healarium™

How Digital Health Technology Impacts the Process and Improves the Outcomes"

POPULATION HEALTH COLLOQUIUM

March 2014

About Healarium

- The PaaS enabler of Digital Health
- Commercial 2011 with proven outcomes and publication in AHJ January 2014
- HQ Dallas, Texas
- Experienced Founders and DC
- Focus on healthcare providers and managers
- Behavior change model

healarium™

CV Risk Reduction

Prevention and Rehabilitation

Using an online, personalized program reduces cardiovascular risk factor profiles in a motivated, adherent population of participants

R. Jay Widmer, MD, PhD,[a] Thomas G. Allison, PhD,[a] Brendie Keane, RN,[c] Anthony Dallas, MD,[c] Lilach O. Lerman, MD, PhD,[b] and Amir Lerman, MD[a] *Rochester, MN; and Nashville, TN*

Background Cardiovascular disease (CVD) is the leading cause of morbidity, mortality, and cost in Western society. Employer-sponsored work health programs (WHPs) and Web-based portals for monitoring and providing guidance based on participants' health risk assessments are emerging, yet online technologies to improve CVD health in the workplace are relatively unproven. We hypothesized that an online WHP, comprehensively addressing multiple facets of CVD, can be successfully implemented and improve the health of participants.

Methods A cohort of employees in Tennessee (n = 1,602) was subjected to a health risk assessment at baseline. Those who did not meet all 5 healthy benchmarks (n = 836)—body mass index, blood pressure, glucose, total cholesterol, and smoking status—were prospectively assigned to a Web-based personal health assistant and had repeat measurements taken at 90 days.

Results Of those who both completed the personal health assistant program and underwent baseline plus 90-day assessments (508/836, 61%), 75% were female, mean age was 46.5 ± 11.1 years, and the mean number of risk factors at baseline was 1.1 ± 0.9 with a mean 10-year Framingham Risk Score of 2.9%. This cohort demonstrated a significant reduction in total cholesterol ($P < .0001$), low-density lipoprotein cholesterol ($P < .0001$), triglycerides ($P < .0001$), systolic blood pressure ($P = .009$), glucose ($P = .004$), weight ($P = .001$), and body mass index ($P = .001$). Most of the participants improved at least 1 risk factor. Framingham Risk 10-year cardiovascular risk percentages were significantly reduced ($P = .003$).

Conclusions This study in a prospective cohort of community-dwelling employees suggests that an online WHP can provide a viable means to improve surrogates of CVD risk factors. (Am Heart J 2014;167:93-100.)

healarium™

Digital Health Personal Ecosystem

"**Digital Health Interventions**" refers to a self management support programs that apply modern digital technologies — the web, mobile, the cloud, devices and wearable sensors."

healarium™

BJ Fogg's Behavior Model (FBM)

Dr. BJ Fogg, Persuasive Technology Lab at Stanford
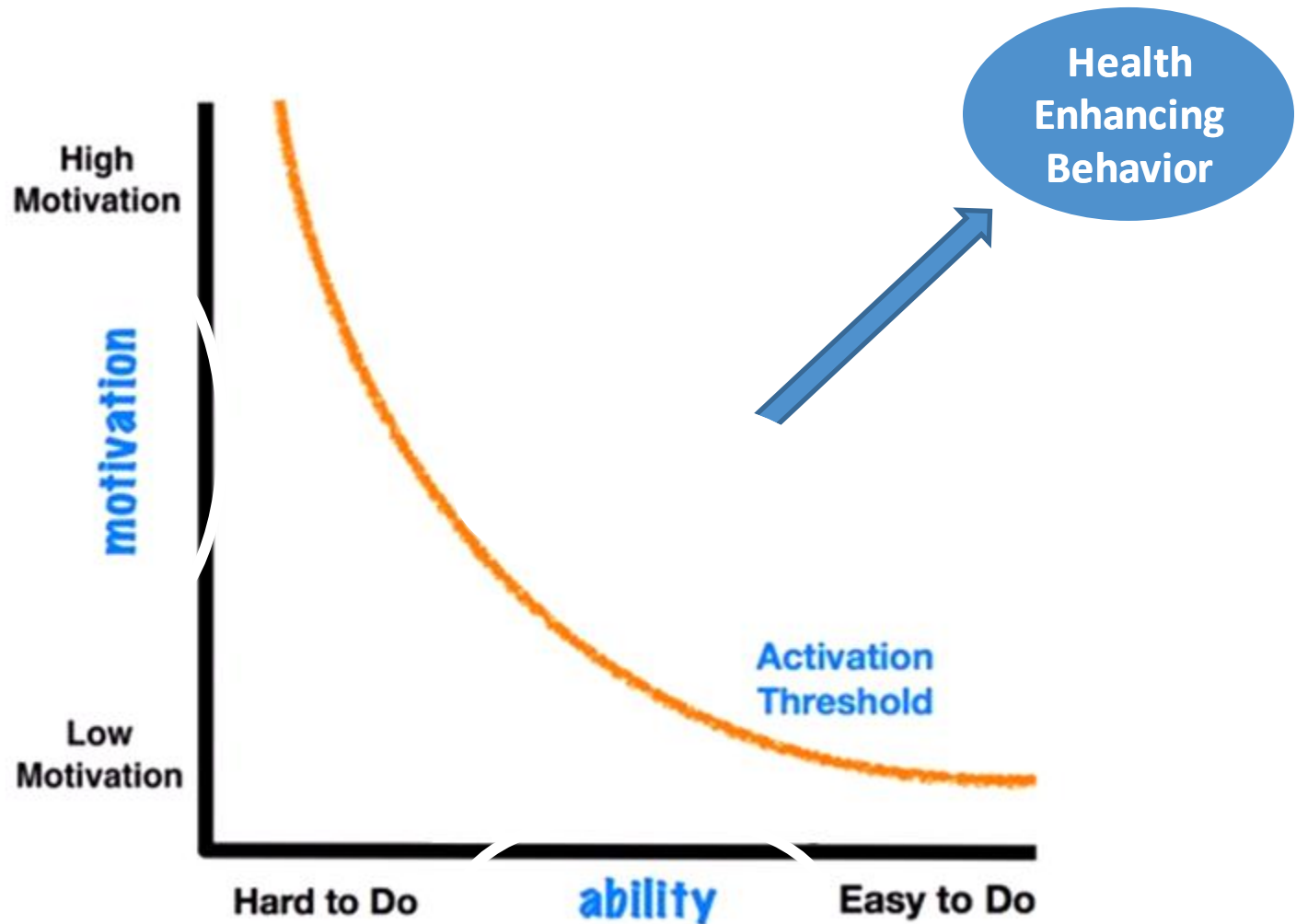
How Technology Impacts the Process

- **Based on motivation, ability, triggers, rewards**
- **Actionable data (cohesive ecosystem)**
- Patient/Member centered
- Created and endorsed by your physician/coach and embraced by clinicians and patients as standard of care
- Leverage **your** content assets and care plans

healarium™

Digital Health Interventions – Adjunct Therapy for Chronic Diseases
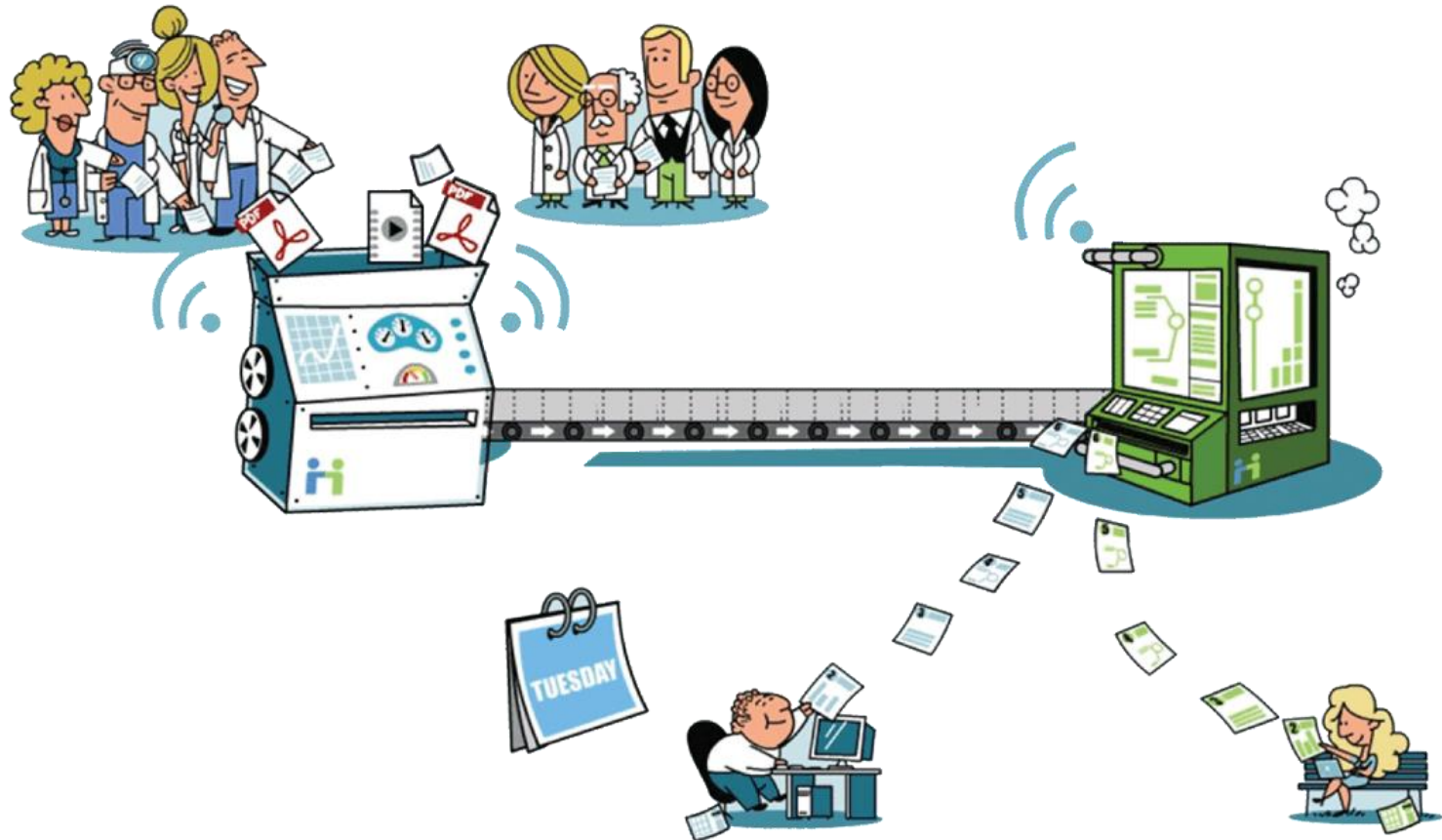
One Platform Multiple Interventions

Stress Management

Healthy Eating

Hypertension

Diabetes

Lipids

Medications

Cardiac Rehabilitation

Smoking Cessation

healarium™

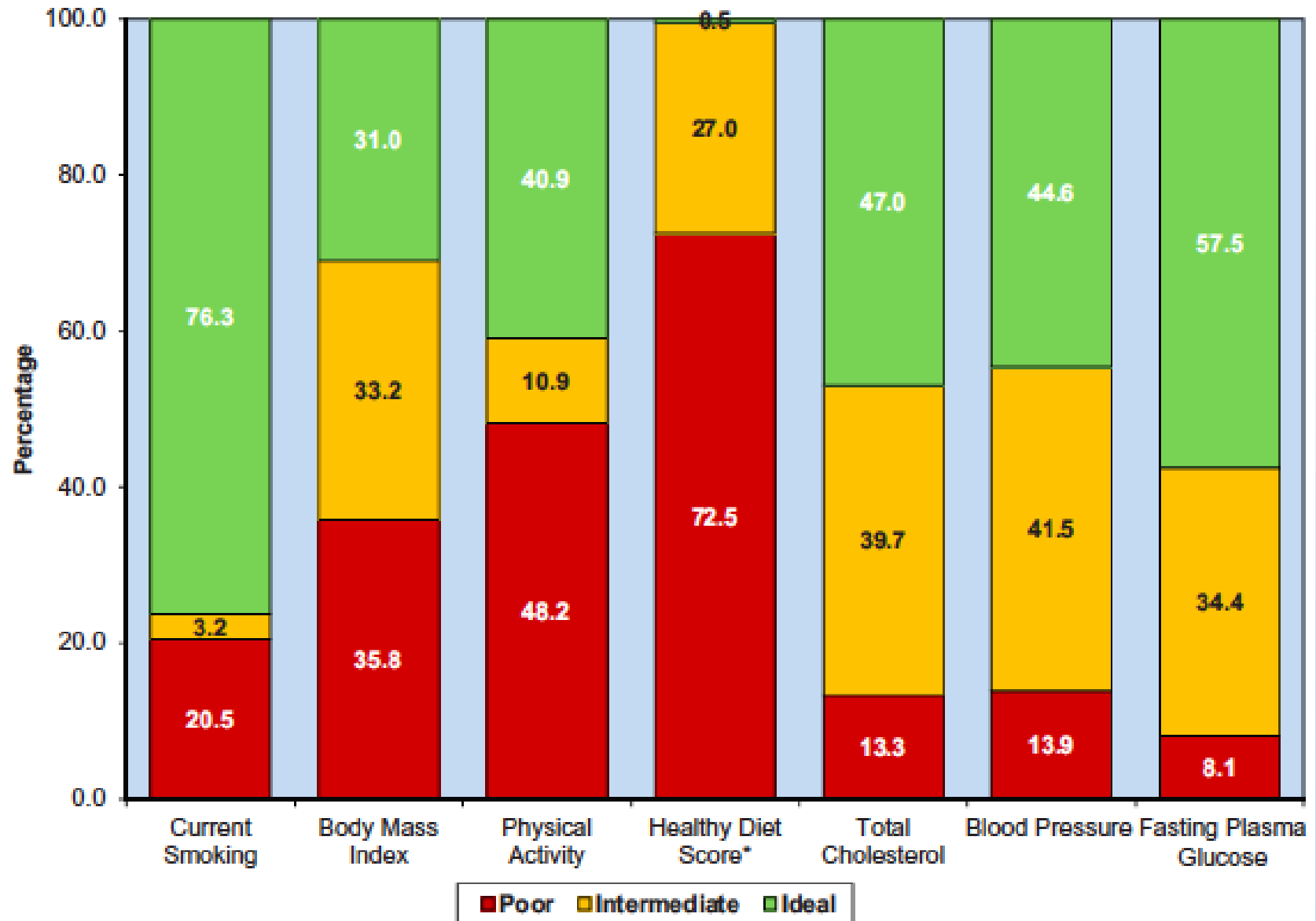# TE Population Health Management

Technology Enabled

Physician

Care Manager

Patient

healarium™
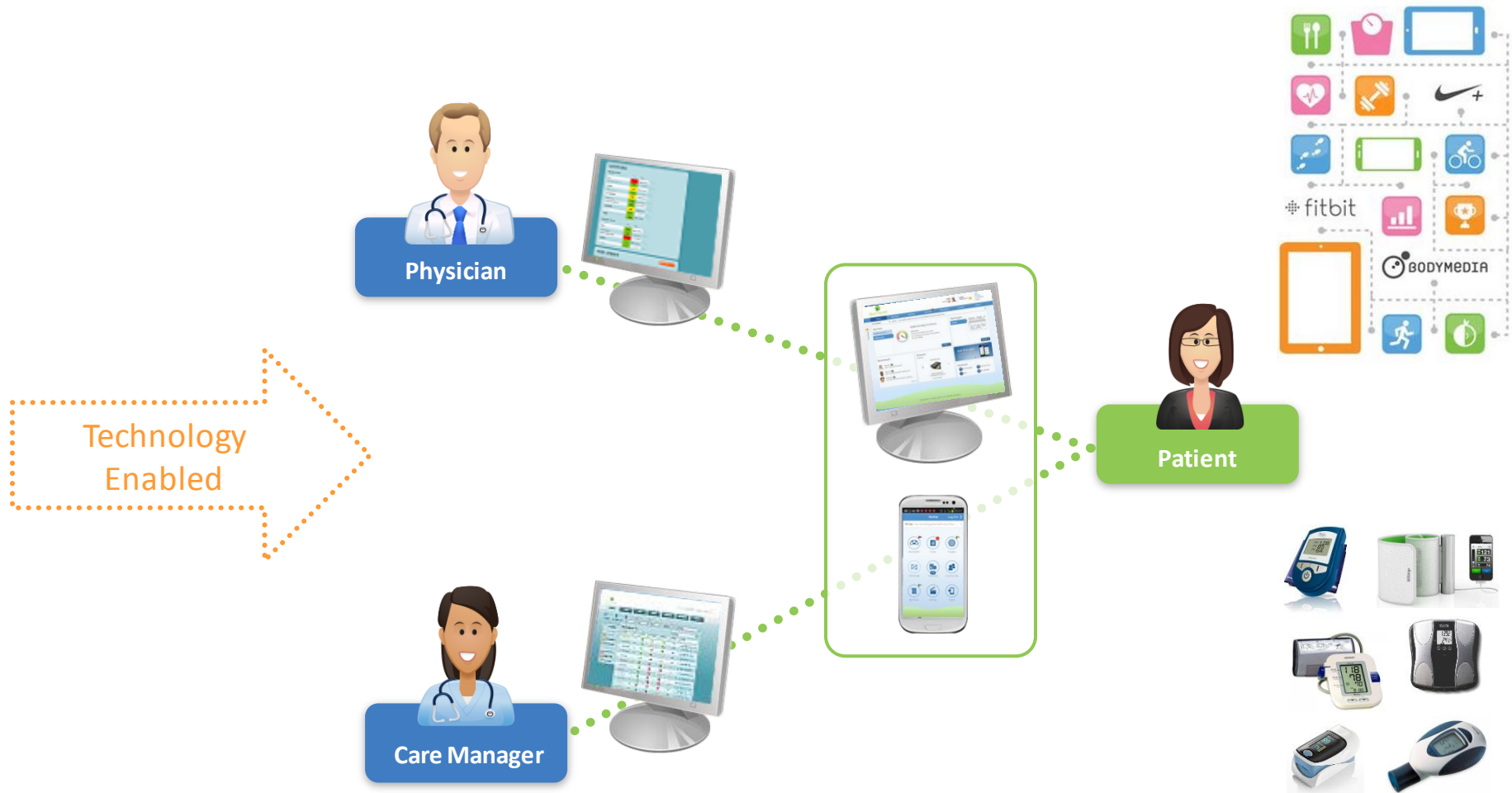
Health and Cardiovascular Prevention

Using Digital PHM Technology to Enhance Risk Factor Profiles

R. Jay Widmer, MD/PhD, Mayo Clinic

The 14th Population Health Colloquium
March 18, 2014

Adherence to AHA 2020 Recommendations

(Go, AS, et al. *Circulation*. 2014)

US device ownership and access: How can we access patients ?

Mobile

	2005	2010	2011	2012
U.S. population covered by a mobile-cellular network (percent)	99%	100%		
Mobile-cellular telephone subscriptions (per 100 people)	70%	106%		
Mobile broadband subscriptions (per 100 people)	2.1%	72.8%		
Mobile broadband (% of total mobile subscriptions)	3.0%	67.0%		
Population using mobile Internet (%)	6.6%	35.6%		
U.S. mobile subscribers who own a smartphone			36%*	49.7%*

Internet & broadband

	2005	2010	2011	2012
Fixed (wired)-broadband subscriptions (per 100 people)	17.23%	27.62%		
Households with Internet access at home (%)	58.1%	71.6%		

(The World Bank, 2012)

The Current State of Mobile Health

43,689 "Healthcare and Fitness" or "Medical"

23,682 Apps genuine healthcare related

20,007 Mis-categorized or only loosely healthcare related on App Store

16,275 Consumer/Patient Oriented

7,407 HCP oriented

- Fashion and beauty (e.g. salons)
- Apps intended for members of specific clubs/universities
- Veterinary apps
- Apps which use gimmicks with no real health benefit (eg apps which make the user sound sick, or demonstrate how the user would look if they were obese)
- Apps related to health issues but which do not focus on health (e.g. fertility)
- Product presentation apps for use by sales reps/retailers
- Apps believed to have meaningless claims e.g. "gives you a beautiful way to keep track of your body's biorhythms"

IMS Institute for Healthcare Informatics, 2013

MAYO CLINIC

Components of an Ideal Digital Health Program

- **Evidence/Guideline-Based**

- **User Friendly**

- Incentive-Based

- **Flexible operating platform** – able to be easily modified based on new scientific data and guidelines

- **Interact with Social Media**

- Wide Applicability and Distribution (i.e. smartphones)

- Not dependent on proximity to medical center

Our Approach

The Design

Mayo expertise
Guidelines

The Patients

- Health organization
- Large employer

Reward System
Social Network

healarium™

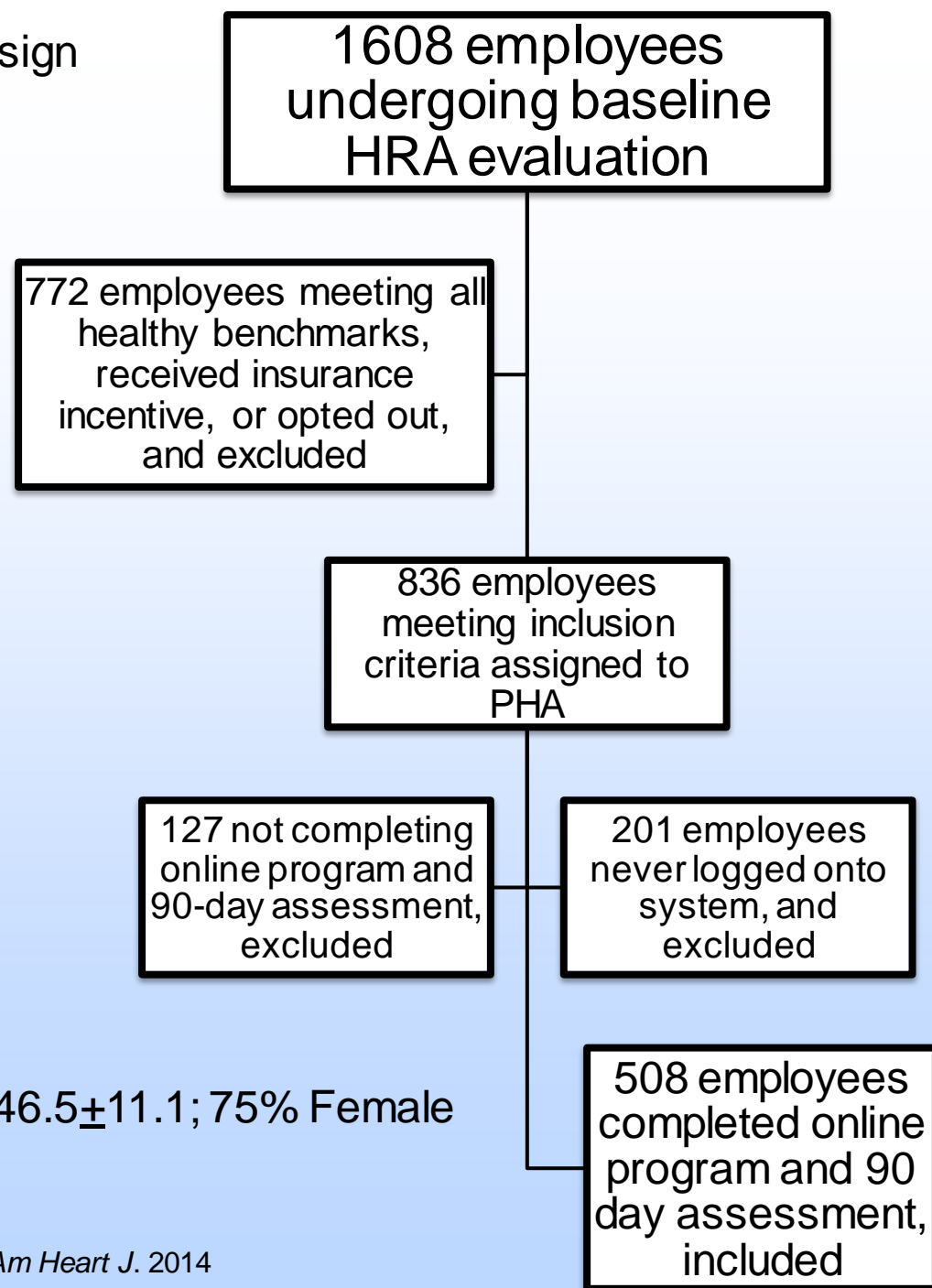# Cardiac Rehab Care Plan

healarium™

Efforts to enhance the primary prevention of cardiovascular disease…

The Tennessee Study

Employee-Based Protocol

- Employer-implemented incentive plan to motivate healthier employees in coordination with CareHere LLC.

- All participants required to complete the following:
  - Biometric screening and questionnaire regarding personal health
  - 90 day follow-up

- Biometric benchmarks met:
  - Assign to Healthy Benefit Plan/eligible for incentive

- Biometric benchmarks not met:
  - Plan of care created with provider and completed through CareHere Connect
  - Return for 90 day follow up

Figure 1. Study Design

1608 employees undergoing baseline HRA evaluation

772 employees meeting all healthy benchmarks, received insurance incentive, or opted out, and excluded

836 employees meeting inclusion criteria assigned to PHA

127 not completing online program and 90-day assessment, excluded

201 employees never logged onto system, and excluded

508 employees completed online program and 90 day assessment, included

Mean age = 46.5±11.1; 75% Female

Widmer, RJ, et al. *Am Heart J*. 2014

MAYO CLINIC

Results – Outcomes at 90 days

Widmer, RJ, et al. *Am Heart J*. 2014
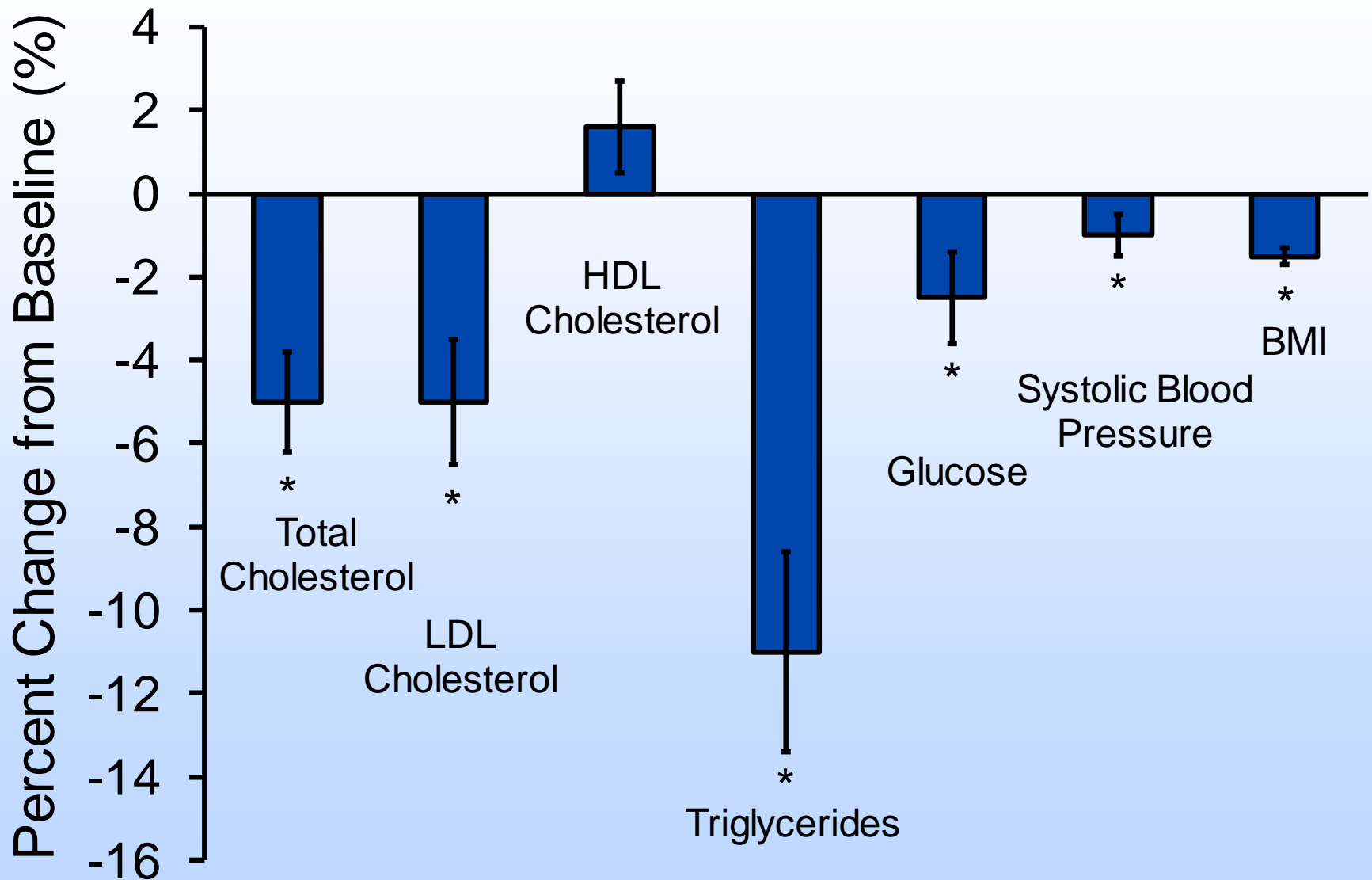
Results – FRS Outcomes at 90 days

Widmer, RJ, et al. *Am Heart J*. 2014
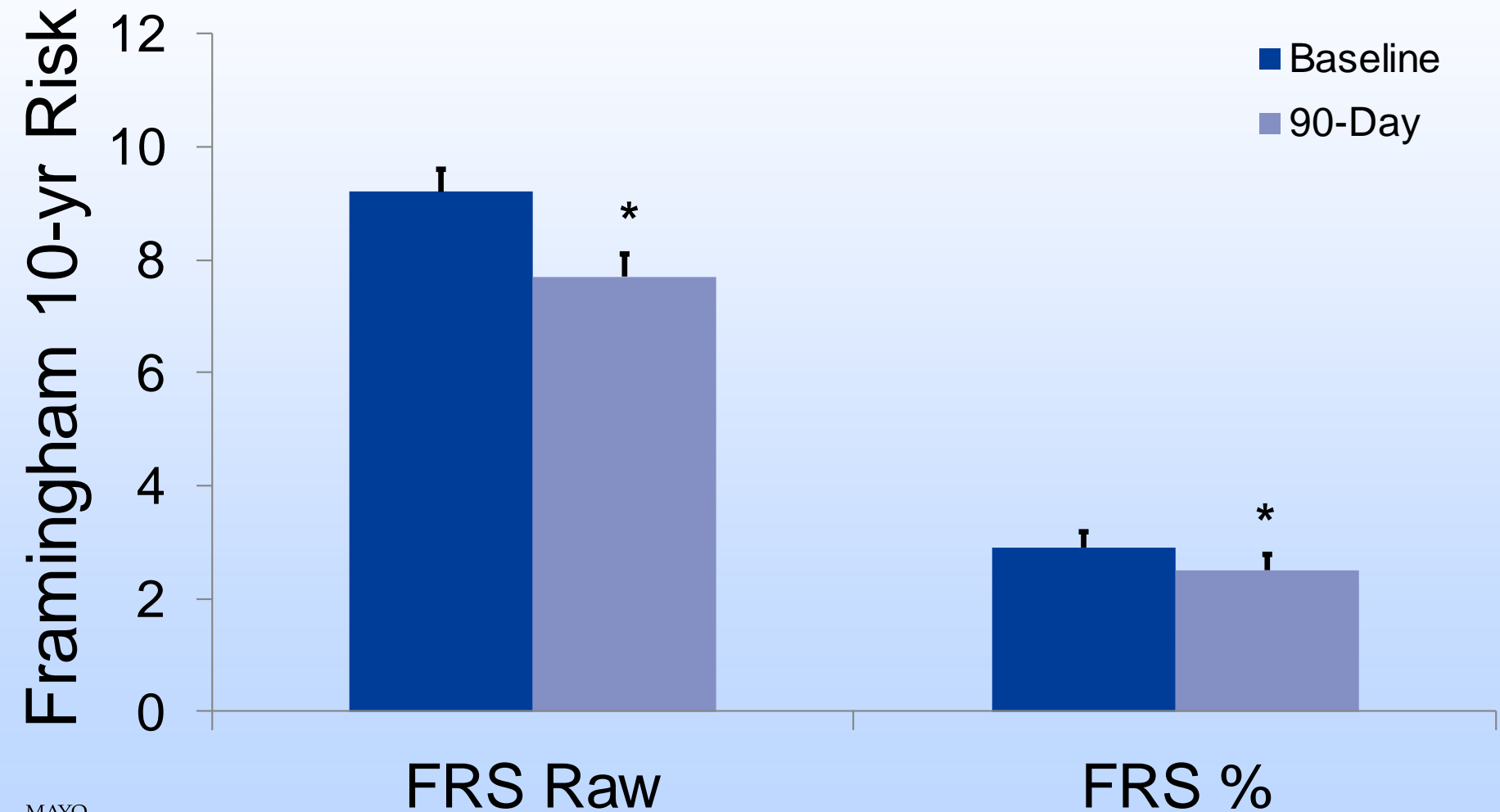
Questions & Discussion

widmer.robert@mayo.edu; @DrArgyle

diane.weiner@healarium.com   @healarium