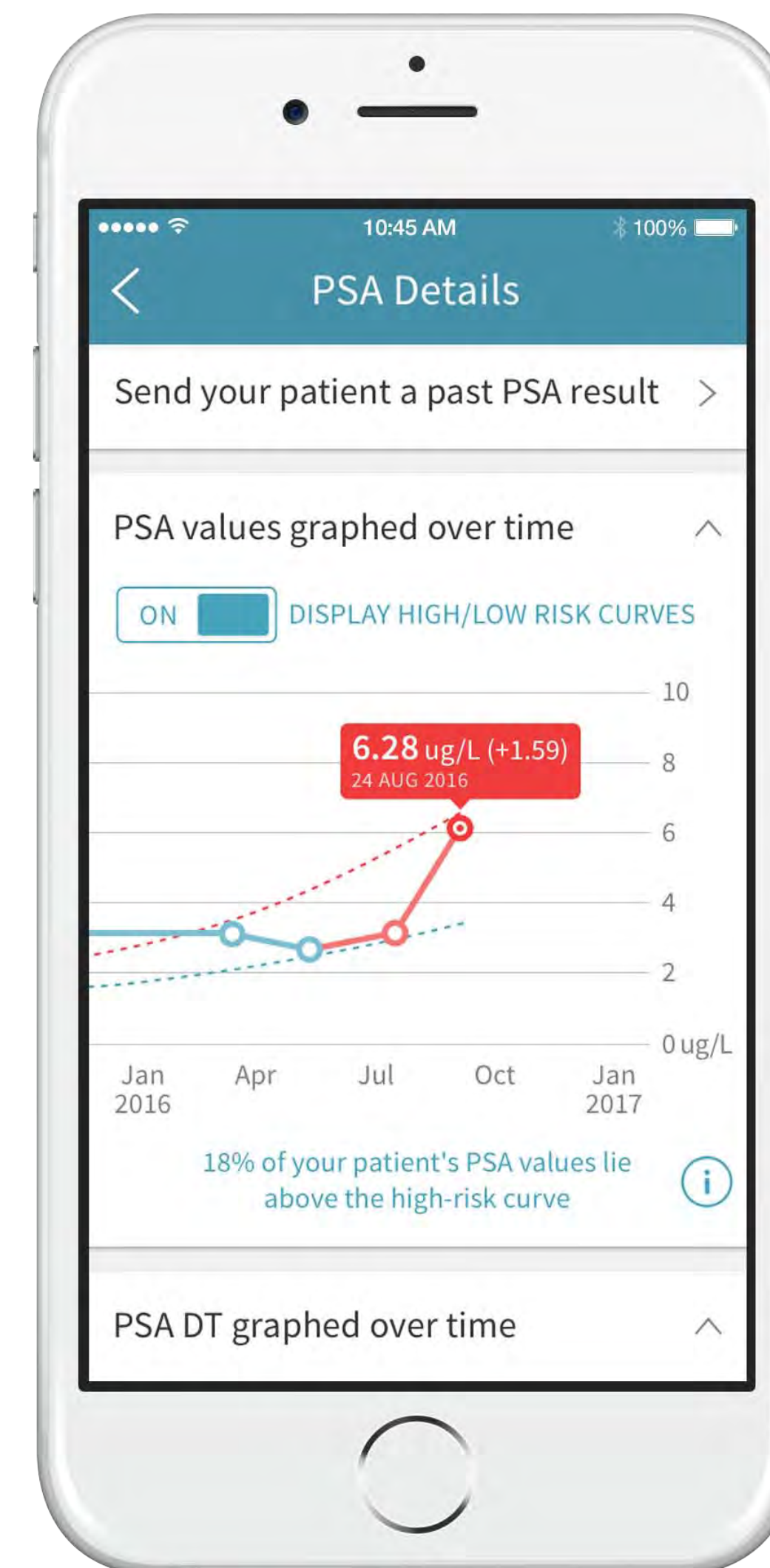
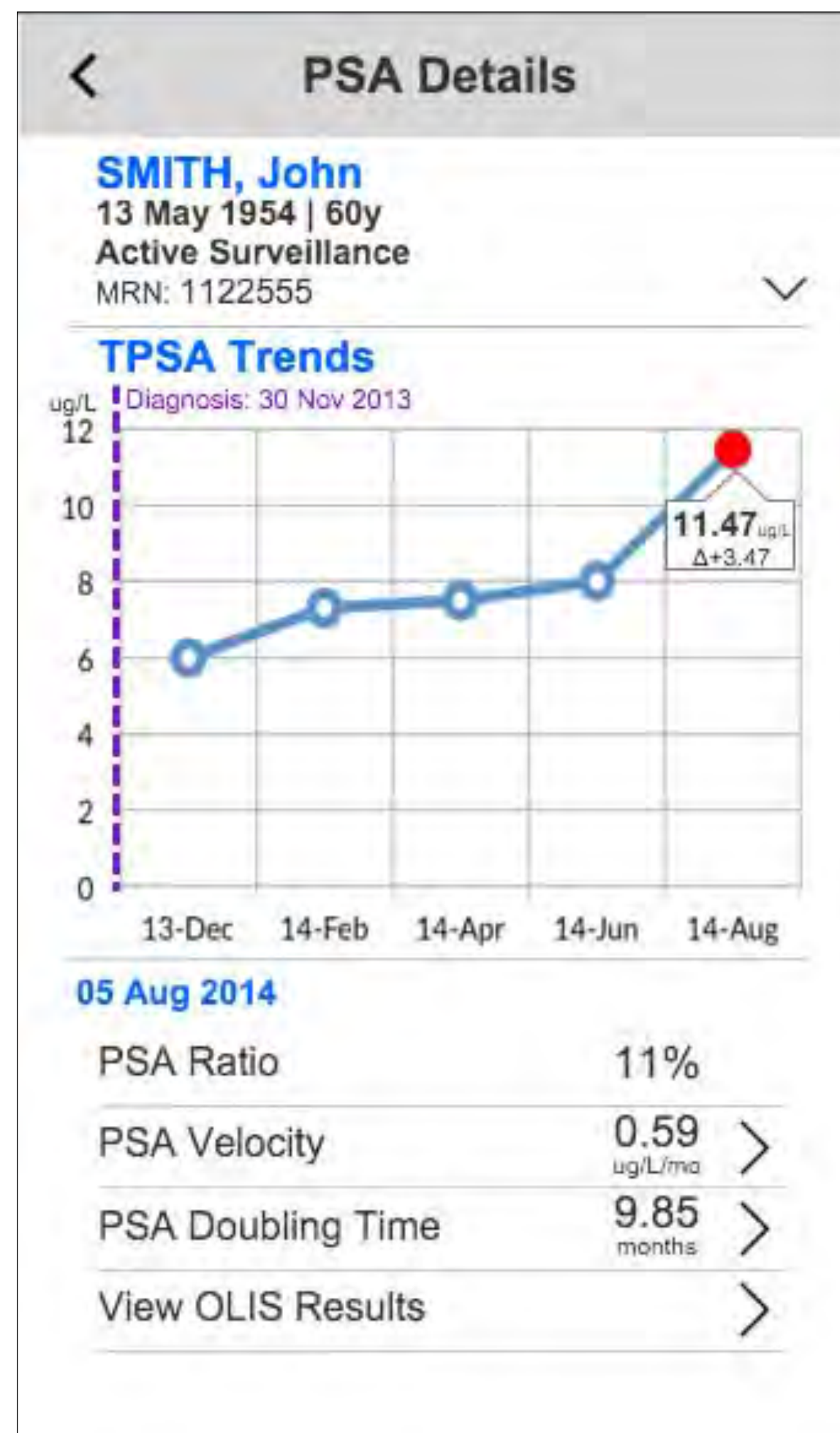
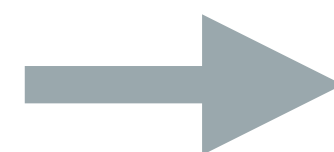
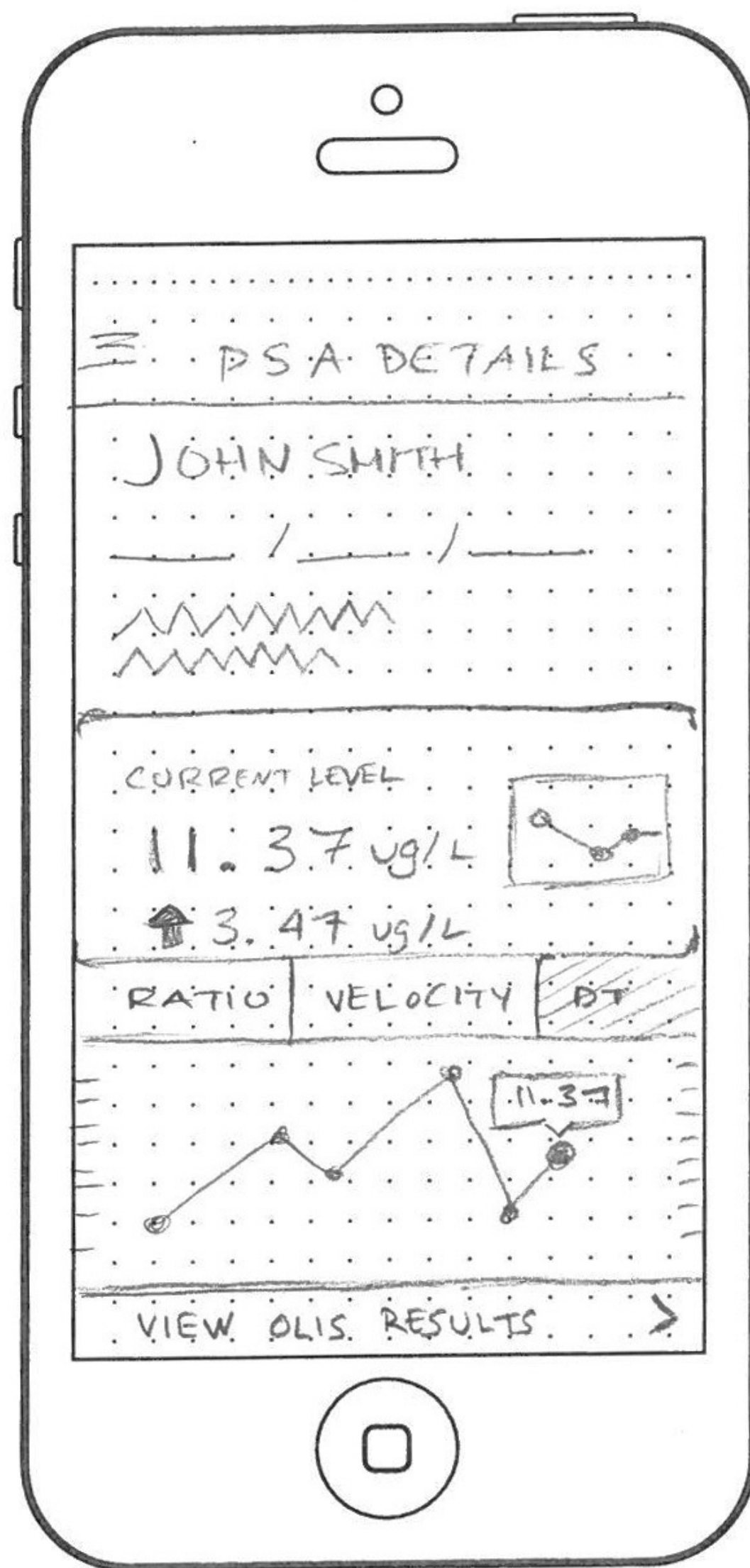
+5.22 increase in PSA level

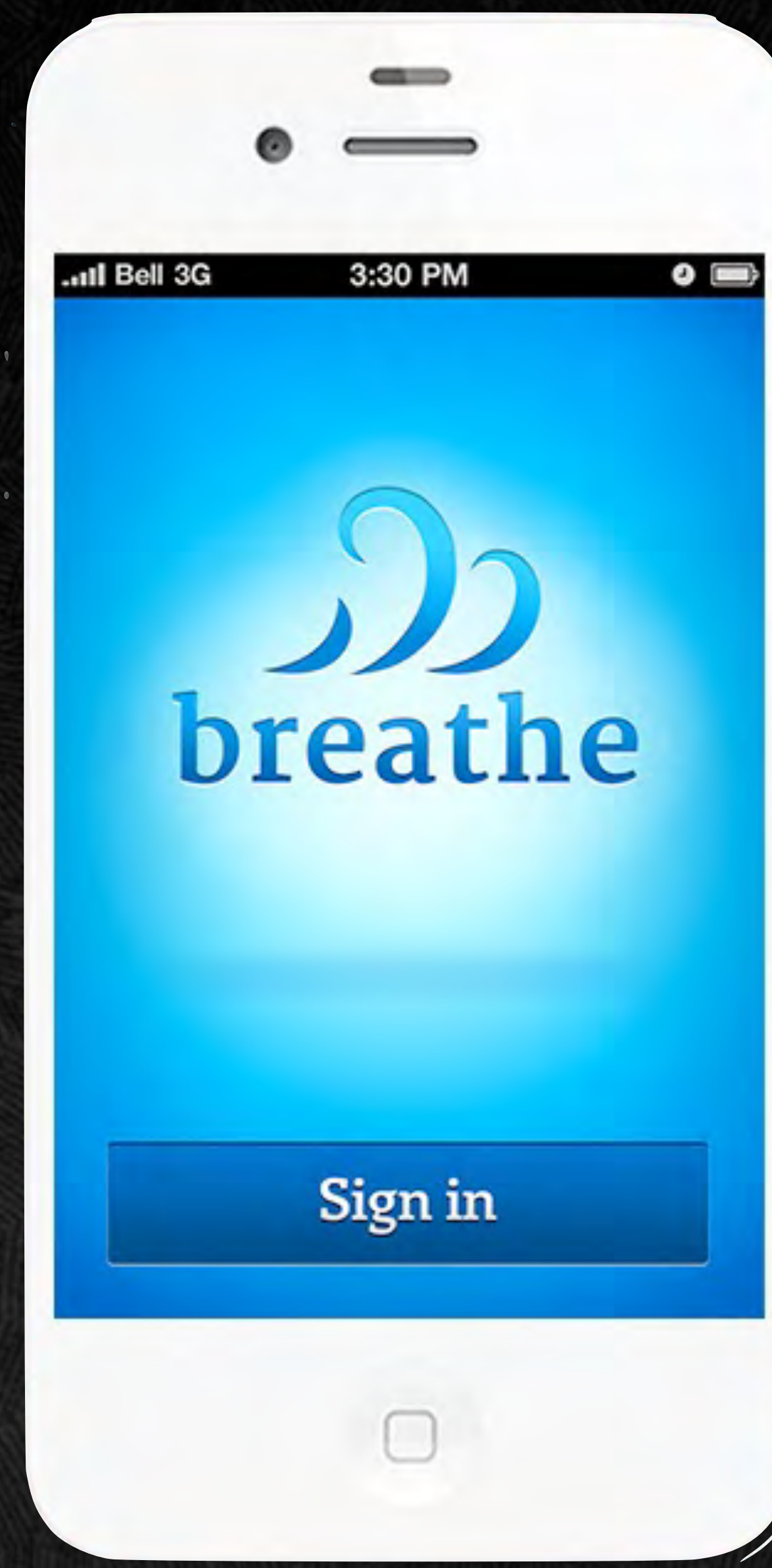
109.82 ug/L

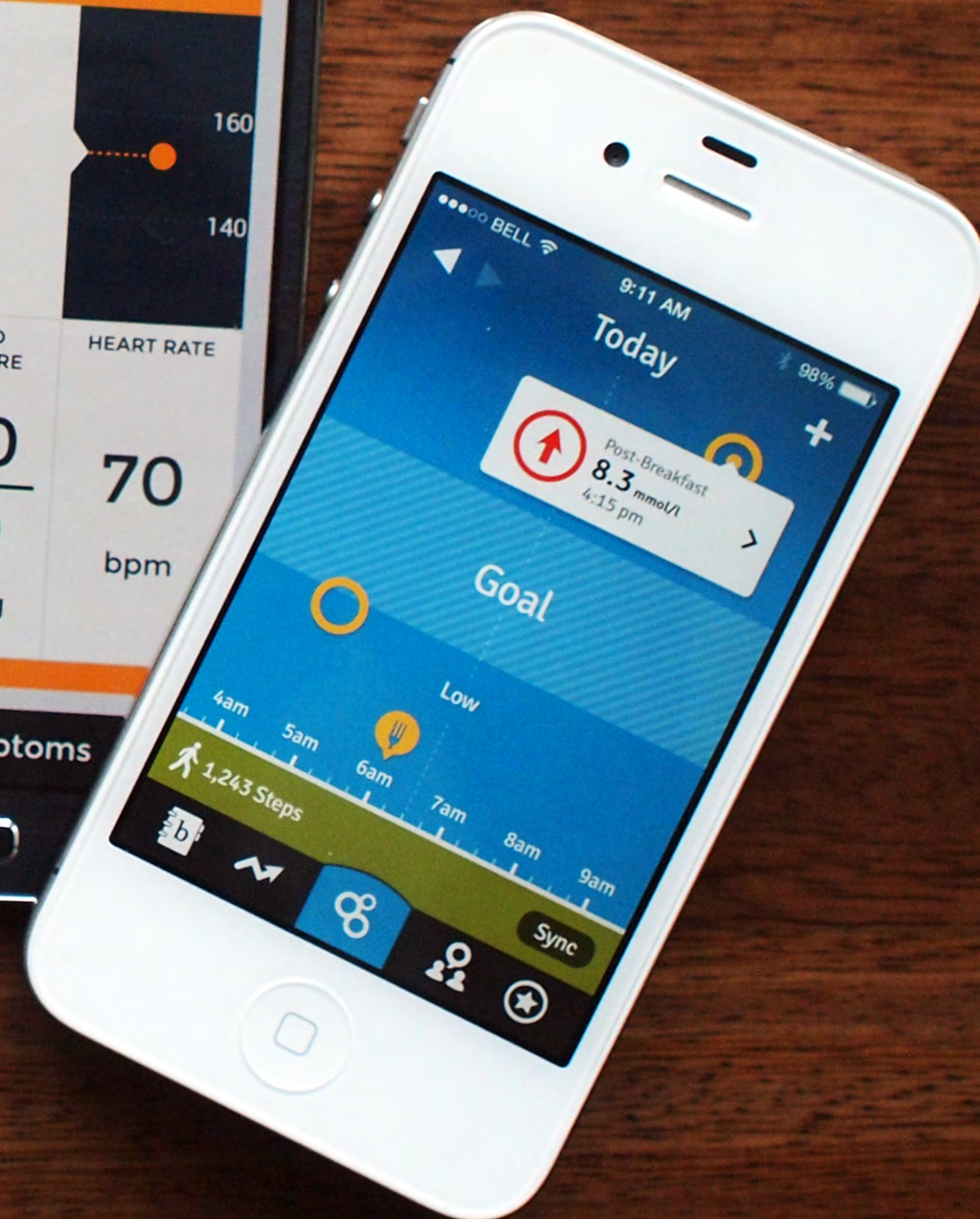
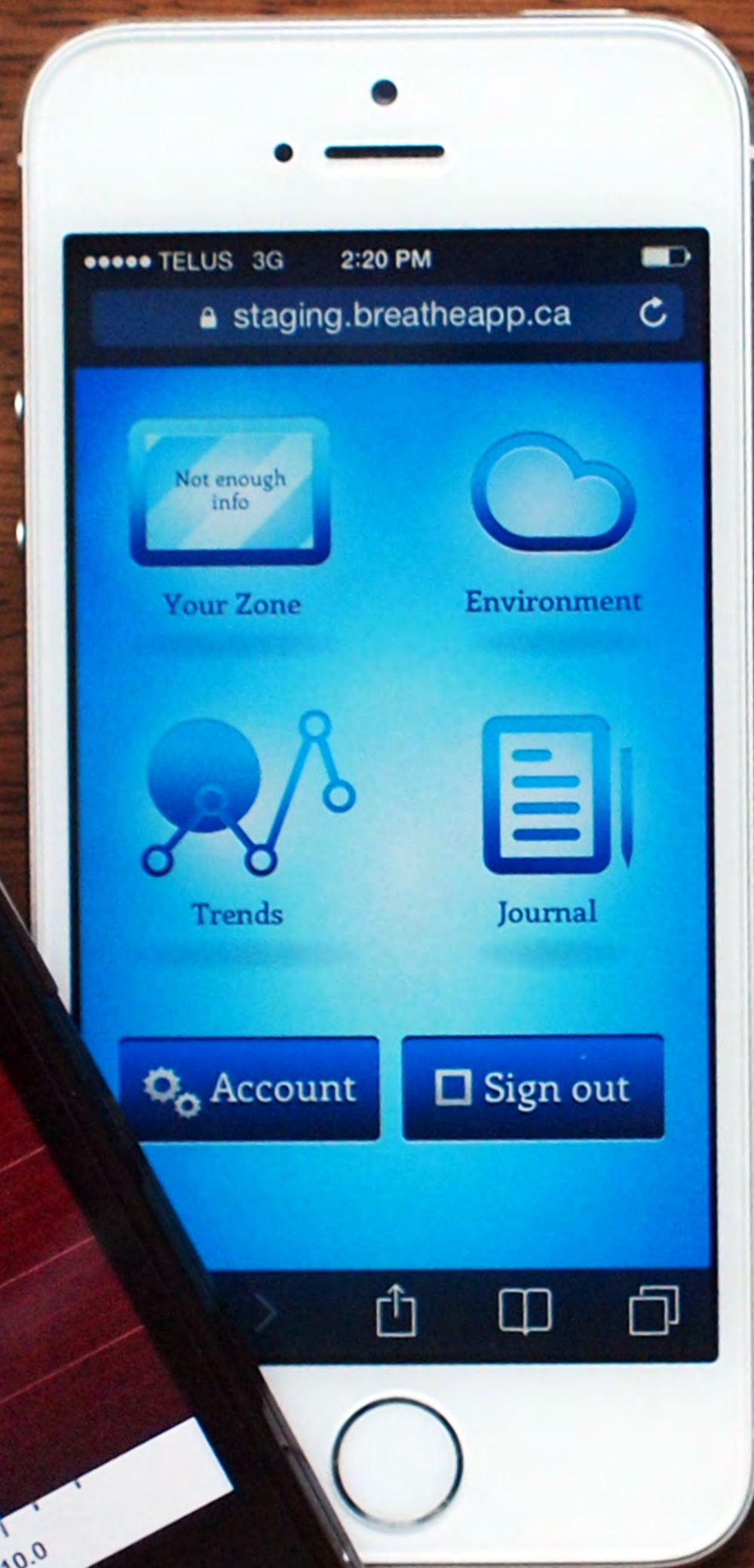
RESULT RECEIVED ON 20 NOV 2015

Latest EPIC-26 Assessment >

Overall Wellbeing Score









YOUR HOME



PHARMACIES

NEW SPACES



REMOTE COMMUNITIES

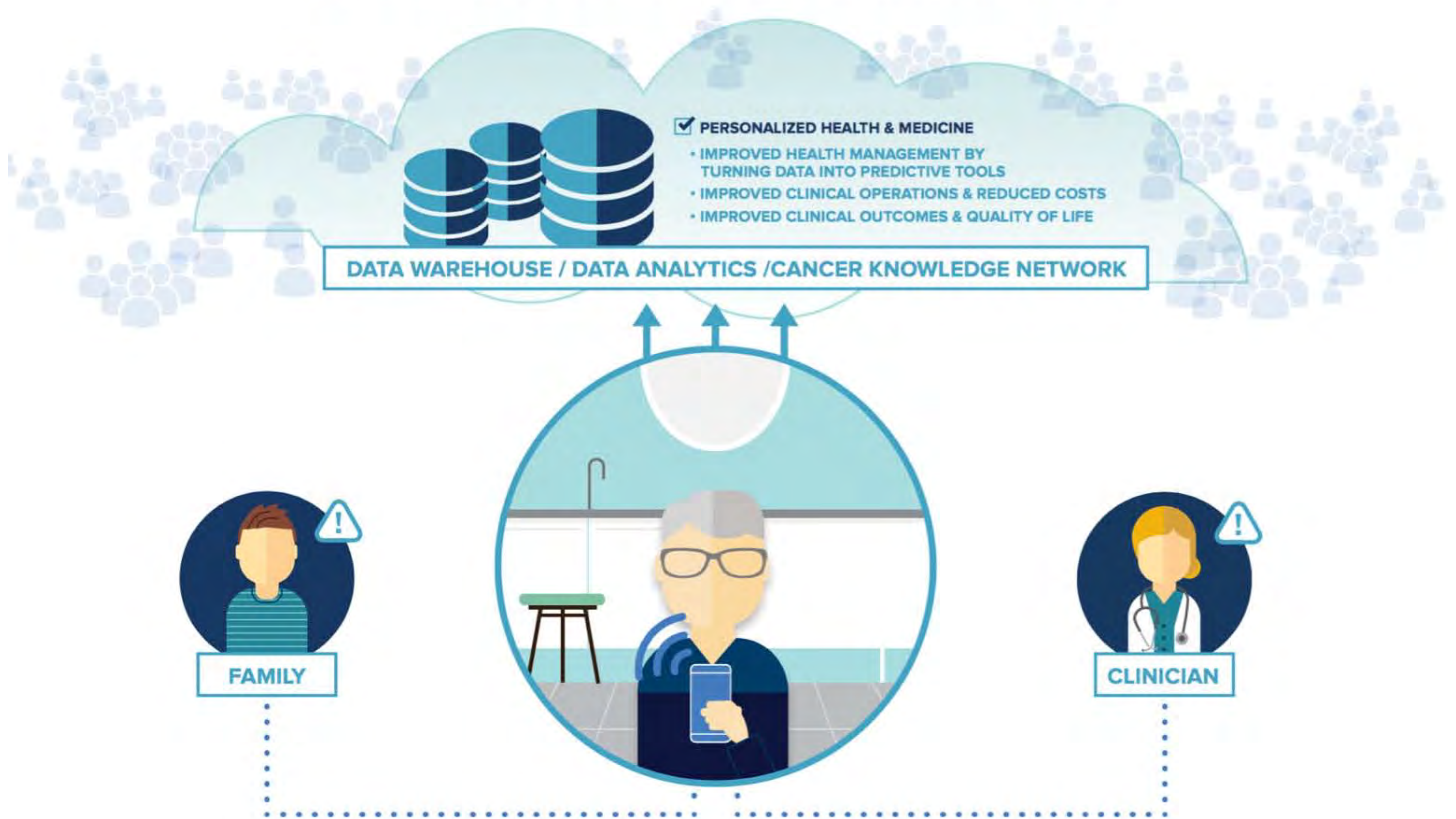


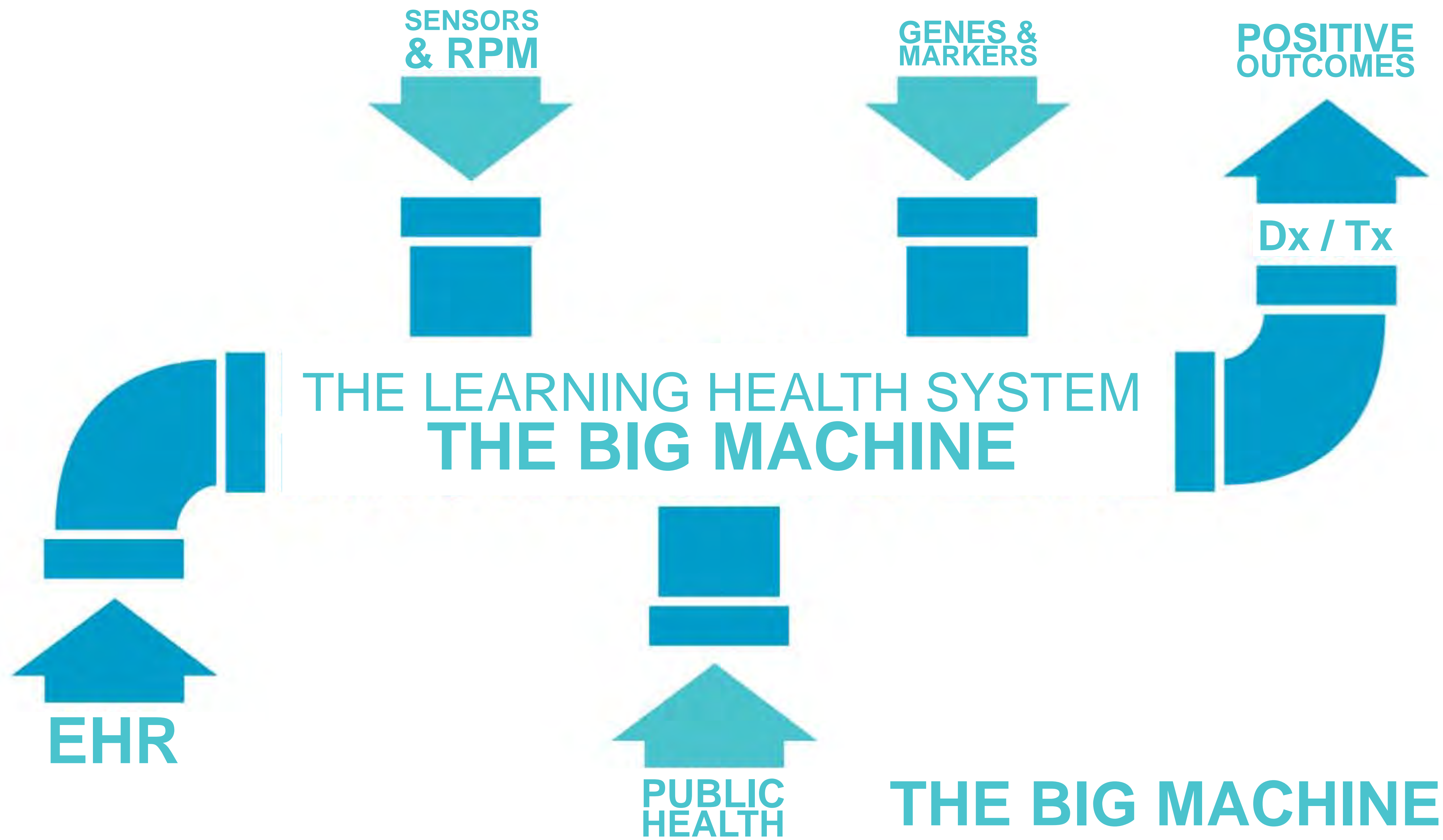
SCHOOL & WORK





HEALTH COACH





SENSORS
& RPM

GENES &
MARKERS

POSITIVE
OUTCOMES

Dx / Tx

THE LEARNING HEALTH SYSTEM
THE BIG MACHINE

EHR

PUBLIC
HEALTH

THE BIG MACHINE

MISSED OPPORTUNITIES

Patients + TECH

Improved Patient Adherence of SMBG

Improved Medication Adherence

Lower Dependence on Physician Care

Improved Self-Awareness

MISSED OPPORTUNITIES

Patients + TECH

Improved Health Outcomes
with less spending on the system

Patient, Heal Thyself

How the future of health service delivery
is through patient self-care technology

 @JosephCafazzo PhD PEng