

The background features a teal-to-blue gradient with various circular and semi-circular patterns. On the left side, there is a large circular scale with numerical markings from 140 to 260 in increments of 10. Several smaller circles and arcs are scattered across the background, some with arrows indicating direction. The overall aesthetic is technical and modern.

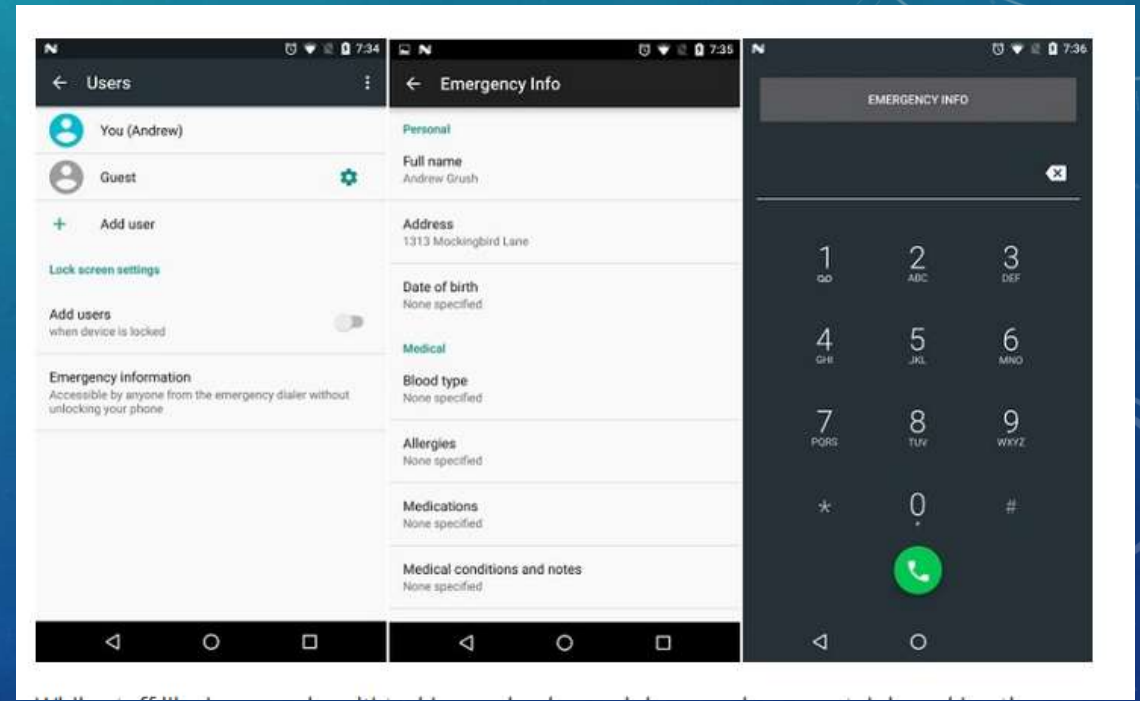
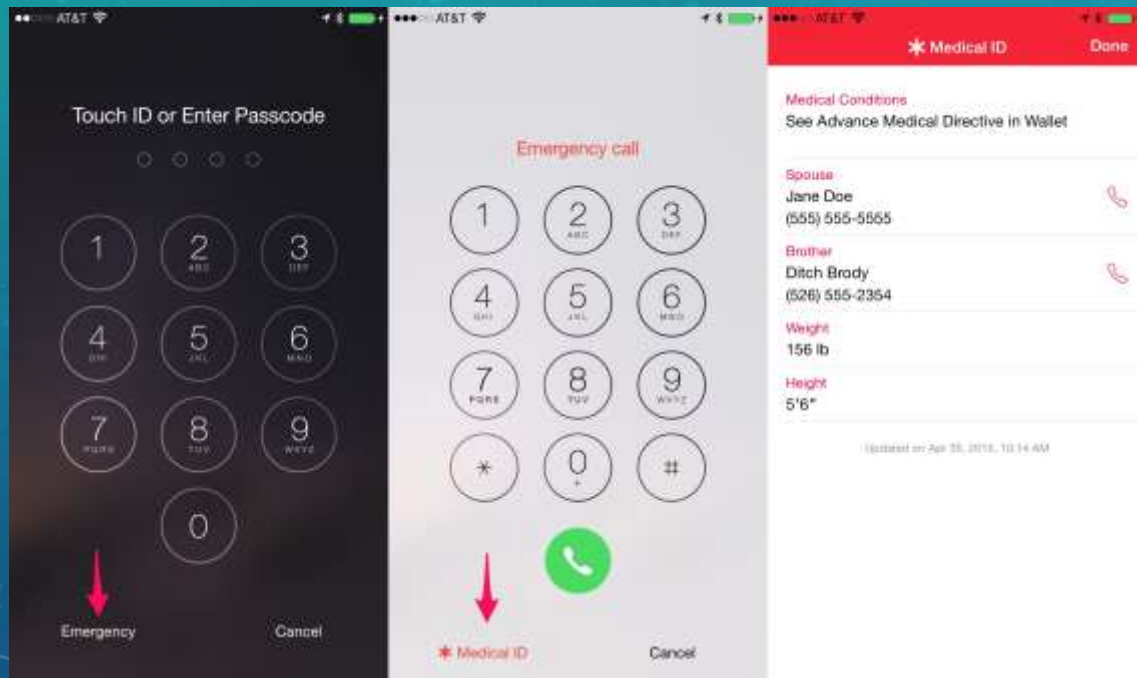
Did you Know There is an App for That?

LINDA TRAVIS MACOMBER

Linda Travis Macomber RN BSN MBA

- Nurse with over 30 years experience working in health informatics
- BSN University of Michigan MBA Northeastern University
- RN pediatrics and ICU
- Design/adoption/innovation health IT
- Consulting firm, vendor, care delivery, & academia
- Founded Healthcare Tech Consulting 1994
- Chaired HIMSS Davies Award for EHR excellence
- Certify EHR Certification Commission for Health IT
- Travel - South Africa, Brazil, Finland, Europe
- Program Lead for MS in Health Informatics

Health Emergency: Are you and People you Love Prepared?



Objectives

- **Consumer Apps**
 - Try several popular mobile health applications used by the health care consumer
- **Professional Apps**
 - Describe several mobile health applications used today by health care professionals
- **Discuss/Put into Action/Describe Value to Others**
 - Access the resource center and find an app
 - Describe value of mobile applications

A photograph of a young child with blonde hair, wearing large, dark-rimmed glasses and a white diaper. The child is sitting on a grey laptop keyboard, looking down at the keys with a focused expression. The background is plain white. The image is set against a teal gradient background with faint circular patterns and numbers.

High Tech Innovation with a Healthy Human Touch



Person-Centric Care

People have hearts,
minds, lungs

Not lab, radiology and
pharmacy

So let's look at apps to
support human
health- head to toe

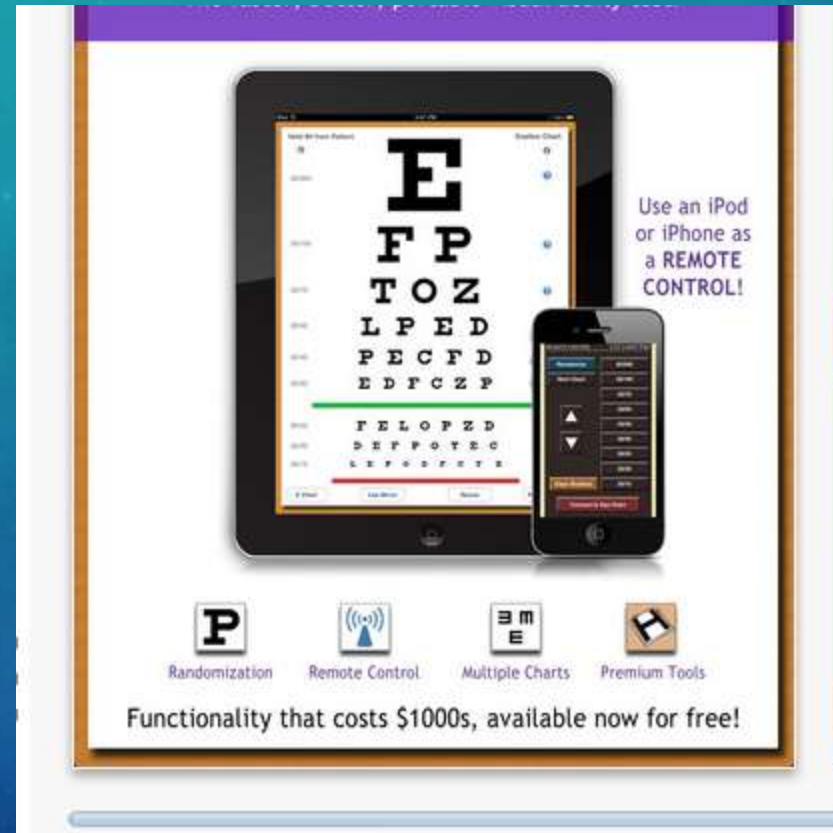
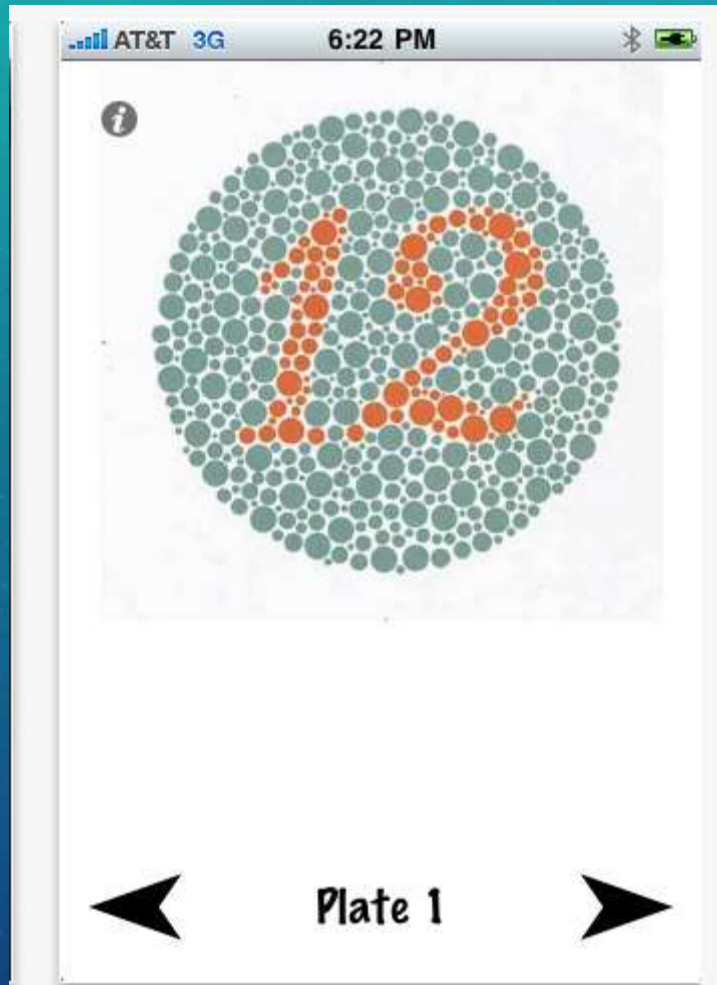
Healthy Apps Summary

- Vision/Hearing
- Mind/Sleeping
- Heart
- Lungs
- Abs/Nutrition/Metabolism
- Pregnancy
- Feet

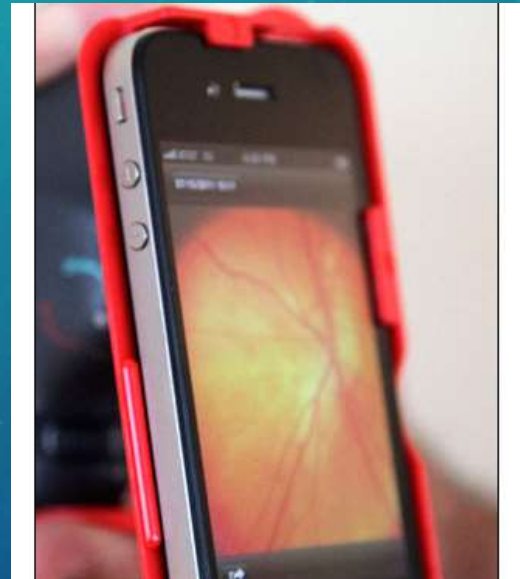
Healthy Vision Apps



Consumer Eye Screening Apps



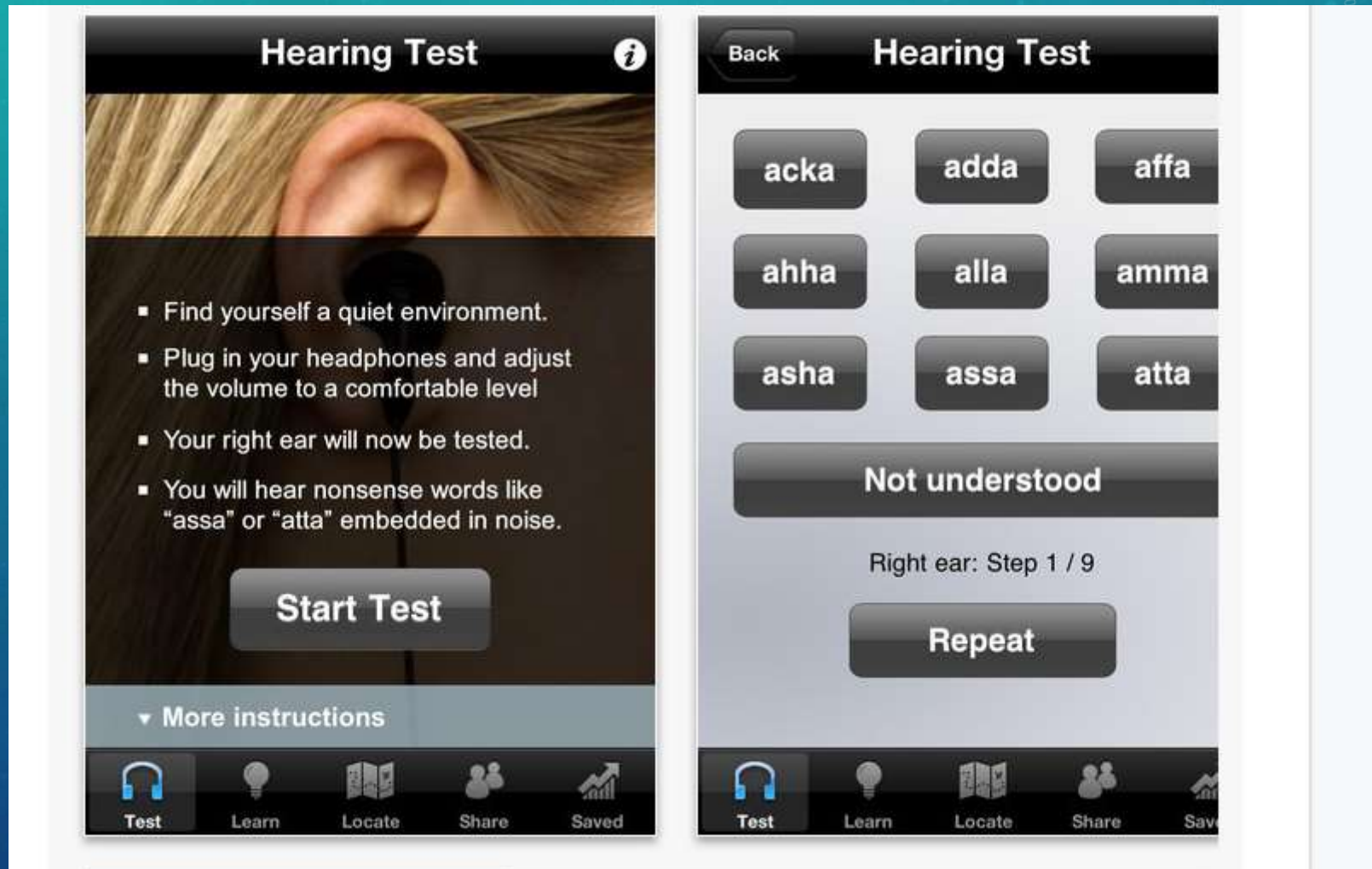
Have Your Eyes Examined



Healthy Hearing Apps



Hearing Test App



Healthy Mind/Sleep Apps



Home Sleep App/Analytics Example – Sleep Cycle



Tired of Being Tired??



NATIONAL UNIVERSITY

Development of the ePRO Fatigue[®] Mobile Symptom Monitoring Device: A Pilot Study

Barbara F. Piper, PhD, RN, AOCN, FAAN¹, Linda T. Macomber, MBA, RN¹, Subra R. Subramanya, DSc.¹,
Geline J. Tamayo, MSN, RN, ACNS-BC, OCN,² Banikumar Maity, MS¹, & R. Curtis Bay, PhD¹.

Purpose/Aims

- Develop an electronic patient reported outcome (PRO) fatigue and outcome monitoring system (ePRO Fatigue[®] Application/App)
- Evaluate ePRO Fatigue[®] App feasibility and acceptability

Significance

- Fatigue is the most common and distressing symptom experienced by cancer & other patients
- The NIH and NCI recommend standardizing PROs across disease and treatment states
- Using mobile devices such as smartphones to measure PROs can improve symptom management, reduce healthcare costs/ patient burden, and improve outcomes

Methods/Phases

Design: Four - phase descriptive pilot study

- Phase 1: Develop prototype app
- Phase 2: Pilot with NU nursing, informatics, & computer science students
- Phase 3: Pilot with APRNs and UCSD Moores Cancer Center patients
- Phase 4: Pilot with patients & APRNs at the NU clinic in LA (n=70; 10/each participant group)

Measures ePRO Fatigue[®] mobile app contains: Piper Fatigue Scale-12 (PFS-12) and PROMIS-29 Adult Symptom Profile, and Patient education materials

Procedures: Complete Phase 1, obtain NU IRB approval, complete Phase 2, complete survey/analysis, revise/upgrade prototype as needed, obtain additional IRB approvals, then begin Phases 3 & 4

Data Analysis: Develop/conduct survey/with online evaluation forms. Use descriptive statistics to analyze data

Tired of Being Tired? There is a new App for that!



More than a third of U.S. adults aren't getting enough shut-eye[®] CDC

- ePRO Fatigue[®] - the Potential of Self-monitored Results
Experiencing a sense of tiredness or fatigue that is unusual, excessive, or chronic? Not easily relieved by a good night's sleep or with rest?
- Track fatigue and progress over time
- Measure fatigue by answering 12 short questions using the Piper Fatigue Scale-12 (PFS-12) and measure fatigue/symptoms using the Patient Reported Outcome Measurement Information System-29 (PROMIS-29)
- Click through and complete both questionnaires (in about 4 min or less)
- Receive results immediately and view graphical trends
- Share results with healthcare professionals and access resources

Results – PFS-12



My fatigue interferes with my ability to do work or school activities.
It's hard, it's a problem.

My fatigue interferes with my ability to perform the activities I enjoy doing.
It's hard, it's a problem.

My Total Score: 6
Severity: moderate

Last 10 Day Trend

Last 90 Day Trend

Results – PROMIS-29



I feel fatigued

I have trouble sleeping things I should be able to do

How often does it bother you to feel so fatigued?

How fatigued were you on average?

Physical Function: How well are you able to do things?

Chores such as vacuuming or yard work?

Up and down the stairs at normal pace?

Go for a walk at least 15 minutes?

Preliminary Conclusions

Phase 1: Start up/App Development

- Established an inter-professional team
- Designed the initial ePRO Fatigue[®] App
- Used innovative prototyping methods including iOS Test Flight software
- Evaluated initial usability/feasibility, validated, iteratively improved

Team Proceeding with Phase 2

Acknowledgements

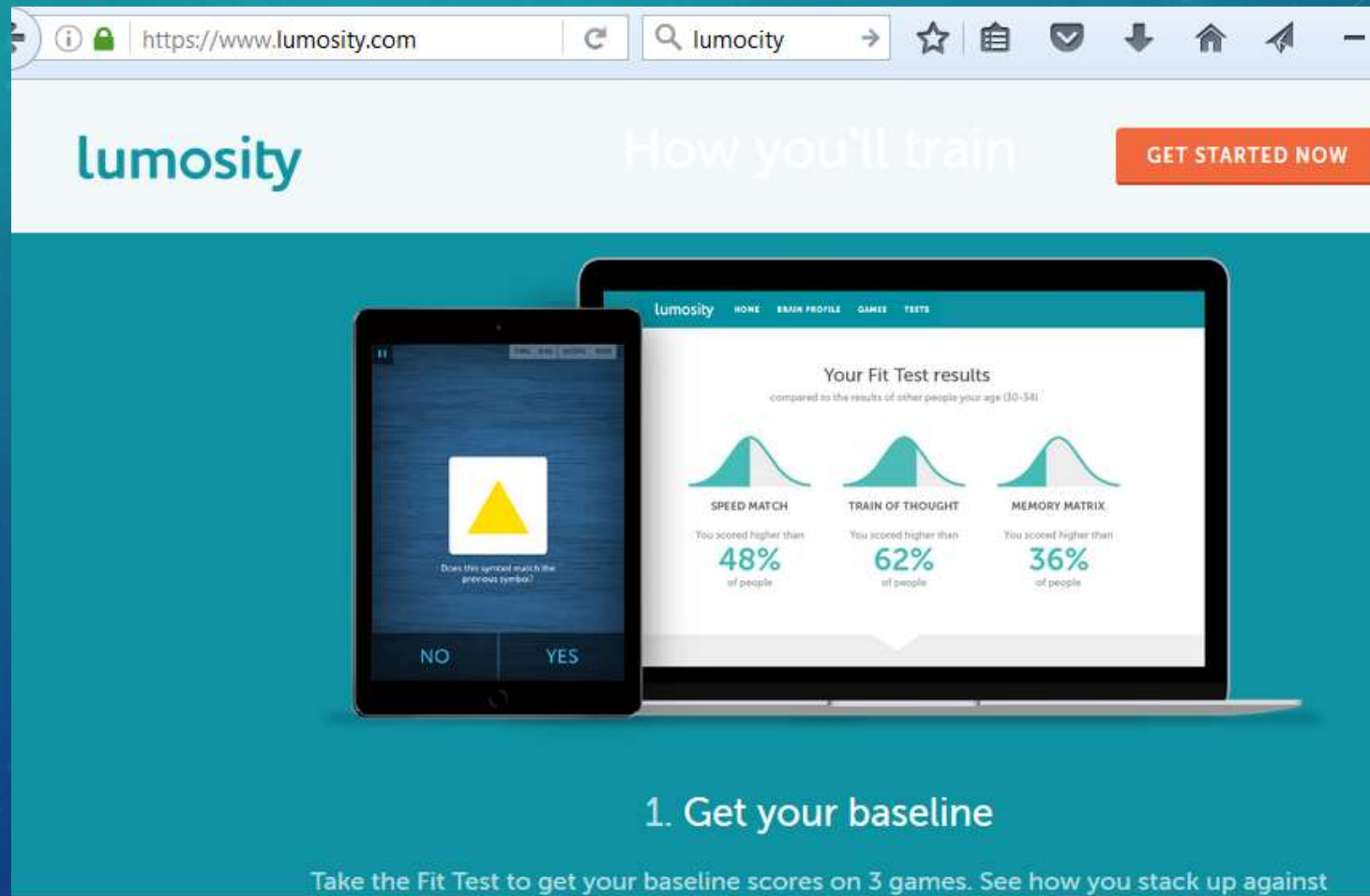
This study is supported by National University's Presidential Research and Scholar Awards in collaboration with the ¹National University, San Diego, CA; ²UCSD Moores Cancer Center; San Diego, CA; ³A.T. Still University, Mesa, AZ

References

Craig, B.M., et al. (2014). US valuation of health outcomes measured using the PROMIS-29. *Value Health, 17*(9), 886-893. doi:10.1016/j.jval.2014.05.005.

Brown, E.B., et al. (2012). The Piper Fatigue Scale-12 (PFS-12): Psychometric Fatigue and Burn reduction in a cohort of breast cancer survivors. *Breast Cancer Res Treat, 131*, 9-20.

Games - Test your Memory/Mind



The image shows a screenshot of the Lumosity website. The browser address bar displays <https://www.lumosity.com>. The website header includes the Lumosity logo, the text "How you'll train", and a "GET STARTED NOW" button. The main content area features a laptop displaying "Your Fit Test results" and a tablet displaying a game interface.

lumosity How you'll train [GET STARTED NOW](#)

lumosity HOME BRAIN PROFILE GAMES TESTS

Your Fit Test results
compared to the results of other people your age (30-54)

| Game | Score |
|------------------|-------|
| SPEED MATCH | 48% |
| TRAIN OF THOUGHT | 62% |
| MEMORY MATRIX | 36% |

Does this symbol match the previous symbol?

NO YES

1. Get your baseline

Take the Fit Test to get your baseline scores on 3 games. See how you stack up against

A little Help to Remember Your Meds? Can run on iPod Touch device -



Pillboxie
designed & developed by a registered nurse

- An easy, visual way to remember your meds.
- Forty combinations of pill shapes and colors.
- Schedule reminders by dropping pills into a pillbox.
- Reminds you on time, even if your device is asleep.
- No network connection required.
- For iPhone and iPod Touch.

The image shows the Pillboxie app interface on an iPhone. On the left, a smartphone displays a 'Due Today' screen with a list of medications: Aspirin (10:34 CDT), Lopressor (1 capsule, 10:34 CDT), and Plavix (10:34 CDT). Below this, an 8:00 PM reminder is shown for Lopressor, 'due in 9 hours'. The bottom navigation bar includes 'Due Today', 'Medications', 'Person', and 'Settings'. On the right, the app's logo and name are displayed above a list of six features, each accompanied by a small pill icon.



Great use for old Devices such as iPod Touch for Patients? – Cost/benefit



Apple iPod Touch 3rd Gen - 8 GB (MC086LL) | Black/ Silver | Used

\$18.00

Buy It Now
or Best Offer

 **2 watching**

Available for sale is a Apple iPod Touch. This product is used, and has been tested for basic functionality.

Healthy Heart Apps



Heart Rate



- Place your finger over smart phone camera
- Measure heart rate
- Store trends

Blood Pressure Apps



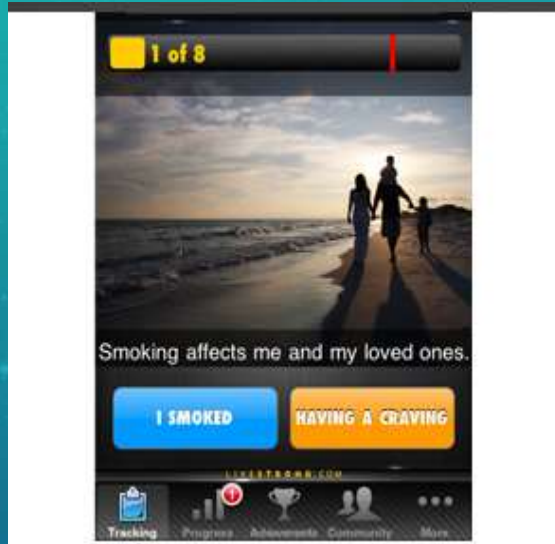
Smart Phone EKG



Healthy Lung Apps



Stop Smoking Coach



- Track smoking
- Custom quitting plan
- Inspiration
- Sharing and celebrating success with social network and/or health care professional



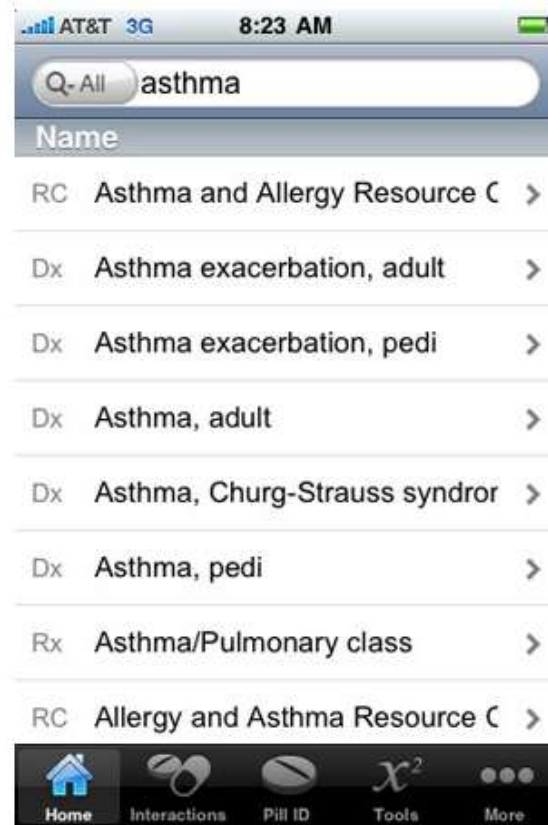
Red Cross First Aid



Reference Apps: Asthma

Epocrates on the left, Medscape on the right.

There are some obvious differences, too. For example, Epocrates has much more granularity in some categories. For example:

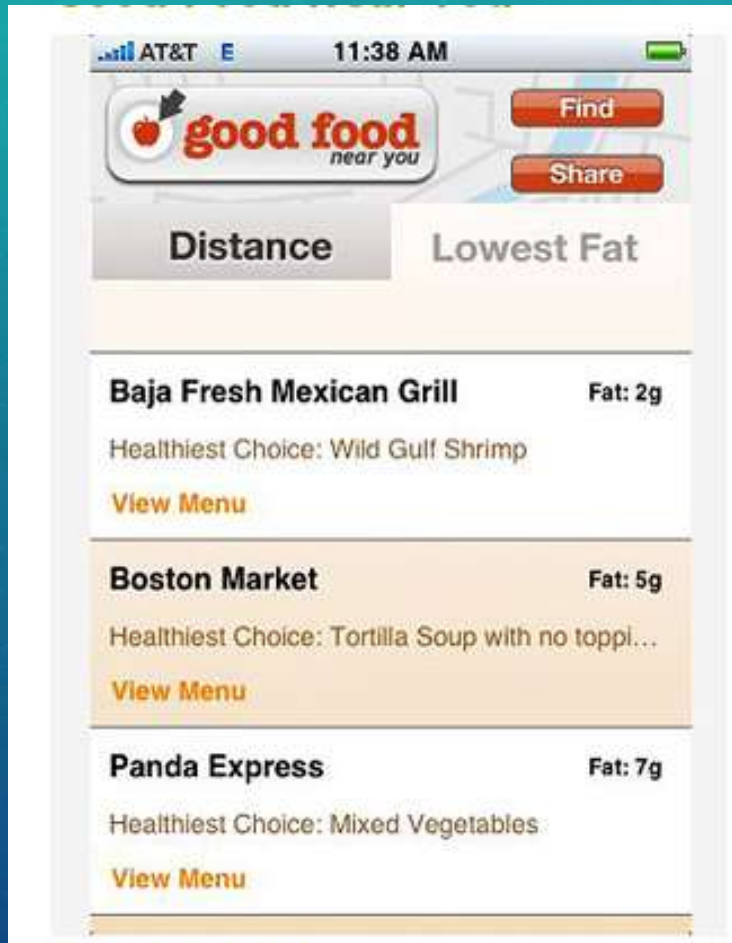


Epocrates on the left, Medscape on the right.

Healthy Digestion/Foods/Abs Apps



Find Healthy Fast Food



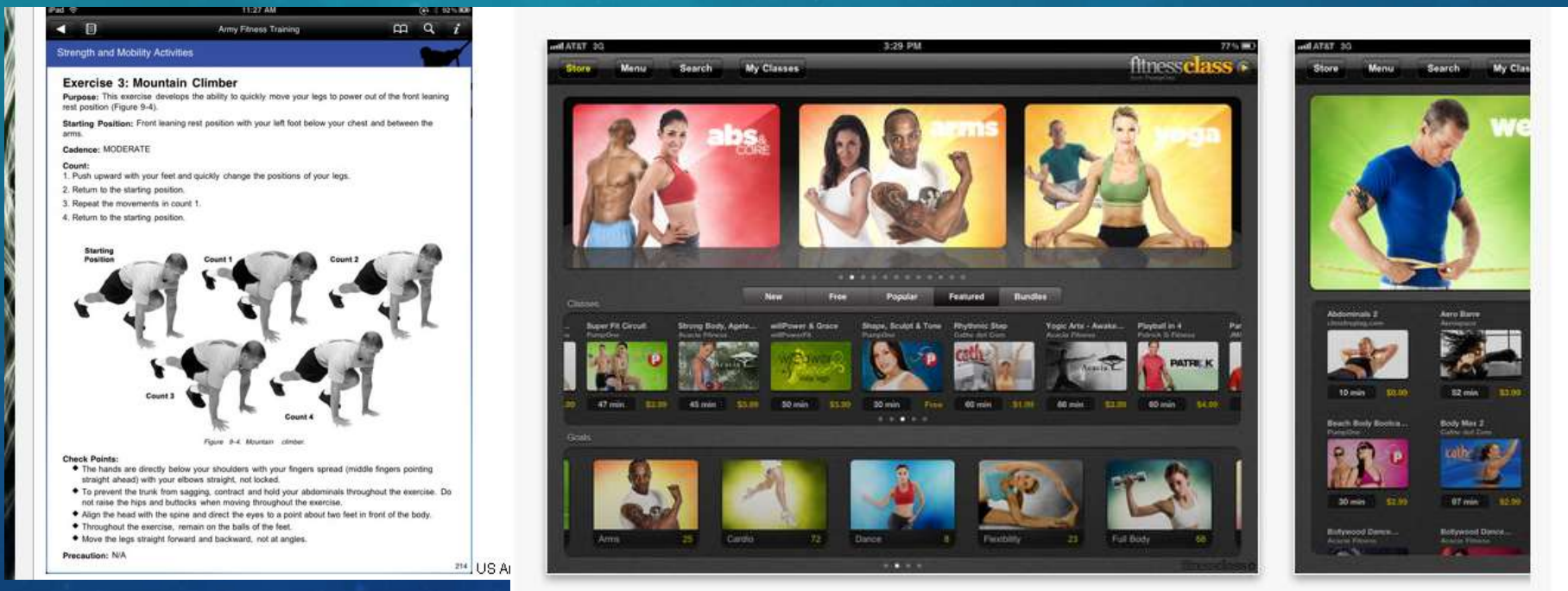
Once the app determines your location, sort restaurants by distance

Or—sort by “lowest fat.”

App reorganizes the list to show you the restaurants with the lowest-fat menu items first.

Healthy Abs App/Fitness

- Free fitness class videos on demand



Healthy Pregnancy Apps



Text Messaging for Health



Expecting a baby?

- 1 Text **BABY** to **511411**
Envia **BEBE** al **511411** para Español
- 2 Get free health tips every week to help during pregnancy
Text **STOP** to Stop | Text **HELP** to Help

OR [Click to Sign Up](#) [Learn More](#)

1 2 3 4

“Initial research indicates text4baby is

- Increasing users’ health knowledge
- Facilitating interaction with health providers
- Improving adherence to appointments and immunizations
- Strengthening access to health services.”

Dr. Yvette Lacoursiere, MD, MPH
UCSD Health System Department of
Reproductive Medicine

Pregnancy Books to Apps



Listen to baby's heart rate



Healthy Feet App



Calculate Distance/Calories



The image shows a mobile application interface for tracking a walk. The title is "Walk Stats" with a line graph icon. It displays three key metrics: Distance (1.02 m), Speed (4.47 m/h), and Calories (71). Below these is a text input field for a walk description, a "Share" checkbox, and a "Share Settings" button. At the bottom are two large buttons: "Save Walk" (green) and "Discard" (red).

| Distance | Speed | Calories |
|----------|----------|----------|
| 1.02 m | 4.47 m/h | 71 |

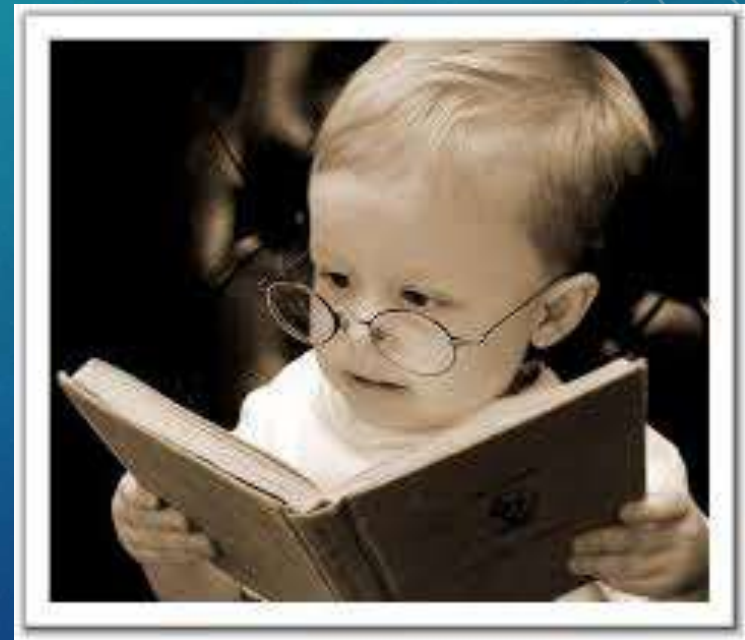
Enter a walk description ▶

Share [Share Settings](#)

[Save Walk](#) [Discard](#)

Reference Apps

- Epocrates
- Medscape
- WebMD
- Countless Others



Summary – Smartphone Physical

- Vision/Hearing - HEENT
- Mind/Sleeping - Neuro
- Heart - Cardiovascular
- Lungs - Pulmonary
- Abs/Nutrition/Metabolism - GI
- Pregnancy – OB/GYN
- Feet/Extremities – Steps, etc.

App Resource Center – National University and Scripps Health

<http://physicianresourcecenter.com/app-directory/>

The screenshot shows a web browser displaying the Physician Resource Center App Directory. The browser's address bar shows the URL <http://physicianresourcecenter.com/app-directory/>. The website header includes the PRC logo, navigation links (Home, News, Events, Services, Learning, Portals, Partners, Apps), and contact information. The main heading is "App Directory" with the tagline "Your source for what's new in health care apps for your mobile phone or tablet." Below this, it states "In association with: NATIONAL UNIVERSITY".

Discover a wide variety of medical resource applications that provide quick access to clinical information. Medical mobile apps are used by physicians, medical students, nurses and other healthcare professionals around San Diego County.

This is an initial sampling of mobile health apps. Neither Physician Partners or National University recommends or endorses any specific tests, physicians, products, procedures, opinions, or other information mentioned in these apps. The purpose here is to share emerging and innovative use of mobile health apps in practice.

Navigation tabs include: ALL, CONSUMER / PATIENT, IMAGES, JOURNALS / NEWS, LATEST / HIGHLIGHTED, PATIENT CARE, REFERENCES, and SOCIAL MEDIA.

Featured app icons include: ICD-10 and isabel.

The Windows taskbar at the bottom shows the time as 2:29 PM on 7/11/2016, with a 100% battery level.

What are your favorite Apps? Discussion



Audience Participation



The Path to Value



Health Apps Journey



Try Something New!



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