



Today's Webinar

- Diabetes Advocacy Alliance
- The U.S. Department of Health and Human Services' Office of Disease Prevention and Health Promotion





Agenda

I. Overview of Healthy People 2020 Diabetes Objectives and Introduction of Topic

Don Wright, MD, Deputy Assistant Secretary for Health, Office of Disease Prevention and Health Promotion (ODPHP), U.S. Department of Health and Human Services (HHS)

II. Perspective on mHealth and How it Fits into Larger Health Information Technology Initiatives

David Hunt, MD, FACS, Medical Officer, Patient Safety and Health IT, Office of National Coordinator for Health Information Technology



Agenda

III. Evidence-Based Mobile Technology for Patients with Diabetes

Charlene Quinn, RN, PHD, Associate Professor, University of Maryland School of Medicine

IV. Emerging Tools for Managing Glycemic Control among Patients with Diabetes – 3 examples



Agenda

- **Living with Diabetes: Diabetes Help Right on Your Cell Phone**

Robin Nwankwo, MPH, RD, CDE, Associate Research Scientist, University of Michigan Medical School, Volunteer Leader, American Diabetes Association

- **Accurate Insulin Decisions**

Neil Skolnik, MD, Professor of Family and Community Medicine, Temple University School of Medicine, Abington Memorial Hospital

- **Diabetes Goal Tracker**

Dawn Sherr, Associate Director, American Association of Diabetes Educators



Agenda

V. Live Question and Answer Session

Moderated by Carter Blakey, Deputy Director and Community Strategies Division Director, ODPHP, HHS

David Hunt, MD

Christopher M. Notte, MD

Robin Nwankwo, MPH, RD, CDE

Marilyn Silva

Dawn Sherr, MS, RD, CDE, LDN

Neil Skolnik, MD

Charlene Quinn, RN, PHD

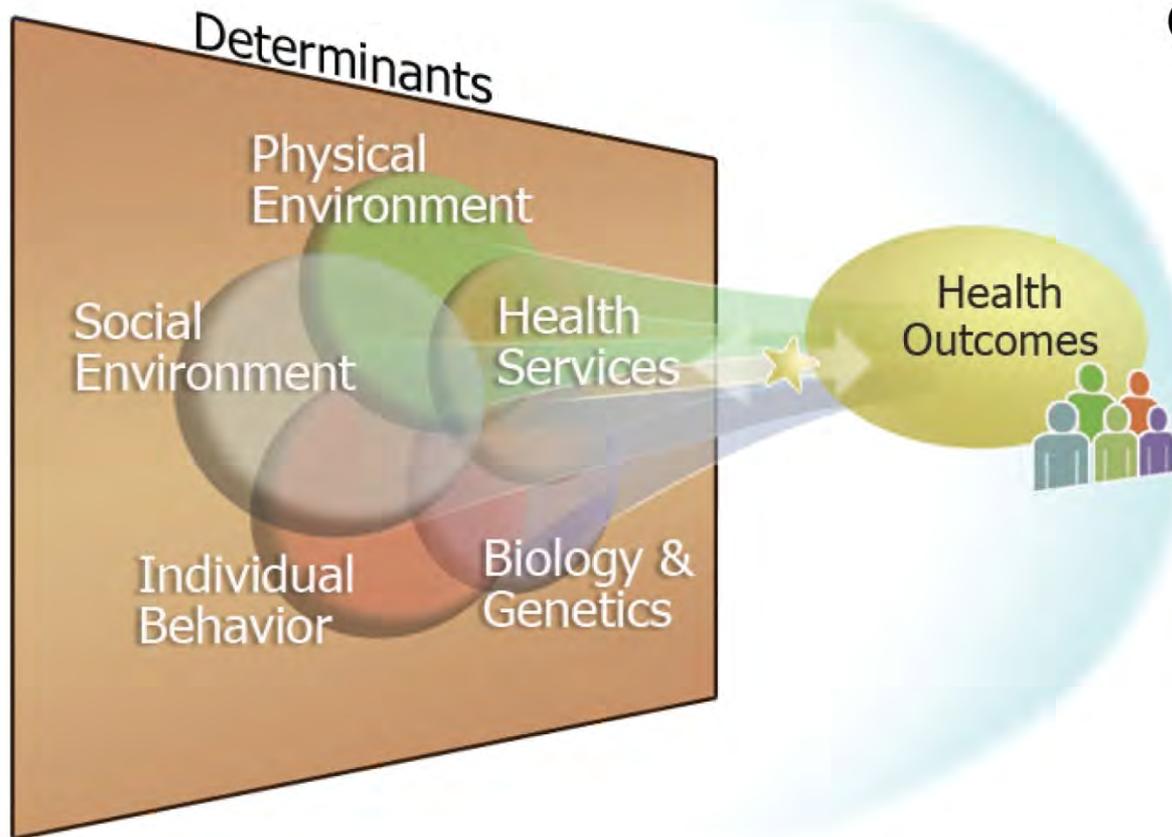


What Is Healthy People?

- Provides **science-based, 10-year national objectives** for improving the health of the Nation
- A **national agenda** that communicates a vision for improving health and achieving health equity
- Identifies **measurable objectives** with **targets** to be achieved by the year 2020
- Requires tracking of **data-driven outcomes** to monitor progress and to motivate, guide, and focus action

Healthy People 2020

A society in which all people live long, healthy lives



Overarching Goals:

- Attain high quality, longer lives free of preventable disease, disability, injury, and premature death.
- Achieve health equity, eliminate disparities, and improve the health of all groups
- Create social and physical environments that promote good health for all.
- Promote quality of life, healthy development and healthy behaviors across all life stages.



Uses of Healthy People

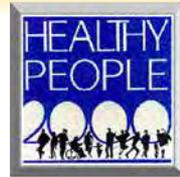
- **Data tool** for measuring program performance
- Framework for **program planning and development**
- **Goal setting** and **agenda building**
- **Teaching** public health courses
- Benchmarks to **compare** State and local data
- Way to develop nontraditional **partnerships**
- **Model** for other countries



Healthy People Remains Relevant



1979



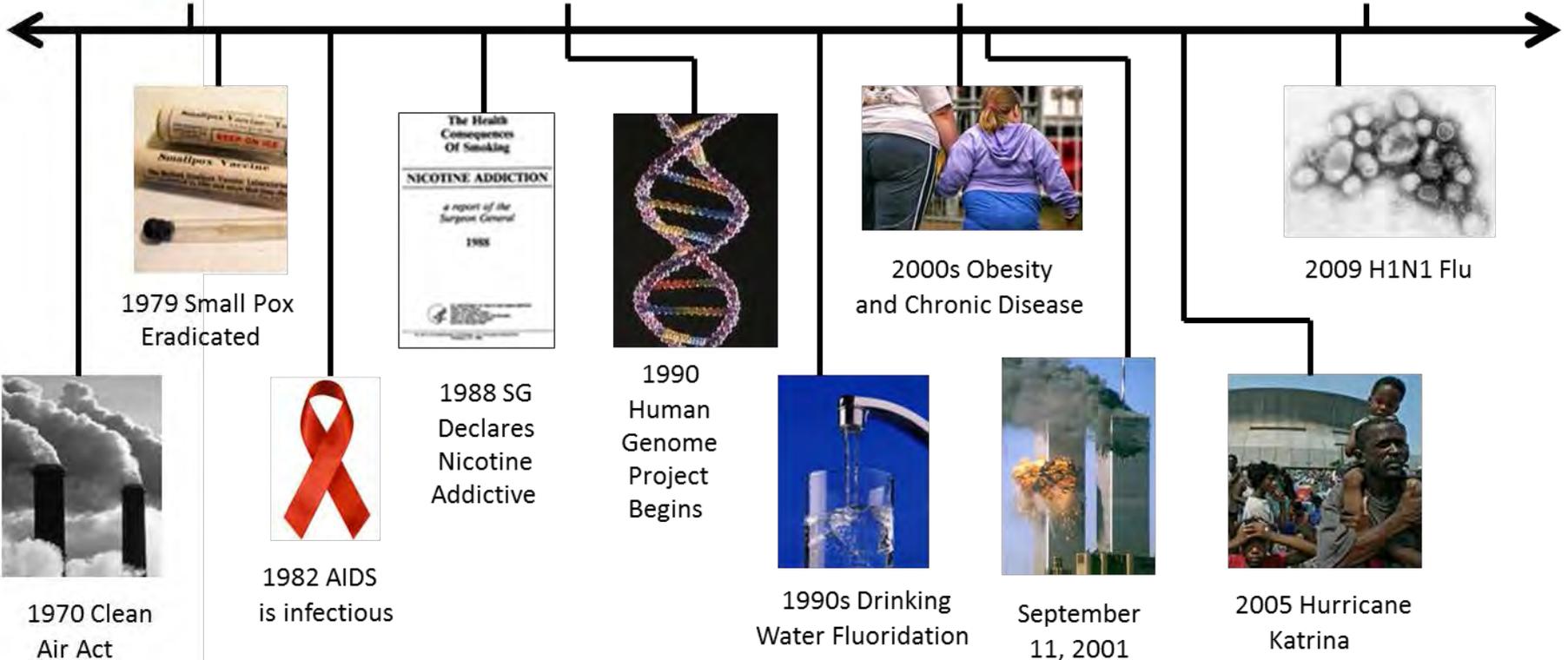
1990



2000



2010





Topic Areas

- Access to Health Services
- Adolescent Health
- Arthritis, Osteoporosis, and Chronic Back Conditions
- Blood Disorders and Blood Safety
- Cancer
- Chronic Kidney Disease
- Dementias, including Alzheimer's Disease
- **Diabetes**
- Disability and Health
- Educational and Community-Based Programs
- Early and Middle Childhood
- Environmental Health
- Family Planning
- Food Safety
- Genomics
- Global Health
- Health-related Quality of Life and Well-being
- Healthcare Associated Infections
- Lesbian, Gay, Bisexual, Transgender Health
- Nutrition and Weight Status
- Occupational Safety and Health
- Older Adults
- Oral Health
- Physical Activity
- Public Health Infrastructure
- Preparedness
- HIV
- Immunization and Infectious Diseases
- Injury and Violence Prevention
- Maternal, Infant, and Child Health
- Medical Product Safety
- Mental Health and Mental Disorders
- Health Communication and Health Information Technology
- Hearing and Other Sensory or Communication Disorders
- Heart Disease and Stroke
- Respiratory Diseases
- Sexually Transmitted Diseases
- Sleep Health
- Social Determinants of Health
- Substance Abuse
- Tobacco Use
- Vision

Go

[Topics & Objectives](#)

[Leading Health Indicators](#)

[Data Search](#)

[Healthy People in Action](#)

[Tools & Resources](#)

[Webinars & Events](#)

[About](#)

Spotlight on Health Webinar

Join us on November 13 for a Spotlight on Health webinar highlighting free evidence-based and emerging mobile technologies designed to improve glycemic control and the health of persons with diabetes.

[Register today!](#)



DATA2020 Search

This interactive data tool allows users to explore the data and technical information related to the HealthyPeople 2020 objectives. [Search Healthy People data!](#)



Leading Health Indicators: Progress Update

[Read the report](#) to learn about progress that's been made in each of the 26 Leading Health Indicators.



Diabetes

[Overview](#)[Objectives](#)[Interventions & Resources](#)[National Snapshots](#)

Goal

Reduce the disease and economic burden of diabetes mellitus (DM) and improve the quality of life for all persons who have, or are at risk for, DM.

Overview

DM occurs when the body cannot produce or respond appropriately to insulin. Insulin is a hormone that the body needs to absorb and use glucose (sugar) as fuel for the body's cells. Without a properly functioning insulin signaling system, blood glucose levels become elevated and other metabolic abnormalities occur, leading to the development of serious, disabling complications.

Many forms of diabetes exist. The 3 common types of DM are:

- Type 2 diabetes, which results from a combination of resistance to the action of insulin and insufficient insulin production.
- Type 1 diabetes, which results when the body loses its ability to produce insulin.



View HP2020 Data for:

▶ [Diabetes](#)



Tracking the Nation's Progress on Diabetes

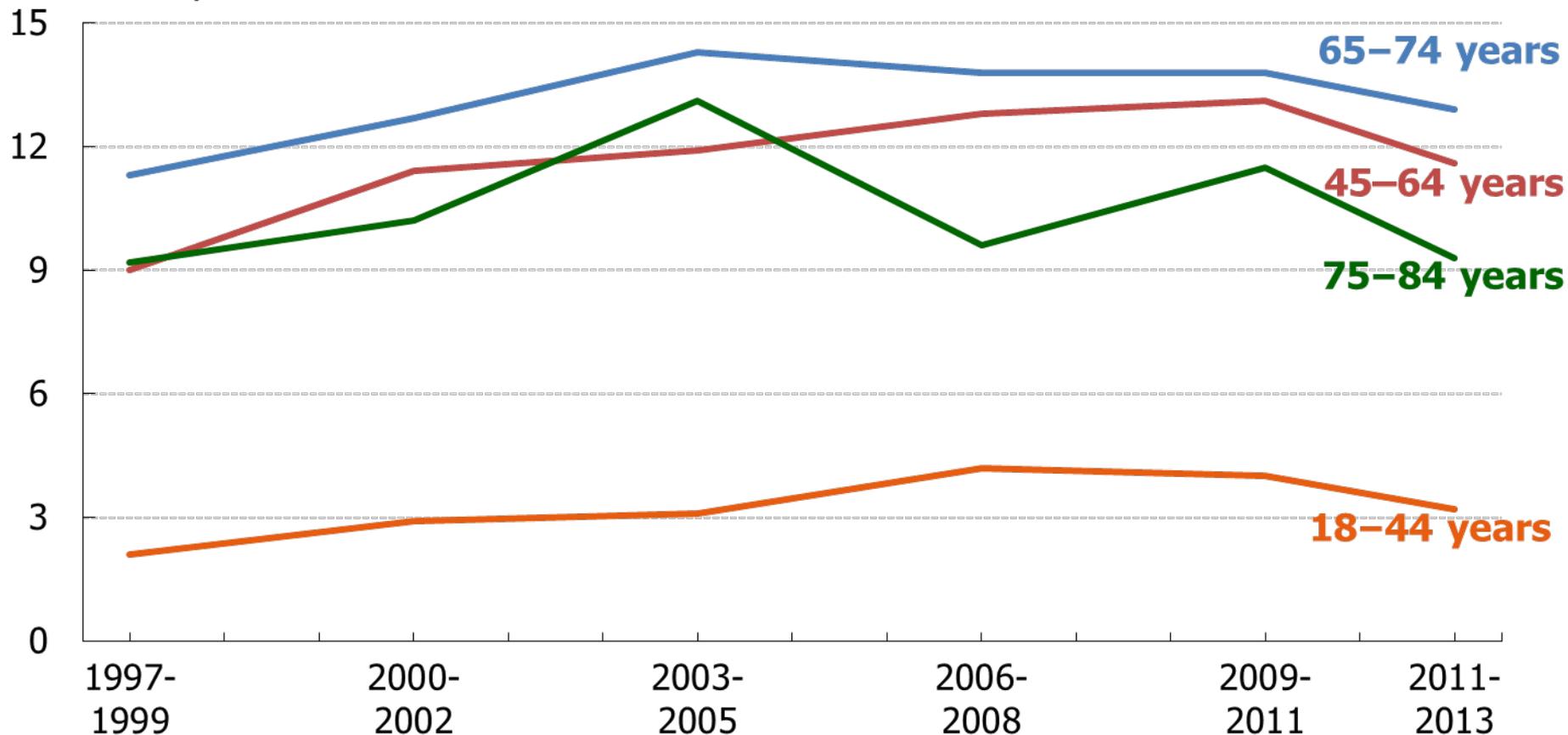
18 HP2020 Measurable Diabetes Objectives:

- 4 Target met
- 1 Improving
- 11 Little or No detectable change
- 0 Getting worse
- 1 Baseline data only
- 1 Informational

NOTES: The Diabetes Topic Area contains 1 informational objective and 2 developmental objectives. Measurable objectives are defined as having at least one data point currently available, or a baseline, and anticipate additional data points throughout the decade to track progress. Informational objectives are also measurable objectives, however, they do not have a target associated with their data. Developmental objectives lack baseline data and targets.

New Cases of Diagnosed Diabetes Per 1,000 Per Year, Adults 18–84 Years, 1997–2013

Rate Per 1,000



Obj. D-1
Decrease desired

NOTES: Data are for three year estimates of diagnosed diabetes in the past year. Diagnosed diabetes is defined as self-reported physician diagnosed diabetes. Women who only had diabetes while pregnant and persons with borderline diabetes are excluded. 2011-2013 is the most recent data year currently available.

SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.



Poor Glycemic Control

In 2009–12, 21.0% of adults aged 18 years and older with diagnosed diabetes had poor glycemic control (age adjusted).



Source: National Health and Nutrition Examination Survey (NHANES), CDC/NCHS.

Questions?

Submit your questions using the Q & A feature on the right of your screen.
Presenters will respond following all the presentations



ONC Initiatives and the Role of mHealth in Diabetes Management



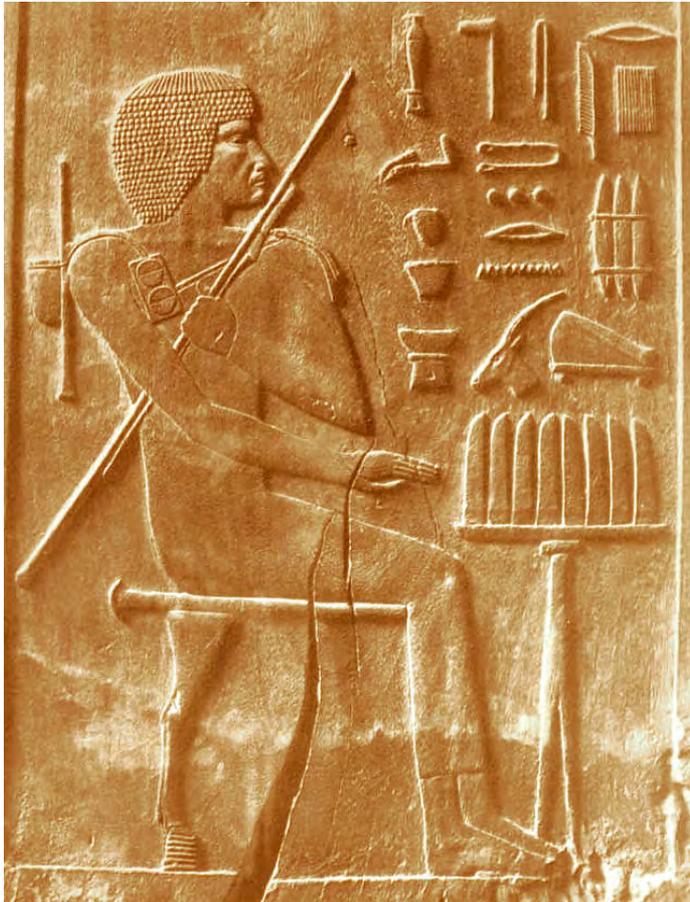
David R. Hunt, MD, FACS
Medical Director
Patient Safety and Health IT Adoption
Office of the National Coordinator for Health
Information Technology, DHHS





“The worst, the most corrupting of all lies is to misstate the problem.”

Lawrence Weed quoting
Georges Bernanos



1552 BCE: Earliest description of diabetes mellitus in the Ebers Papyrus by Hesy Ra

Relief of Hesy-Ra from his Mastaba, shown seated in front of his offering table of possessions, food for sustenance in the Afterlife.



The Office of the National Coordinator for
Health Information Technology

Connecting Health and Care for the Nation:

A 10-Year Vision to Achieve an
Interoperable Health IT Infrastructure

“An interoperable health IT ecosystem **makes the right data available to the right people at the right time** across products and organizations in a way that can be relied upon and meaningfully used by recipients.”

Internet Search: “ONC 10 year vision”

<http://healthit.gov/sites/default/files/ONC10yearInteroperabilityConceptPaper.pdf>

(noun)

1. Ability of 2 systems to exchange information
2. Ability of receiving system to use the exchanged information

- **Build upon the existing health IT infrastructure.**
- **One size does not fit all.**
- **Empower individuals.**
- **Leverage the market.**
- **Simplify.**
- **Maintain modularity.**
- **Consider the current environment and support multiple levels of advancement.**
- **Focus on value.**
- **Protect privacy and security in all aspects of interoperability.**



Strategic Healthcare IT Advanced Research Projects on Security



HOME

PEOPLE

RESEARCH

RESOURCES

RELATED ORGANIZATIONS

PUBLICATIONS

Email Us

Telemedicine: FORENSICS IN CONTEXT-AWARE INSULIN PUMP SYSTEMS

Lead Institution: University of South Florida (formerly University of Tennessee)

Project Leader: Nathanael Paul

Research Progress

- **Abstract**

During the last decade, portable insulin infusion pumps have increased functionality to help patients maintain good glucose control, but these features have also increased device complexity. This complexity makes it difficult to



SHARPS

Strategic Healthcare IT Advanced Research Projects on Security



HOME

PEOPLE

RESEARCH

RESOURCES

RELATED ORGANIZATIONS

PUBLICATIONS

Email Us

Telemedicine: AMULET

Lead Institution: Dartmouth

Project Leader: David Kotz

Research Progress

- **Abstract**

While the potential benefits of mobile health (“mHealth”) technology include better health, more effective healthcare, and reduced cost, this technology also poses significant security and privacy challenges. In this project we are developing Amulet, a mHealth architecture that provides strong security and privacy guarantees while remaining easy to use.



Strategic Healthcare IT Advanced Research Projects on Security



HOME

PEOPLE

RESEARCH

RESOURCES

RELATED ORGANIZATIONS

PUBLICATIONS

Telemedicine: HIDE-n-SENSE

Lead Institution: Dartmouth

Project Leader: David Kotz

Research Progress

- **Abstract**

As individuals continue to use medical devices as part of their own body-area health network (BAHN) it is critical to ensure that the BAHN is secure.

In a user's body-area health network, which includes the user's phone (the

Johann Wolfgang von Goethe

(1749-1832)



“Thinking is easy,
acting is difficult, and
to put one’s thoughts
into action is the most
difficult thing in the
world.”

Contact Information

davidr.hunt@hhs.gov

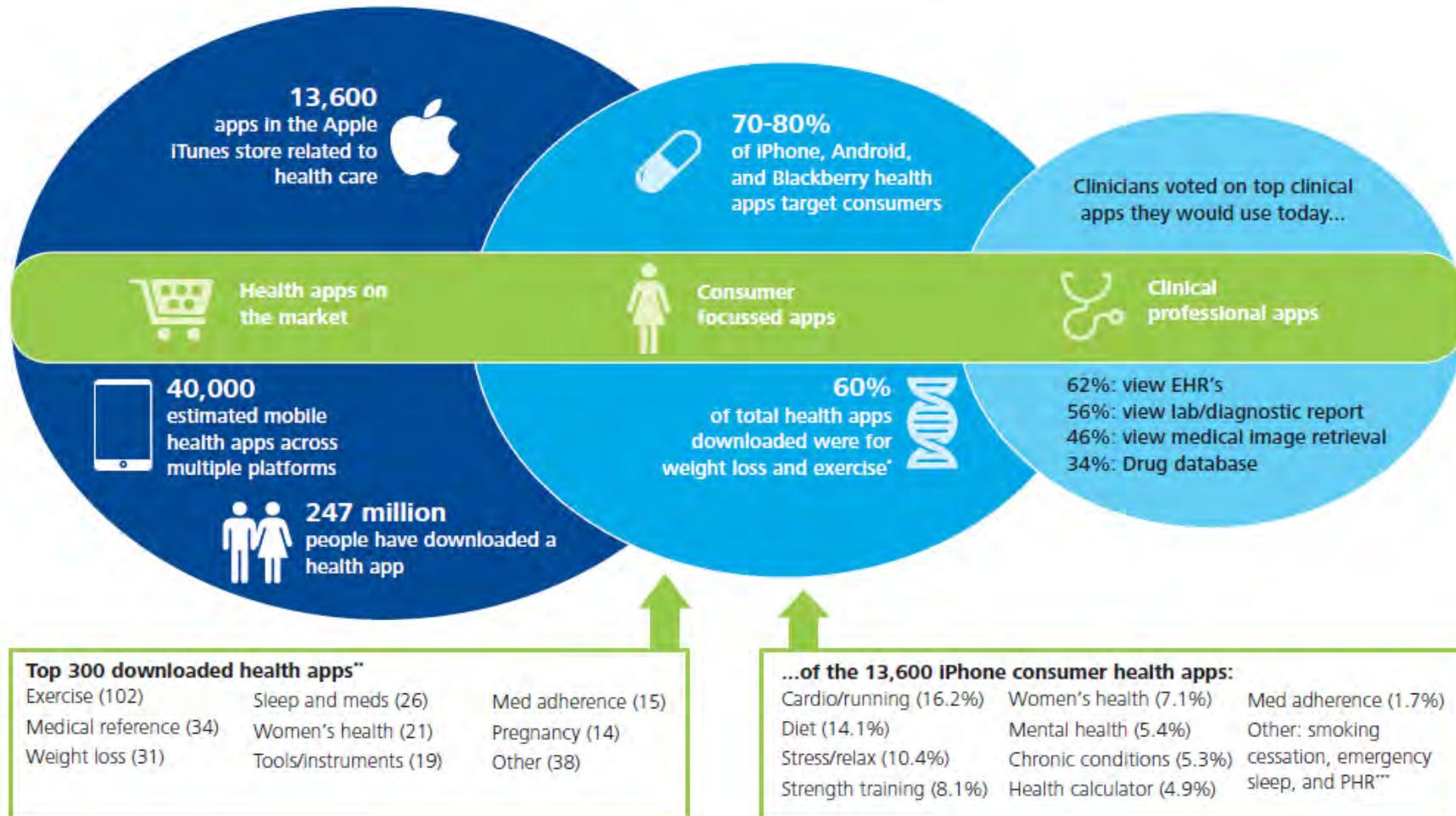
ONC Resources: www.healthit.gov

<http://sharps.org/>

Questions?

Submit your questions using the Q & A feature on the right of your screen.
Presenters will respond following all the presentations





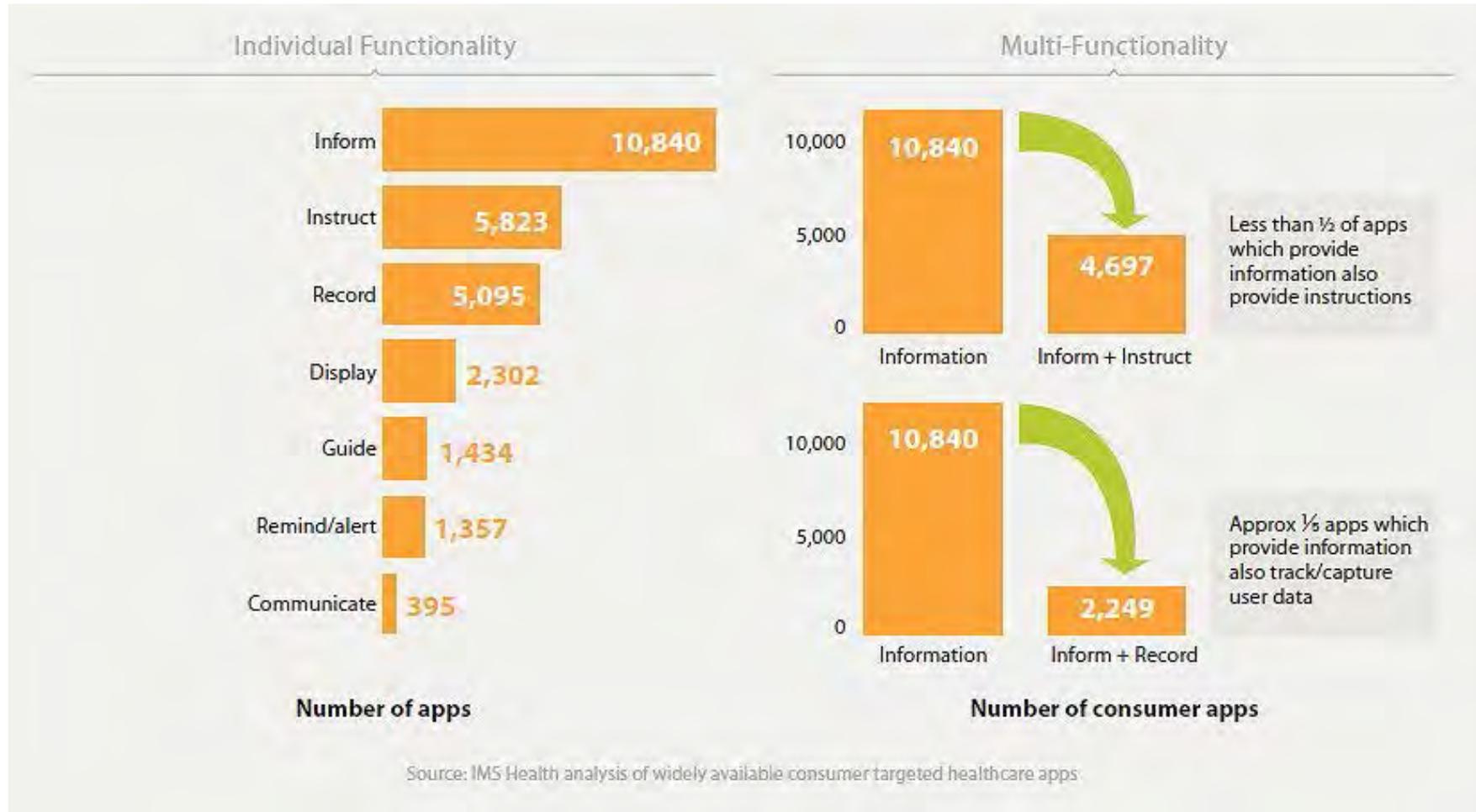
Source:

* As of March 2012, iPhone and Android combined Source: "Mobile Health Applications: 2012 study", Verasoni Worldwide, August 2012

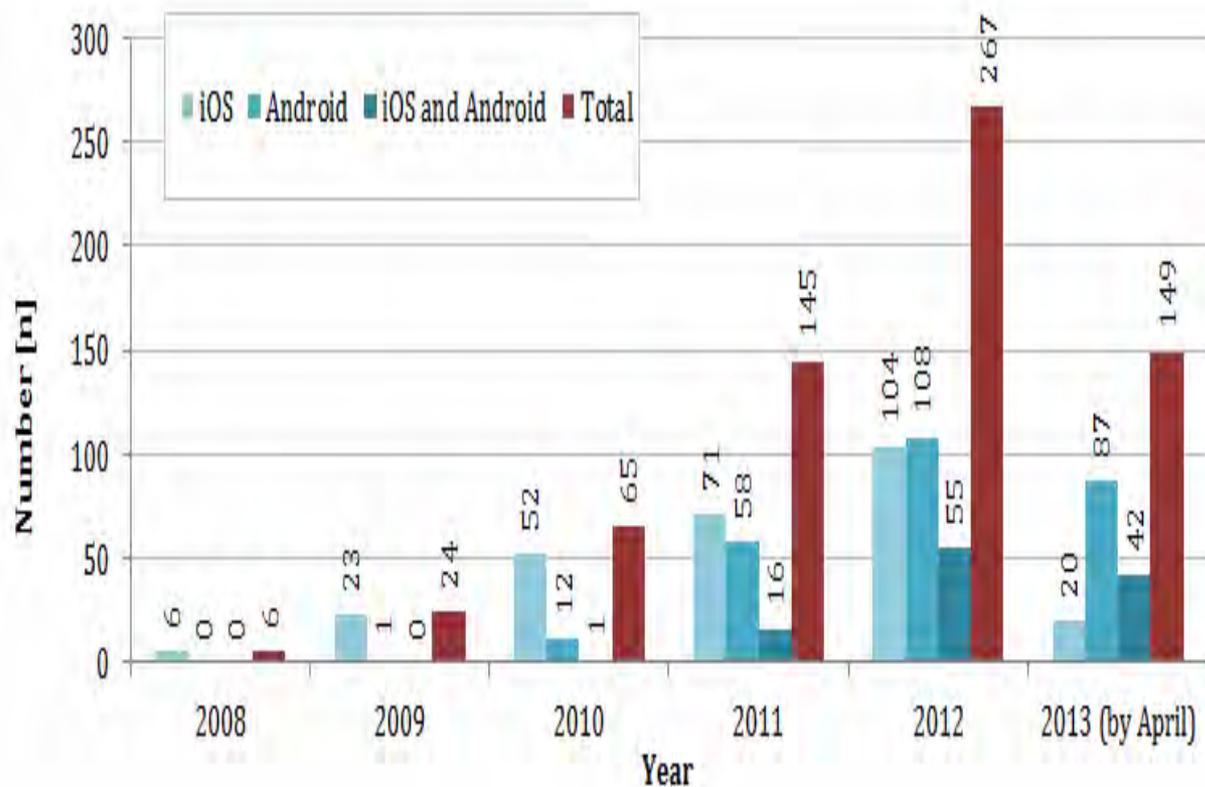
** Source: Dunbrack L. "The second wave of clinical mobility: Strategic solution investments for Mobile point of care", December 2011, IDC *Health insights*

*** PHR = personal health record. Source: "An analysis of consumer health apps for Apple's iPhone 2012," *Mobilehealthnews*, July 11, 2011

Patient Health Apps



Annual release figures for diabetes apps



Arnold, M., JMIR, 2014

Current mHealth Research: Defining Interventions, Outcomes and Evidence

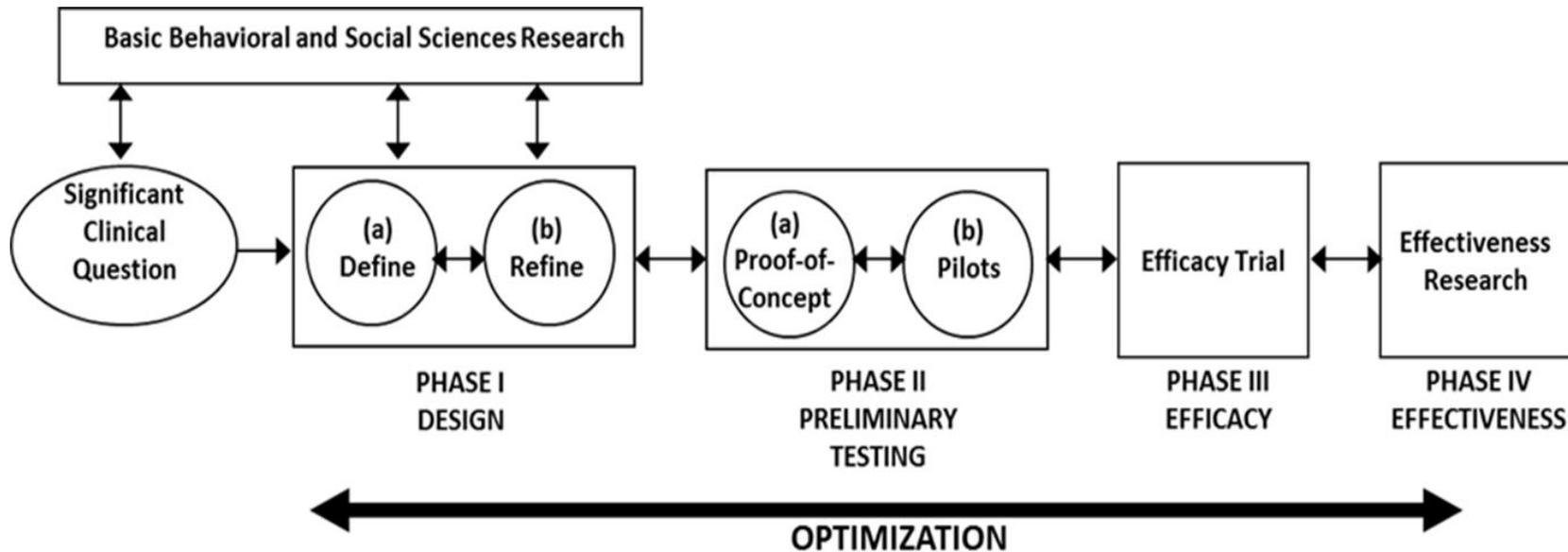
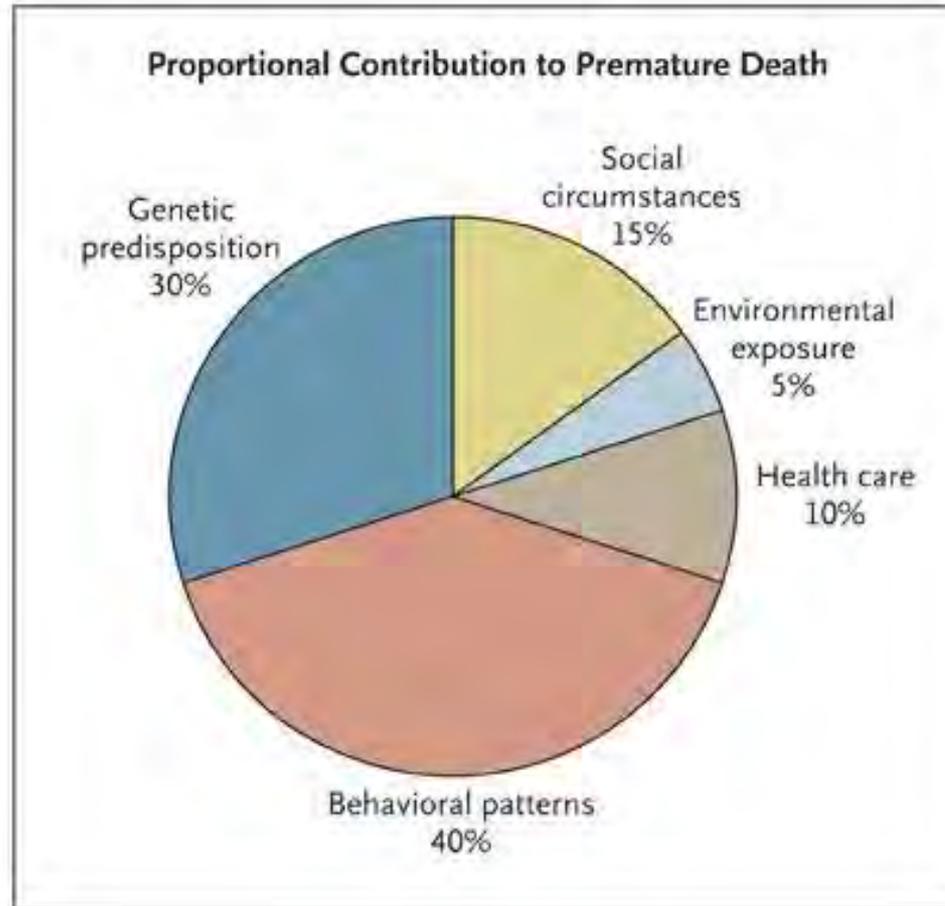


Figure 1. The ORBIT Model for Behavioral Treatment Development

Changing unhealthy behaviors is the “single greatest opportunity to reduce premature deaths...”



McGinnis, M Health Affairs, 2002.

Mobile Diabetes Intervention Study (MDIS)

- Research design goals
 - Community-based patient participants
 - Include physicians and their patients
 - Cluster randomized trial
 - Self management research outcomes
- Research intervention goals
 - Using mobile phones data collection, automated messages, feedback, coaching
 - Providing reports to physicians
 - Connecting diabetes educators with patients

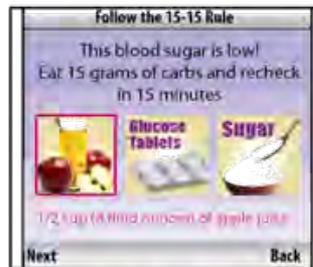
Mobile Diabetes Software Application

Example of a low blood glucose coaching message

Flow 1: Patient selects "Feeling Low" blood glucose reading type



Patient enters blood glucose value and presses "Next."

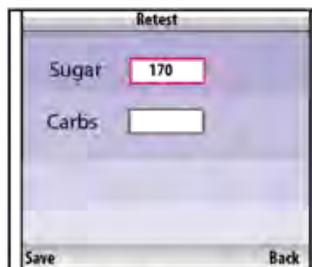


System provides feedback on the low value; Patient presses "Next" to continue.

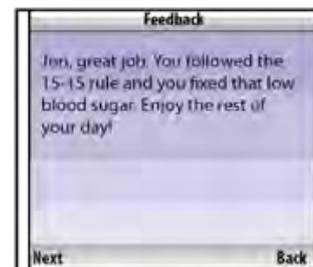


System tells Patient to retest in 15 minutes; Patient presses "Ok" to continue and set retest reminder.

Flow 2: Phone rings, reminding Patient to retest blood glucose

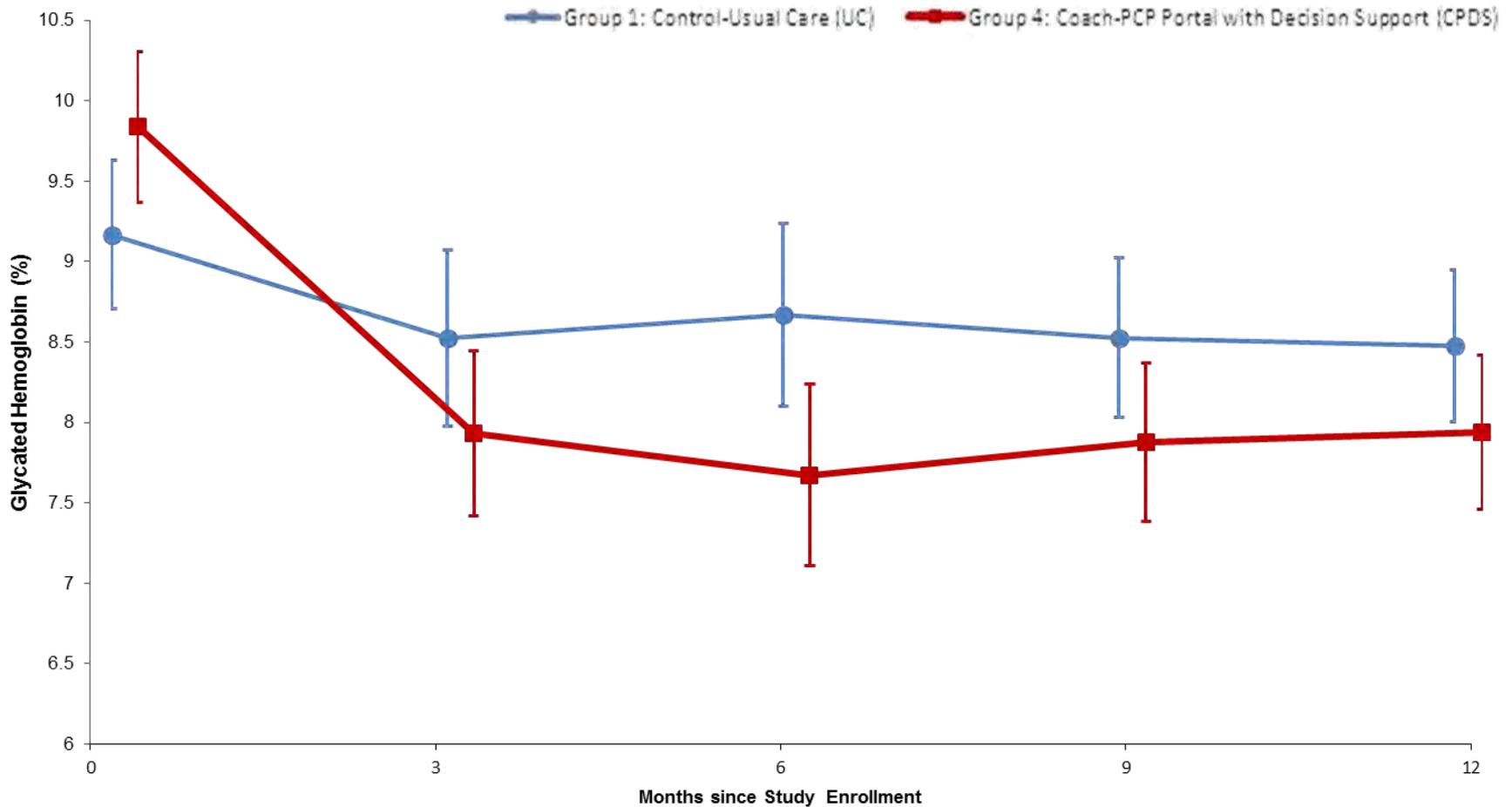


After fifteen minutes, Patient enters a new blood glucose value and presses "Save."



System provides feedback on corrected blood glucose value.

Primary Outcome: Estimated mean Glycated Hemoglobin over 12 months^{ab}



Quinn, C.C., Shardell, M, Terrin, M., Barr, E., Ballew, S., Gruber-Baldini, A.L., A Cluster Randomized Trial of a Mobile Phone Personalized Behavioral Intervention for Blood Glucose Control, Diabetes Care (Accepted).

Cluster randomized clinical trial

What we did in protocol...

What we would change in a new protocol...

- One-year intervention
 - Six month intervention or appropriate for condition of interest**
- Off the shelf technology
 - Design for populations: race, ethnicity, age differences**
- Primary research outcome gold standard for diabetes
 - Outcomes of importance: mobile health, clinically meaningful quality of life, behavior associated with communication or patient engagement**

What we wouldn't change in protocol

- Collaborations with industry
- Collaborations with payors
- Evaluation in settings where majority of care provided
- Don't let the "this is complicated" get in the way
- Evaluations which connect persons/patients with providers or health care system

REAL-TIME, ACTIONABLE MESSAGES

REAL-TIME, ACTIONABLE MESSAGES
Provides patients with actionable coaching at clinically relevant moments



CONTEXTUALLY RELEVANT

Automatically sets a re-test reminder and checks back-in with the patient to see if they successfully corrected their low BG reading

Evidence Based Guideline-DRIVEN CLINICAL AND BEHAVIORAL INTERVENTIONS

Message incorporates evidence-based guidelines



EDUCATIONAL MESSAGES

EDUCATIONAL OPPORTUNITIES

Provides patients with a quick educational moment to maximize patient learning and retention

PERSONALIZED

Messaging is tailored to patient's unique profile and actions



CONTEXTUALLY RELEVANT

Recognized that patient conducted a pair-wise blood glucose (BG) reading; offered appropriate message at the right moment



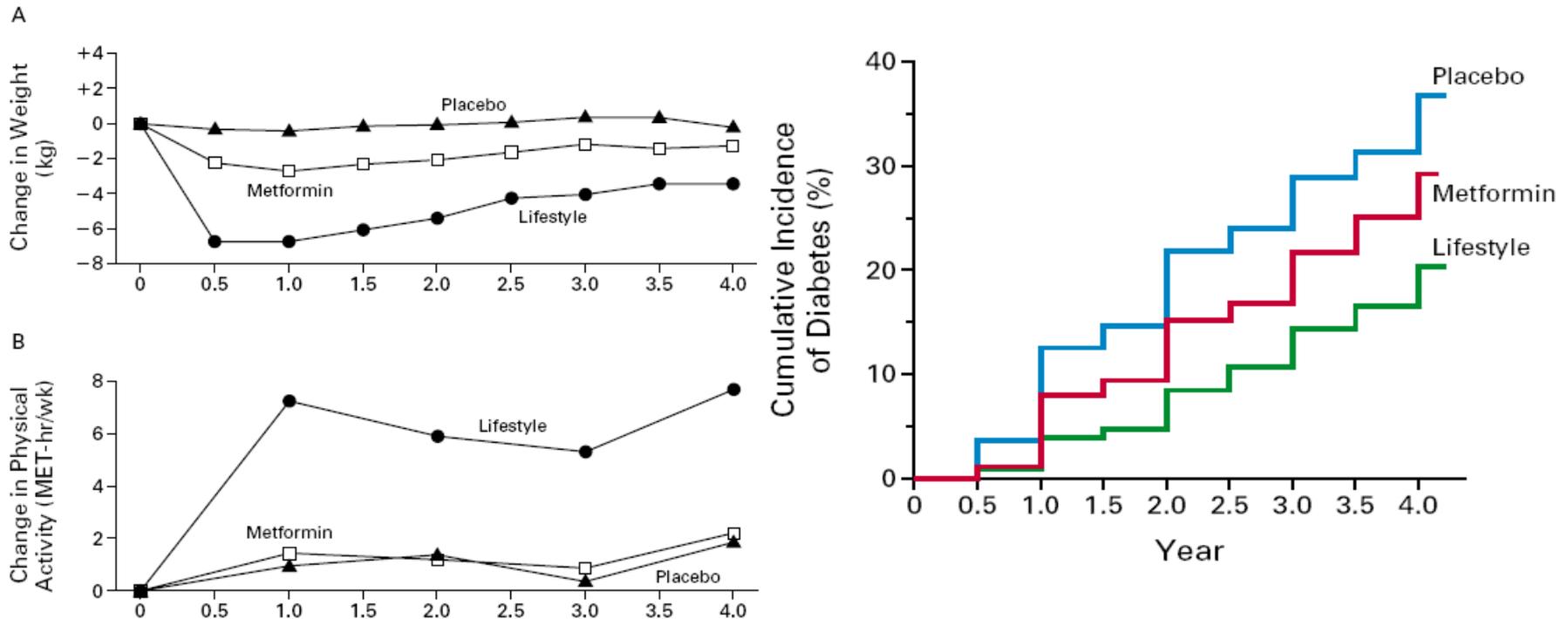
mHealth Diabetes Study: Prescription Prescribing Behavior

- Results suggest mobile diabetes interventions can encourage physicians/providers to modify and intensify antihyperglycemic medications in patients with type 2 diabetes.
- Differences in physician prescribing behavior were modest; appears mHealth impacted on lifestyle behaviors effected A1c, the gold standard for improving diabetes

mHealth Diabetes Studies: Older adult users

- At study end, participants had high self-efficacy, and had high readiness and confidence in their ability to monitor changes to control their diabetes.
- Participants demonstrated ability to use the mobile intervention and communicate with diabetes educators.

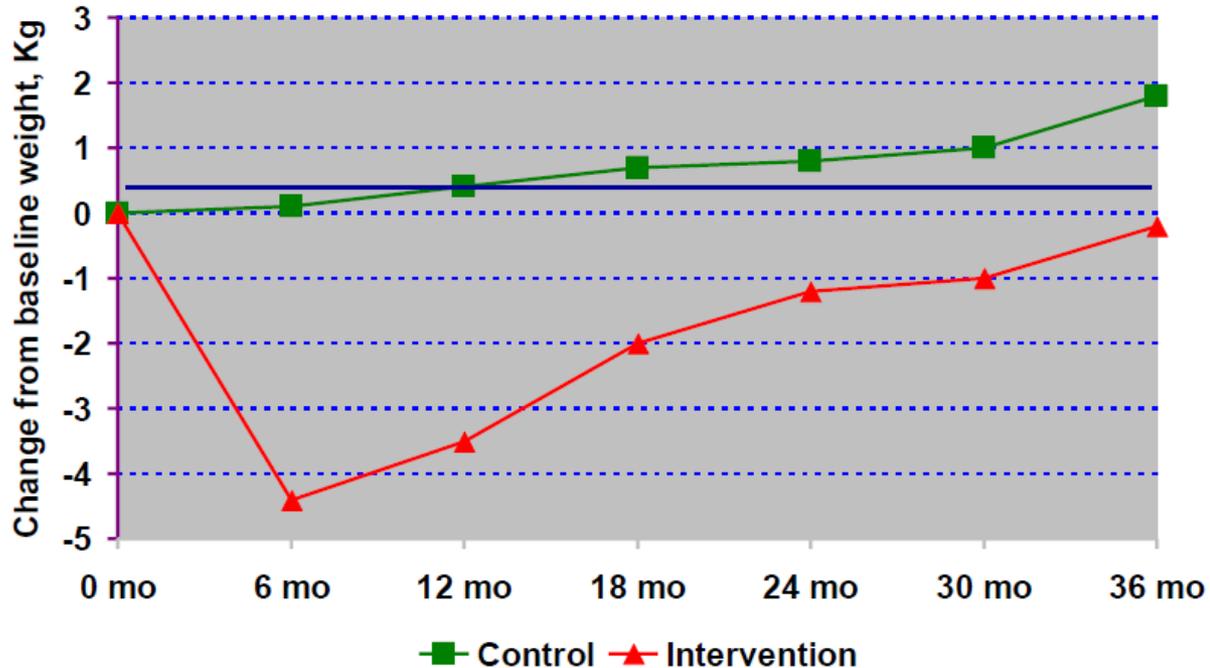
Improving dietary and physical activity behaviors can have powerful effects on diabetes health ...



A 7% weight reduction and 2.5 hour per week activity increase led to a 58% reduction in the cumulative incidence of Type 2 diabetes in older insulin-resistant individuals (Diabetes Prevention Program Research Group, 2002).

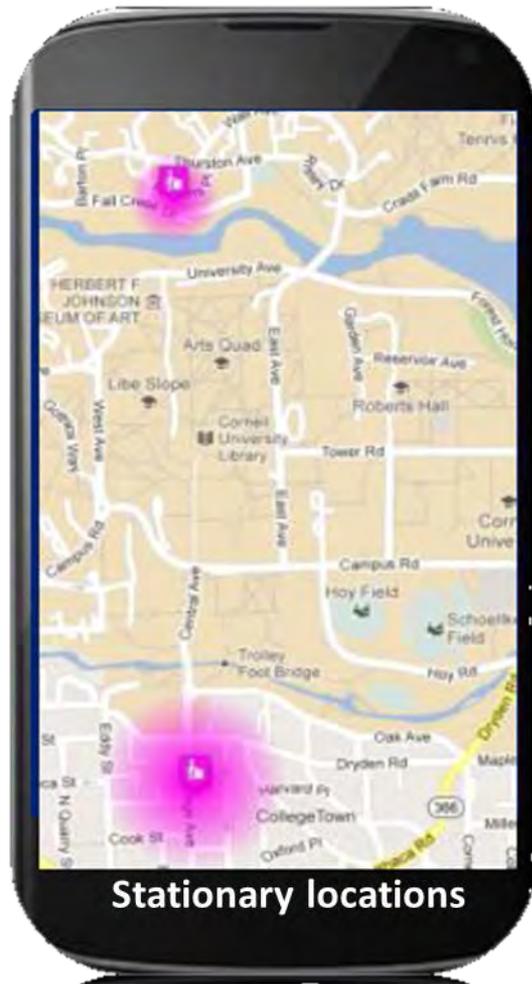
Even when behavior change is successful, maintenance of healthy behaviors across time is challenging

**Trials of Hypertension Prevention II:
Weight loss over 36 months in 2382 overweight pre-hypertensives**



Personalizing Persuasion

What to change and how?



Our healthy behavior can be tracked and changed with small adjustments.

Suggestions are highly contextualized to user, and can be made with little effort.

Choudury, Cornell

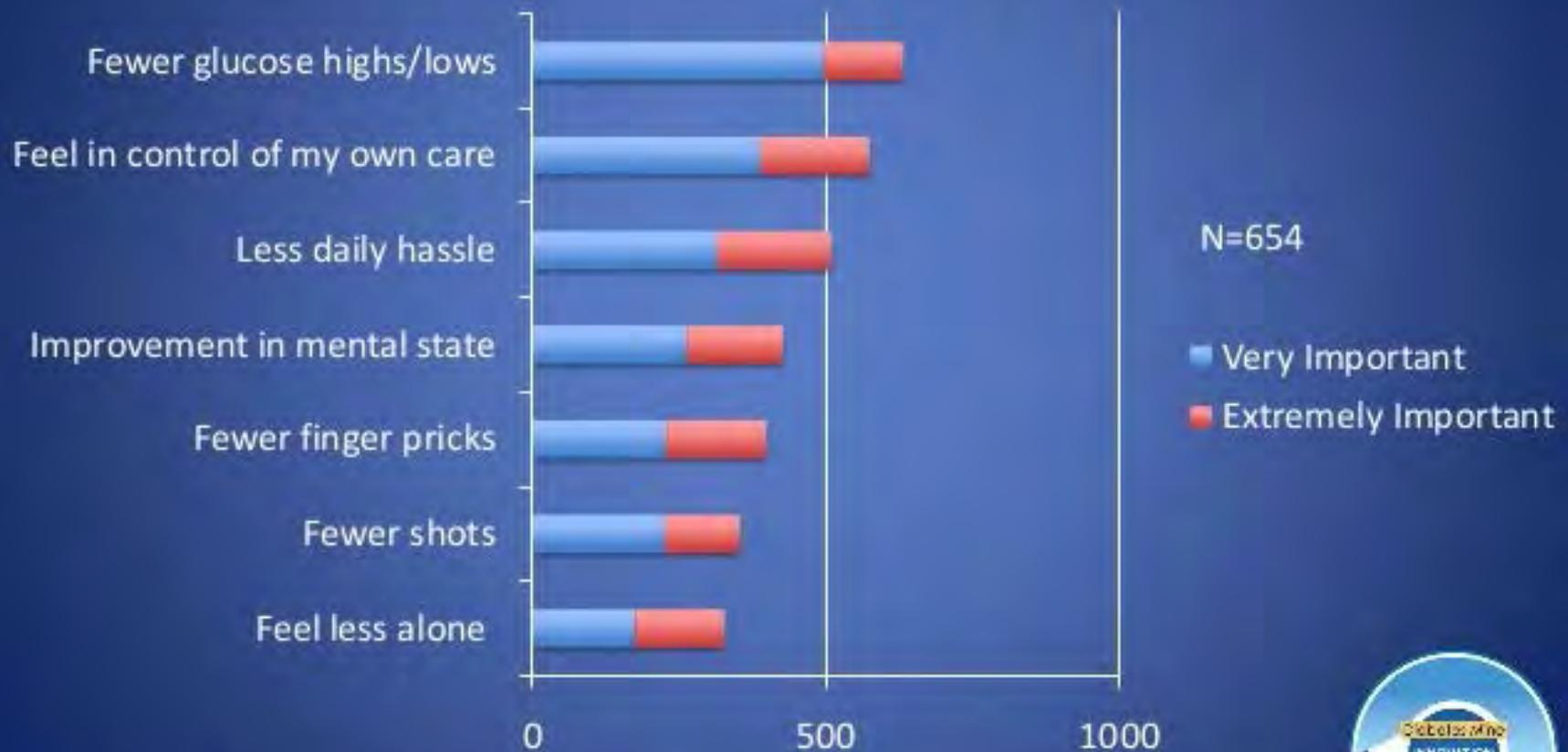
Questions Addressed by Translation of mhealth Research to Practice (Implementation)

- How can we achieve widely accepted and adopted mHealth interventions in a variety of real-world settings?
- What are potentially modifiable mobile interventions consistently accepted and implemented by individuals with varying training and expertise?
- What mHealth elements/dimensions enhance feasibility, provider and patient adherence, and community uptake, producing reliable effects at reasonable cost?
- What mobile interventions assist persons to maintain change over time (lifestyle, medication adherence, weight loss)?

mHealth User behavior

- Determining how to engage health consumers and impact on health behaviors
- Perceived value, burden, consumer engagement are key factors in adoption and abandonment
 - 26% of downloaded health apps used only once
 - 74% abandoned by 10th use

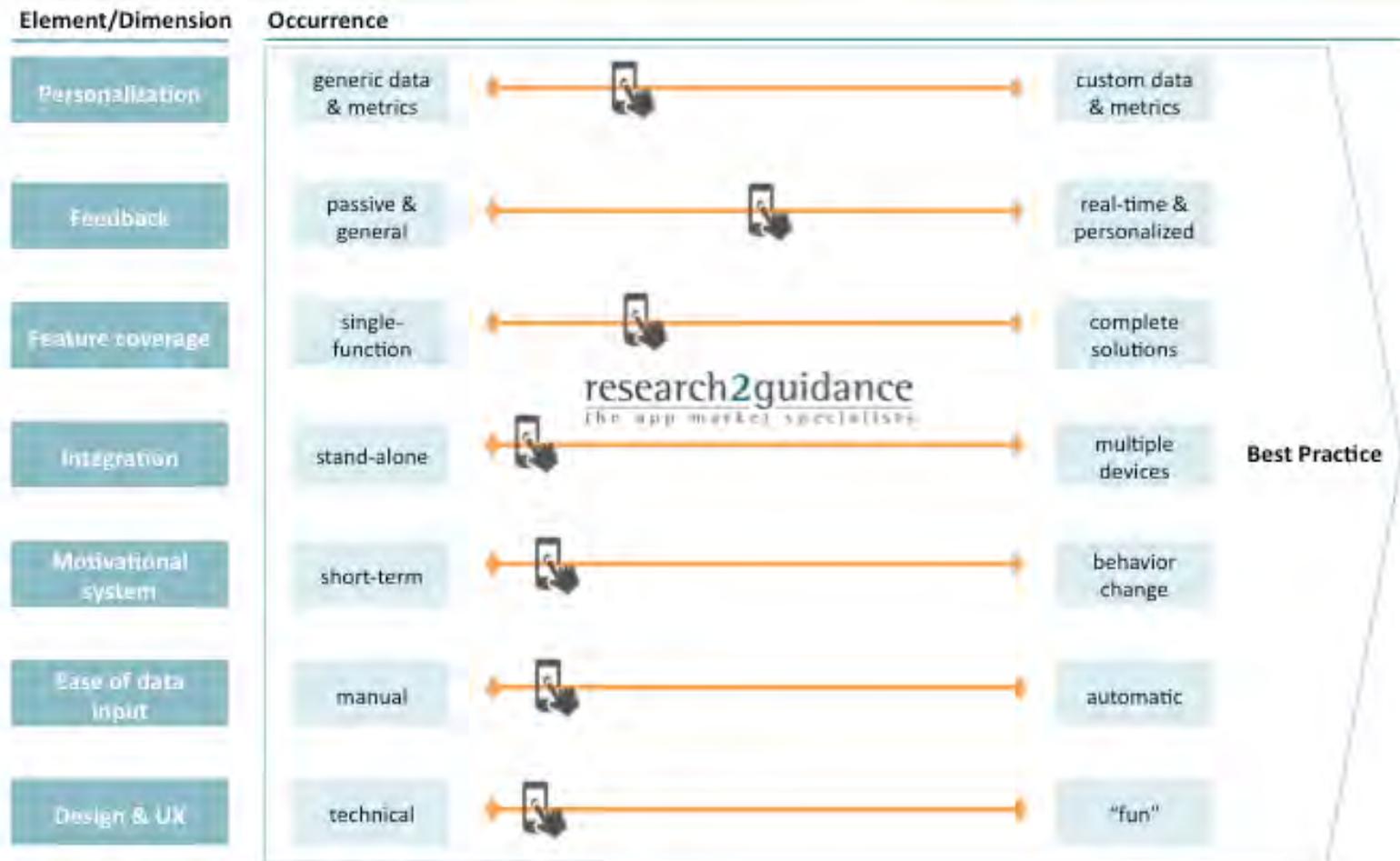
What Quality of Life Improvements Are Most Important?



©2013 DiabetesMine Patient Voices Survey



Overview of best practice dimensions and current status of diabetes apps



Source: research2guidance, "Diabetes App Market Report 2014"

Possible “New” Disruptive Research for Evidence on Effectiveness

- Study size
 - Need both large and small
- Setting
 - Primary care where majority of diabetes care provided
 - With in-patient care units or communities
 - Patients as partners in mHealth design and evaluation
- Methods
 - mHealth as data collection tools *and* interventions
 - Leverage multiple mobile data sources
- Endpoints
 - Patient-oriented
 - Quality of life may be more important than clinical outcomes
 - Health service utilization and cost analyses needed

Contact information

Charlene C. Quinn, RN, PhD, FAAN

University of Maryland School of Medicine

cquinn@epi.umaryland.edu

<http://medschool.umaryland.edu/Epidemiology>

410.706.2406

Living With Type 2 Diabetes (LWT2D)

Goal of LWT2D

To be a source of information and support to adults newly diagnosed with type 2 diabetes at the moment of diagnosis and beyond to help manage and live well with type 2 diabetes.

LWT2D is

- Free
- Available in English and Spanish
- Available in print or digitally

Reaches patients through

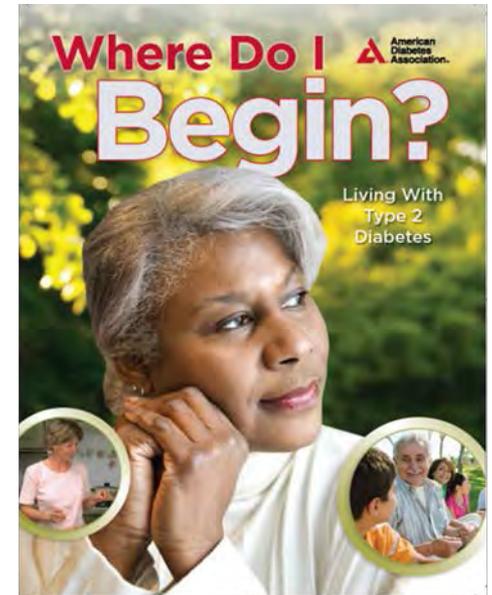
- Print and digital promotions
- Primary care providers

Free Resource for Health Care Providers

Where Do I Begin?

The moment of diagnosis is overwhelming for many. This booklet is designed to

- Provide patients a basic introduction to diabetes
- Invite patients to enroll in the free, year-long *Living With Type 2 Diabetes Program*



Order free copies at
diabetes.org/atdx

Living With Type 2 Diabetes

Program Statistics (April 2011 - October 2014)

- Over 450,000 total participants have enrolled in the program
- Participants surveyed at beginning and end of the program
- Program completion survey shows:
 - 84% of respondents say they have a strong understanding of how to care for their diabetes
 - 83% of respondents say they are confident in their ability to care for themselves
 - 82% of respondents say they closely follow their provider's recommendations



Working Together

In 2013, the American Diabetes Association and Voxiva, Inc., teamed up to offer Care4life in conjunction with LWT2D.

Get Your First Packet Today!

We distribute our information online via email. To receive printed information by mail instead, choose 'Print' below. Your first packet will arrive in 4-6 weeks.

Print Online

*First Name: *Last Name:
*Email:
*Street 1:
Street 2:
*City: *State: *Zip Code:
*Above Address Is: *How did you hear about LWT2D?:
Date of Birth:

★ BONUS PROGRAM ★

Get Care4Life's Diabetes Support Messages On Your Cell Phone

Enter your cell phone number and you'll receive 3 to 4 messages each week unless you choose more. Message and Data rates may apply.

- -

*Terms & Conditions:

Checking this option indicates your wish/consent to enroll your mobile number in Care4Life program and your agreement to the [Terms and Conditions & Privacy Policy](#).

By entering your cell phone number you agree that we can send Care4Life text messages to your phone. The messages will come from 200400. NOT a phone number. Click for complete, unformatted version. © 2013 American Diabetes Association. All rights reserved.



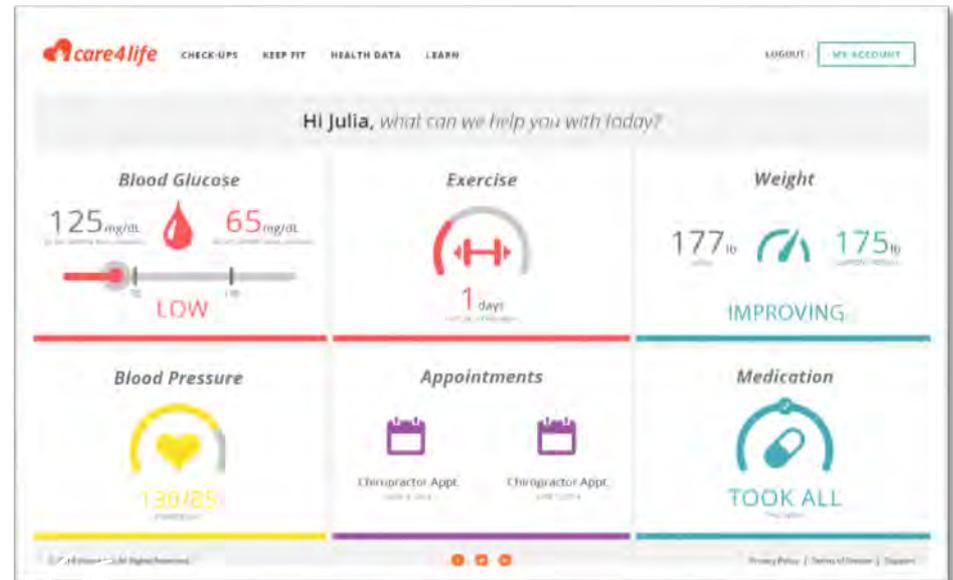
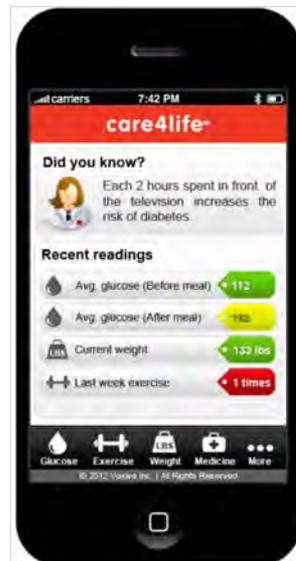
Care4life Goals

- Improved education & self-care knowledge
- Improved A1c
- Better appointment attendance (HEDIS)



Care4life

- Participants interact with Care4life multiple ways
 - Text Messages
 - Mobile App
 - Online portal
- Participants can customize frequency of text messages





Care4life Content

Modules include:

- Education & motivation messages
- Glucose monitoring
- Weight/Exercise goal tracking
- Medication & appointment reminders

Blood Glucose Monitoring:
Care4life. Time to check your BEFORE meal glucose. Reply with your BEFORE meal glucose reading (e.g. 125).

Educational Message:

Care4life. With clean hands, use the lancet device to poke the fleshy side of the fingertip, slightly off center from the middle of the tip (hurts less).

Goal Setting:

Care4life. Did you meet your goal of exercising at least 3 days last week? Reply with the number of days you exercised last week (e.g. Reply 3).

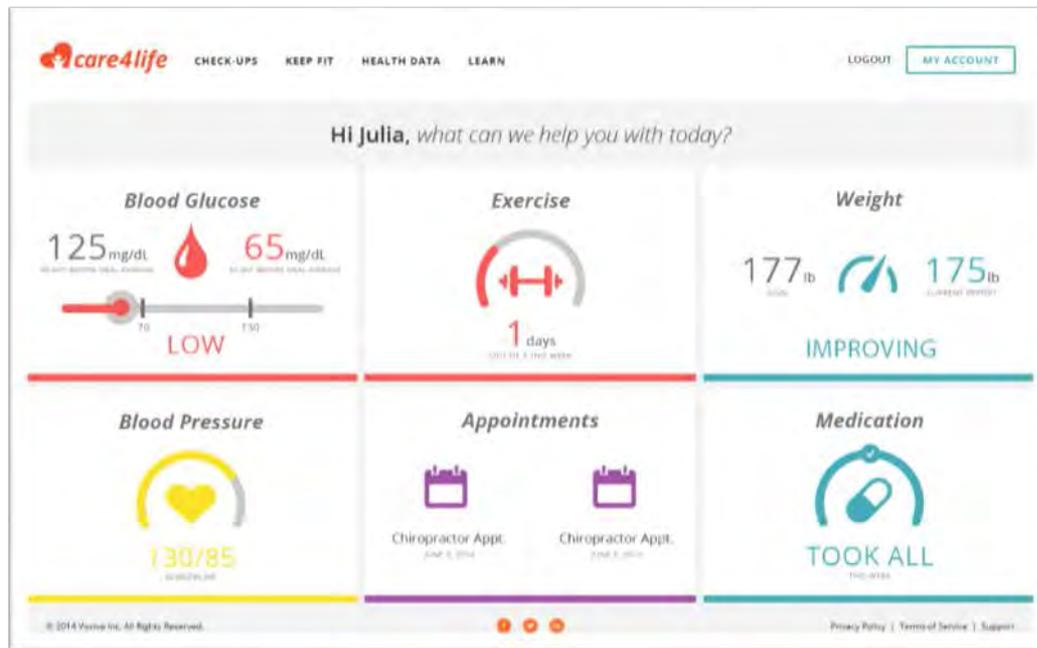
Medication Reminder:

Care4life. 7am med reminder: Sometimes you might feel overwhelmed. Remember to take it one day at a time. Focus on what you can do today.

Care4life content reviewed & approved by the American Diabetes Association



Personal Portal



Administrative Dashboard



“Care4life has changed the way I take care of my health. I now have all my information in one place, and the reminders to check my blood glucose and see the doctor really keep me on track.”



Care4life Results

After first 6 months of participation, 22,544 participants reported:

- Average blood glucose levels dropped by **16%**
- Average weight loss was **12** pounds
- The number of days exercised increased by **23%**
- Proportion of users reporting that they were fully adherent to their medication regimen increased by **8%**

Note: These were self-reported, survey data.



Summary

- The American Diabetes Association and Voxiva are working together to offer multiple opportunities for people with type 2 diabetes to find information and support
- *Living With Type 2 Diabetes* and *Care4life* are both free
- LWT2D offers information at set intervals while participants can interact with Care4life on an ongoing basis
- Care4life offers education & motivation, goal tracking, blood glucose monitoring, reminders for medication & appointments
- Participants in LWT2D & Care4life report **improved outcomes**

Questions?

Submit your questions using the Q & A feature on the right of your screen.
Presenters will respond following all the presentations



Accurate Insulin Decisions



Neil Skolnik, MD

Professor of Family and Community Medicine

Temple University School of Medicine

Abington Memorial Hospital



Effective Mobile Software

- Relevant
- Credible
- Aesthetically Pleasing
- Easy-to-Use

The Problem

- Primary Care Clinicians are slow to add additional therapy after using basal insulin.



Background

- Greater than half of patients with type 2 diabetes treated with basal insulin fail to achieve glycemic control.
- Glycemic Control is important for achieving optimal outcomes.

Diabetes Care 2011;34:510–517;
Prim Care Diabetes 2010;4:85–89

Background

- Barriers to insulin intensification exist for both patients and physicians
 - Patients - fear of hypoglycemia and weight gain, increased regimen complexity
 - Physicians - lack of patient adherence, increased need for resources, reluctance to titrate insulin and add to additional insulin injections

Goals of the App

- To serve as a point-of-care information resource for physicians to help intensify care after basal insulin is not achieving A1c goals in adult patients with Type 2 Diabetes.
- To serve as a reference tools for patients in shared decision making.

App Development: The Endocrine Society

- Developed jointly with multiple organizations and endorsed by the American Diabetes Association, AADE, ACP, AOA, APhA and others.
- Developed consensus for methods for advanced insulin management and resources needed.
- Multi-channel resource for both patients and physicians: paper, web, mobile.
- Promote dissemination of knowledge.
- Provided tools for implementation.
- Encourage shared decision making.

*Ann Intern
Med.*
2002;136(2):1
27-135



ENDOCRINE
SOCIETY 

The App



Accurate Insulin Decisions



- Deciding to Move Beyond Basal Insulin
- Setting A1c Goals**
- Characteristics of Different Insulins
- Choices for Mealtime Insulin
- Starting and Adjusting (Mealtime) Bolus Insulin
- Starting and Adjusting Premixed Insulin for Patients Not On Basal Insulin
- Is the Mealtime Insulin Approach Working?
- About the AID Program
- Interactive Dosage Calculator and Website



About

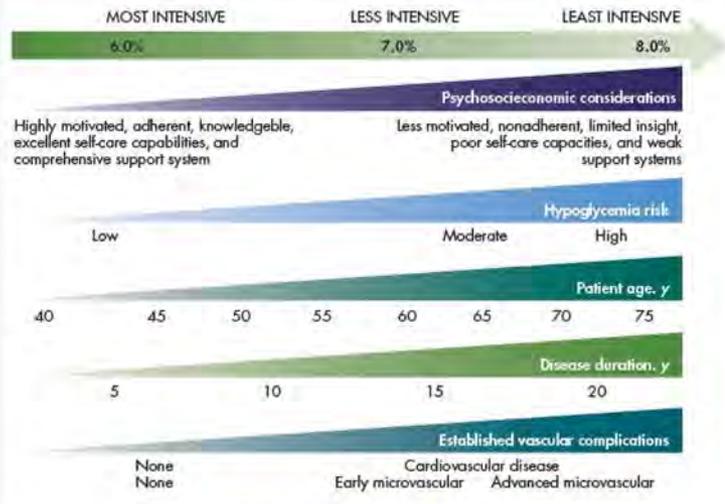


Home



Accurate Insulin Decisions

A number of factors should also be considered when setting an appropriate A1c goal for someone with type 2 diabetes. It should also be noted that A1c is not a perfect indicator¹ as it does not reveal glycemic variability or other factors that may impact risk for complications. The graph^v below can help determine whether a patient's goal is appropriate based on risks for hypoglycemic events, age, comorbidities, and other lifestyle factors. A more in-depth examination of recommended A1C targets based on clinical characteristics can be found in the following graph.



Tap Image to Enable Zooming

Continue to Step 2

References:

- i. Alarcon-Casas Wright, Hirsch. The Challenges of the Use of Glycemic Biomarkers in Diabetes: Reflecting on Hemoglobin A1C, 1, 5-Anhydroglucitol, and the Glycated Proteins Fructosamine and Glycated Albumin. *Diabetes Spectrum* 2012; 25:141-148.
- ii. Nathan et al., Translating the A1C Assay into Estimated Average Glucose Values. *Diabetes Care*. 2008;31:1473-1478.
- iii. Inzucchi S, Bergenstal R, Buse J. Management of Hyperglycemia in Type 2 Diabetes: A Patient-Centered Approach. *Diabetes Care* 2012.
- iv. Ibid

Home

Accurate Insulin Decisions



- Deciding to Move Beyond Basal Insulin
- Setting A1c Goals
- Characteristics of Different Insulins
- Choices for Mealtime Insulin
- Starting and Adjusting (Mealtime) Bolus Insulin
- Starting and Adjusting Premixed Insulin for Patients Not On Basal Insulin
- Is the Mealtime Insulin Approach Working?
- About the AID Program
- Interactive Dosage Calculator and Website



About



Home



Accurate Insulin Decisions



- Deciding to Move Beyond Basal Insulin
- Setting A1c Goals
- Characteristics of Different Insulins
- Choices for Mealtime Insulin
- Starting and Adjusting (Mealtime) Bolus Insulin**
- Starting and Adjusting Premixed Insulin for Patients Not On Basal Insulin
- Is the Mealtime Insulin Approach Working?
- About the AID Program
- Interactive Dosage Calculator and Website



About



Home



Accurate Insulin Decisions

Starting and Adjusting (Mealtime) Bolus Insulin (Adding Apidra®, Humalog® or Novolog® to Basal Insulin)

How to Start Mealtime (Bolus) Insulin

Add 4 units of mealtime insulin to the basal dose before the largest meal or the meal that is agreed upon.

How to Adjust Bolus Insulin

When Mealtime Insulin Is Taken:	When To Test Blood Sugar:	If The Blood Sugar Results Are:	Then You Should:	When:
At Breakfast	Before Lunch	Under 80	Subtract 2 Units From the Mealtime Dose	Before Breakfast the Next Day
		80–130	Do Not Adjust Mealtime Insulin Dose	
		Over 130	Add 2 Units to Your Mealtime Dose	
At Lunch	Before Dinner	Under 80	Subtract 2 Units from Mealtime Dose	Before Lunch the Next Day
		80–130	Do Not Adjust Mealtime Insulin Dose	
		Over 130	Add 2 Units to Mealtime Dose	
At Dinner	Before Bed	Under 125	Subtract 2 Units from Mealtime Dose	Before Dinner the Next Day
		125–150	Do Not Adjust Mealtime Insulin Dose	
		Over 150	Add 2 Units to Your Mealtime Dose	

[Tap Image to Enable Zooming](#)

If blood sugar is under 70, patient should drink 1/2 cup of juice or soda or eat something that contains sugar. Glucose tablets may be taken to bring blood sugar into normal range. Patient should contact physician/care team.

References: These recommendations are derived from expert opinion and are based on the review of the following literature:

1. Inzucchi, et al. Management of Hyperglycaemia in Type 2 Diabetes: A Patient-Centered Approach. Position statement of the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD). *Diabetes Care*. 2012;35(6):1364-79
2. Nathan, et al. Management of Hyperglycemia in Type 2 Diabetes: A Consensus Algorithm for the Initiation and Adjustment of Therapy. *Diabetes Care*. 2006; 8: 1963-1972
3. Davidson, M. Raskin, P. Tanenberg, R. Vlahjic, A. Hollander, P. A Stepwise Approach to Insulin Therapy in Patients with Type 2 Diabetes Mellitus and Basal Insulin Treatment Failure. *Endocrine Practice*. 2011; 17: 395-403
4. Pearson, J. and Powers, M. Systematically Initiating Insulin: The Staged Diabetes Management Approach. *The Diabetes Educator*. 2006. 32: 19S-28S.
5. Bergenstal, et al. Adjust to Target in Type 2 Diabetes. *Diabetes Care*. 2008. 31(7) 1305-1310.
6. Hirsch, I. Bergenstal, R. Parkin, C. Wright, E. Buse, J. A Real-World Approach to Insulin Therapy

Accurate Insulin Decisions



- Deciding to Move Beyond Basal Insulin
- Setting A1c Goals
- Characteristics of Different Insulins
- Choices for Mealtime Insulin
- Starting and Adjusting (Mealtime) Bolus Insulin
- Starting and Adjusting Premixed Insulin for Patients Not On Basal Insulin
- Is the Mealtime Insulin Approach Working?
- About the AID Program
- Interactive Dosage Calculator and Website



About



Home



Accurate Insulin Decisions



- Deciding to Move Beyond Basal Insulin
- Setting A1c Goals
- Characteristics of Different Insulins
- Choices for Mealtime Insulin
- Starting and Adjusting (Mealtime) Bolus Insulin
- Starting and Adjusting Premixed Insulin for Patients Not On Basal Insulin
- Is the Mealtime Insulin Approach Working?
- About the AID Program
- Interactive Dosage Calculator and Website**



About



Managing Your Diabetes with Mealtime Insulin

If you and your doctor have decided that mealtime insulin is right for you, this interactive tool can help you determine when and how to adjust your insulin.



Starting and Adjusting Mealtime Insulin

Which Mealtime Insulin Are You Taking?

Background & Rapid-acting Insulin

(Adding Humalog, Novolog or Apidra to Basal Insulin)



Premixed Insulin

(Novolog 70/30 or Humalog 75/25 for patients who are not on background insulin)



Managing Your Diabetes with Mealtime Insulin

If you and your doctor have decided that mealtime insulin is right for you, this interactive tool can help you determine when and how to adjust your insulin.



Starting and Adjusting Mealtime Insulin

Background & Rapid-acting Insulin

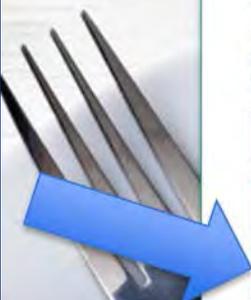
To start mealtime insulin, add four units to your background dose before your largest meal. **What is your largest meal?**

Breakfast →

Lunch →

Dinner →

← Back



Managing Your Diabetes with Mealtime Insulin

If you and your doctor have decided that mealtime insulin is right for you, this interactive tool can help you determine when and how to adjust your insulin.



Starting and Adjusting Mealtime Insulin

Background & Rapid-acting Insulin > Dinner

Check your blood sugar before bed and choose the option below that matches your result.

- ▼ Under 125
- ▼ 125 - 150
- ▼ Over 150

If your blood sugar is under 70, drink ½ cup of juice or soda or eat something that contains sugar. You can also take glucose tablets to bring your blood sugar into normal range. Let your physician/care team know that you had low blood sugar.

← Back



Managing Your Diabetes with Mealtime Insulin

If you and your doctor have decided that mealtime insulin is right for you, this interactive tool can help you determine when and how to adjust your insulin.



Starting and Adjusting Mealtime Insulin

Background & Rapid-acting Insulin > Dinner

Check your blood sugar before bed and choose the option below that matches your result.

▼ **Under 125**

▼ **125 - 150**

▲ **Over 150**

If your blood sugar was over 150 when you tested it before bed, add 2 units of mealtime insulin before dinner the next day.

If your blood sugar is under 70, drink ½ cup of juice or soda or eat something that contains sugar. You can also take glucose tablets to bring your blood sugar into normal range. Let your physician/care team know that you had low blood sugar.

← Back

Accurate Insulin Decisions



- Deciding to Move Beyond Basal Insulin
- Setting A1c Goals
- Characteristics of Different Insulins
- Choices for Mealtime Insulin
- Starting and Adjusting (Mealtime) Bolus Insulin
- Starting and Adjusting Premixed Insulin for Patients Not On Basal Insulin
- Is the Mealtime Insulin Approach Working?
- About the AID Program
- Interactive Dosage Calculator and Website



About



Home



Components of Excellent Mobile Support

- Relevant
- Credible
- Aesthetically Pleasing
- Easy-to-Use



"Beauty is truth, truth beauty," –
that is all Ye know on earth, and
all ye need to know.

John Keats

Questions?

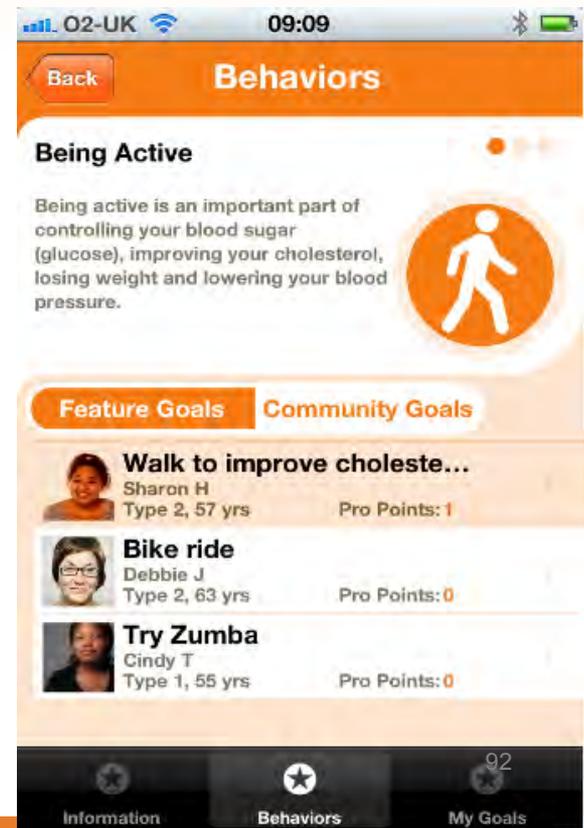
Submit your questions using the Q & A feature on the right of your screen.
Presenters will respond following all the presentations



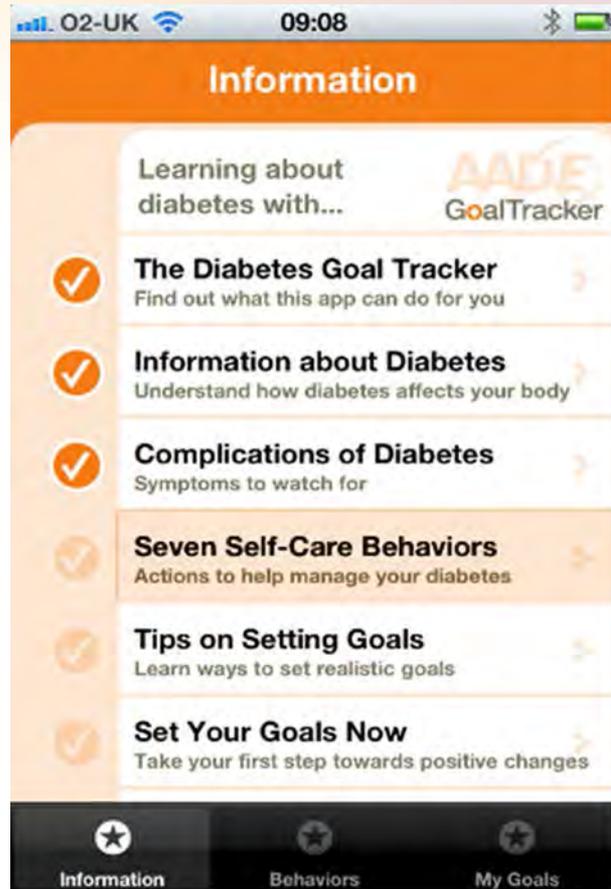
Why Create the App?

- No apps available for goal setting or behavior change
- Unique tool that uses the AADE7 Self-Care Behaviors™ - healthy eating, taking medication, being active, healthy coping, reducing risks, monitoring, problem solving

This app is intended to encourage positive behavioral changes and ultimately, help people successfully manage their diabetes.



Once the app has downloaded, the Goal Tracker icon will appear on the home screen:



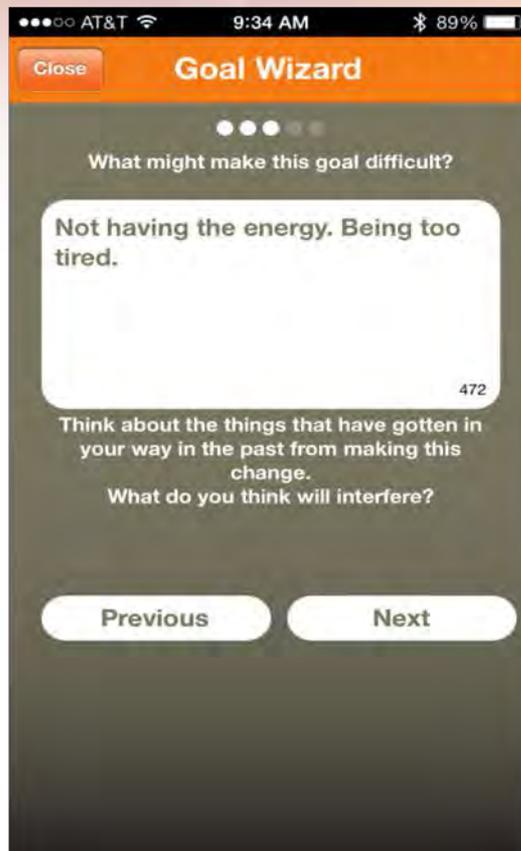
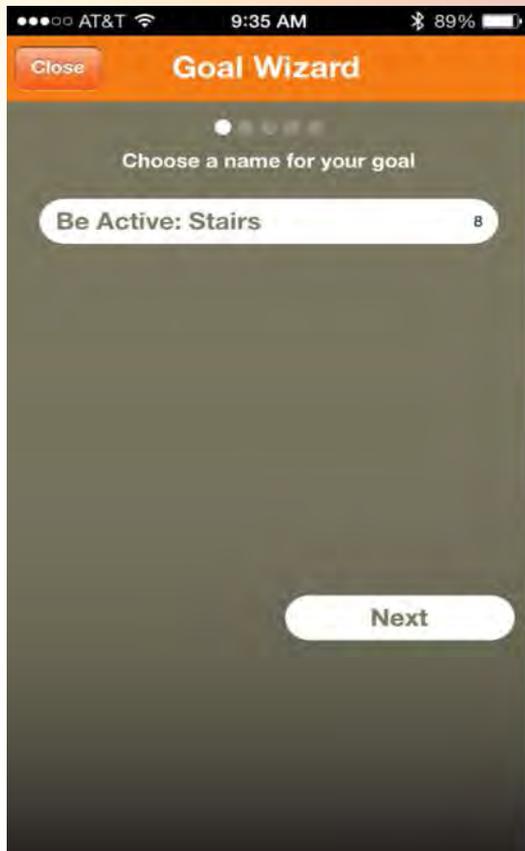


The next screens will ask the user to:

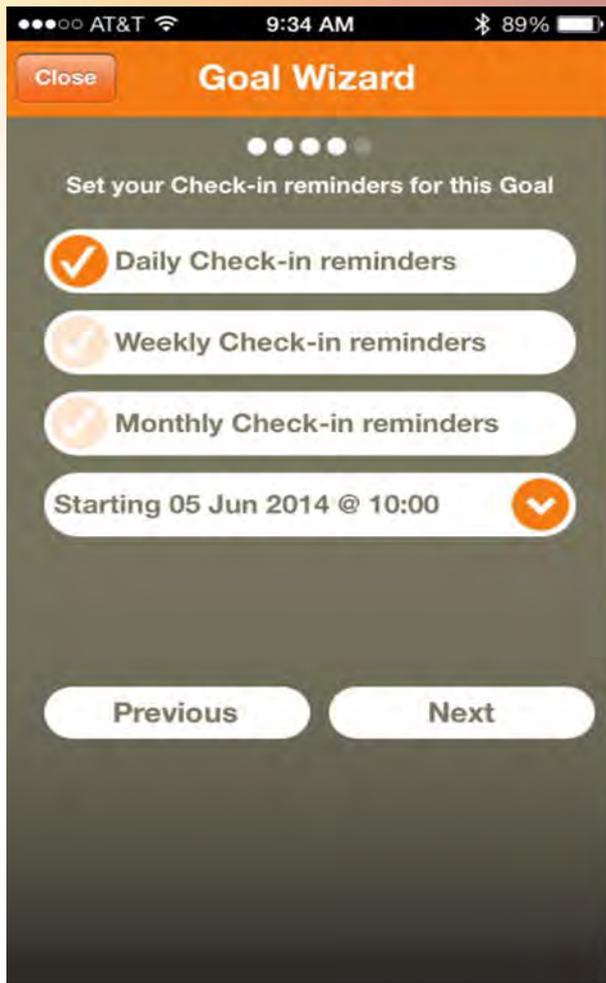
1. Give the goal a specific name.
2. How will you achieve the goal?
3. What might make this goal difficult?
4. How often do you want to be reminded about this goal?



An example of a goal being set.



An example of a goal being set.



Aetna Foundation Grant

- Test the use of the app in disparate populations
- 3 sites:
 - Cleveland, Ohio
 - Houston, Texas
 - Burlington, Colorado
- Cohort 1 – newly diagnosed with type 2 diabetes and/or participating in Diabetes Self-Management Education (DSME) for the first time
- Cohort 2 – people with type 2 diabetes who completed a DSME program at some time in the past

Research Findings

- A self-care behavior engagement assessment provided pre and post
- Focus groups to be held in early November to assess:
 - Whether participant used the app for the entire study
 - Which sections of the app participant looked at
 - Which sections of the app participant found valuable
 - Other type of content participant would be interested in having in a mobile app



Key Messages

- Pilot test with target audience
- Ensure literacy level is appropriate
- App should engage the user

Key Messages



Don Wright, MD, MPH
Deputy Assistant Secretary for Health
U.S. Department of Health and Human Services





Presenters' Key Messages

- Diabetes is impacted by the routine, day-to-day decisions that patients make on their own, so patient engagement is critical to ensure successful disease management.
- Effective glycemic control among people with diabetes can help prevent or delay the complications of diabetes.
- For most patients with diabetes, regular glucose monitoring is essential to good self-management of diabetes.



Presenters' Key Messages

- There are evidence-based and emerging technologies, such as mobile health tools, that are helping people with diabetes manage their glycemic levels.
- Mobile health tools are a growing way for consumers and providers to collect and organize data and manage their own health and wellness.
- In the development of mobile health technology, it is important to pay attention to four aspects: credibility, relevance, esthetics, and ease-of-use.



Presenters' Key Messages

- Before using any mobile technologies, consider those evaluated with scientific evidence, pilot test them with key audiences, and ensure that the literacy level is appropriate.
- Mobile health technologies enable ongoing support and care outside of the clinical setting.
- Linking mobile technology data with a health care provider or system is beneficial for diabetes self-care.
- The mobile health app should engage the user, and apps providing actionable feedback are more effective.



Stay Connected

JOIN THE HEALTHY PEOPLE LISTSERV & CONSORTIUM



WEB

healthypeople.gov



EMAIL

healthypeople@hhs.gov



TWITTER

[@gohealthypeople](https://twitter.com/gohealthypeople)



LINKEDIN

[Healthy People 2020](https://www.linkedin.com/company/healthy-people-2020)



YOUTUBE

ODPHP

[search “healthy people”]





HP2020 Online Resources and Tools

HealthyPeople.gov



Search HealthyPeople.gov

[Log out](#) | [My Account](#)

Go

[Topics & Objectives](#)

[Leading Health Indicators](#)

[Data Search](#)

[Healthy People in Action](#)

[Tools & Resources](#)

[Webinars & Events](#)

[About](#)



Spotlight on Health Webinar

Join us on November 13 for a Spotlight on Health webinar highlighting free evidence-based and emerging mobile technologies designed to improve glycemic control and the health of persons with diabetes.

[Register today!](#)



DATA2020 Search

This interactive data tool allows users to explore the data and technical information related to the HealthyPeople 2020 objectives. [Search Healthy People data!](#)



Leading Health Indicators: Progress Update

[Read the report](#) to learn about progress that's been made in each of the 26 Leading Health Indicators.



New Training on Diabetes Agents

Preventing Adverse Drug Events

Individualizing Glycemic Targets Using Health Literacy Strategies



Introduction ▼

Chapter 1 ▼

Chapter 2 ▲

Chapter 3 ▼

Chapter 4 ▼

Chapter 4 Overview

Shared Decision-Making
with Patients

**Applying Shared
Decision-Making**

Key Points and
Knowledge Check

- *Preventing Adverse Drug Events:
Individualizing Glycemic Targets
Using Health Literacy Strategies*

- Earn continuing education credit
(CME, CNE, CEU, CPE)

- Available on the training tab of
www.health.gov



Who's Leading the Leading Health Indicators? webinar: Injury and Violence

Motor vehicle crashes are a major cause of death for children in the United States.

Please join us on **Thursday, November 20, 2014 from 12:00 to 1:00 p.m. ET** to learn how one organization is working to improve child passenger safety in its community.

This webinar will focus on activities and interventions to improve child passenger safety and reduce deaths due to motor vehicle crashes.



Who's Leading the
Leading Health
Indicators?

***To register, visit:
www.healthypeople.gov***



Addressing the Social Determinants of Health



Health starts in our homes, schools, workplaces, neighborhoods, and communities. Explore resources related to the social determinants of health and see what communities are doing across the country to address the social determinants of health.

Visit www.healthypeople.gov to get started!



Join Healthy People at APHA!

If you are planning to attend the Annual Meeting of the American Public Health Association in New Orleans this year, we'd love to meet you!

Please join us at the following sessions:

1. Learning Institute Course (\$275): How to use Healthy People 2020 to achieve your goals: New online implementation tools – Sunday, November 16, 2:30 to 6:00 pm
2. Healthy People 2020 and the Social Determinants of Health: Framing Healthy People 2020 in a Social Determinants of Health Context – Monday, November 17, 2:30 to 4:00 pm
3. Healthy People: Past, Present, and Future – Wednesday, November, 19, 8:30 to 10:00 am)



HEALTHOGRAPHY

APHA 142nd ANNUAL MEETING & EXPO

Healthy People 2020 Progress Review Webinar

Join us as we review progress on Healthy People 2020 objectives in the **Environmental Health** and **Tobacco Use** topic areas.

***Friday, December 5, 2014
12:30p.m. EST***

Hear from a community-based organization that is working locally to improve health.

***Register at
www.healthypeople.gov***

