



HEALTH CARE

Research Review

Insights for Employers



Type 2 Diabetes:

Does Daily Self-Monitoring of Blood Glucose (SMBG) Improve A1c Levels and Quality of Life?

Webinar Background



DISSEMINATION GRANT

The National Alliance is developing a system to disseminate PCOR/CER findings within the purchaser community that will have a measurable impact on patient-center experiences and can serve as a model for future and continual dissemination.



PCORI REPRESENTATIVE WILLIAM LAWRENCE

Senior Clinical Advisor, Communications, Dissemination, and Implementation



PCORI's Broad and Complex Mandate



“The purpose of the Institute is to **assist patients, clinicians, purchasers, and policy-makers in making informed health decisions** by advancing the quality and relevance of evidence concerning the manner in which diseases, disorders, and other health conditions can effectively and appropriately be prevented, diagnosed, treated, monitored, and managed **through research and evidence synthesis...**

... and the dissemination of research findings with respect to the relative health outcomes, clinical effectiveness, and appropriateness of the medical treatments, services...”

—from PCORI’s authorizing legislation





PCORI-FUNDED RESEARCHER KATRINA DONAHUE, MD, MPH

Professor and Vice Chair of Research
UNC Chapel Hill Department of Family Medicine



FEATURED RESEARCH

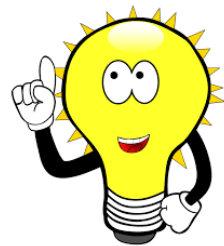
Type 2 Diabetes:

Does Daily Self-Monitoring of Blood Glucose (SMBG) Improve A1c Levels and Quality of Life?



Current SMBG Guidelines

Source	Recommendation
American Diabetes Association	YES - May guide treatment and management (expert opinion). Insufficient when and how often
American College of Endocrinology	YES
International Diabetes Federation	YES - When results are reviewed and acted upon by health provider
National Diabetes Educators	YES
Canadian Diabetes Association	YES - Especially if newly diagnosed or not meeting glycemic targets
Society for General Internal Medicine (Choosing Wisely Campaign)	NO



Study Idea: "To Test or Not to Test?"



SMBG Considerations

- Widely practiced in patients with diabetes conducted since 1980s
- Benefits well-established in Type 1 diabetes and Type 2 diabetes on insulin
- Glycemic Benefits of SMBG are minimal at best
 - Tests of simple SMBG A1c values reduces on average 0.2%
 - 'Enhanced SMBG' (patients/providers given education & feedback) reductions closer 0.5%
 - Thus patient and provider must be actively engaged
- SMBG may improve self-efficacy
- Potential Obstacles
 - Invasive, interrupts life
 - Cost
 - May increase depressive symptoms



OBJECTIVES

- Review and interpret findings from this study
- Apply findings to primary care patients with non-insulin treated type 2 diabetes

BACKGROUND

- Guidelines are inconsistent regarding the role of SMBG in adult patients with non-insulin treated type 2 diabetes
- Recommendations from health care providers vary widely
- Numerous stakeholders have an interest in this debate

Project Overview

450 PATIENTS
with TYPE **2**
DIABETES



- $\frac{1}{3}$ checked blood sugar daily
- $\frac{1}{3}$ checked blood sugar daily and received text messages explaining blood sugar levels
- $\frac{1}{3}$ did not check blood sugar daily

After a year, there were no differences on average
in blood sugar or quality of life

Study Population

- Primary care patients
- Age 30 and over
- English speaking
- Non pregnant
- Type 2 diabetes, not on insulin
- A1c 6.5%-9.5%
- 3 or less co-morbidities

Intervention Details

Group 1

No SMBG Testing

Group 2

**Once daily SMBG Testing
with standard patient**

*Feedback Glucose values
reported on monitor*

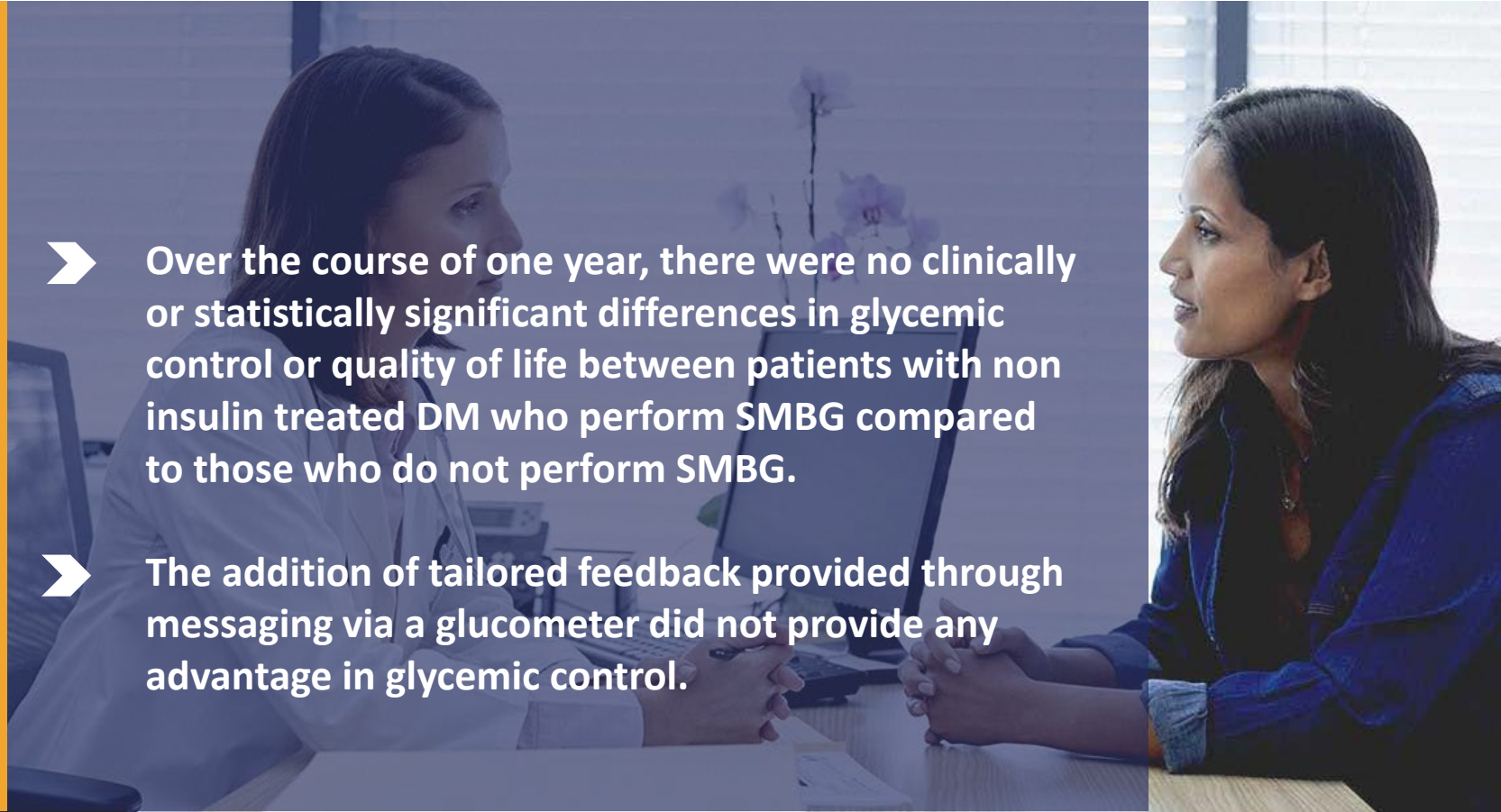
Group 3

**Once daily SMBG Testing
with enhanced patient
feedback**

*Glucose values reported on
monitor plus a tailored
feedback message
delivered to the patient
through the monitor*

What are the results?

- Over the course of one year, there were no clinically or statistically significant differences in glycemic control or quality of life between patients with non insulin treated DM who perform SMBG compared to those who do not perform SMBG.
- The addition of tailored feedback provided through messaging via a glucometer did not provide any advantage in glycemic control.



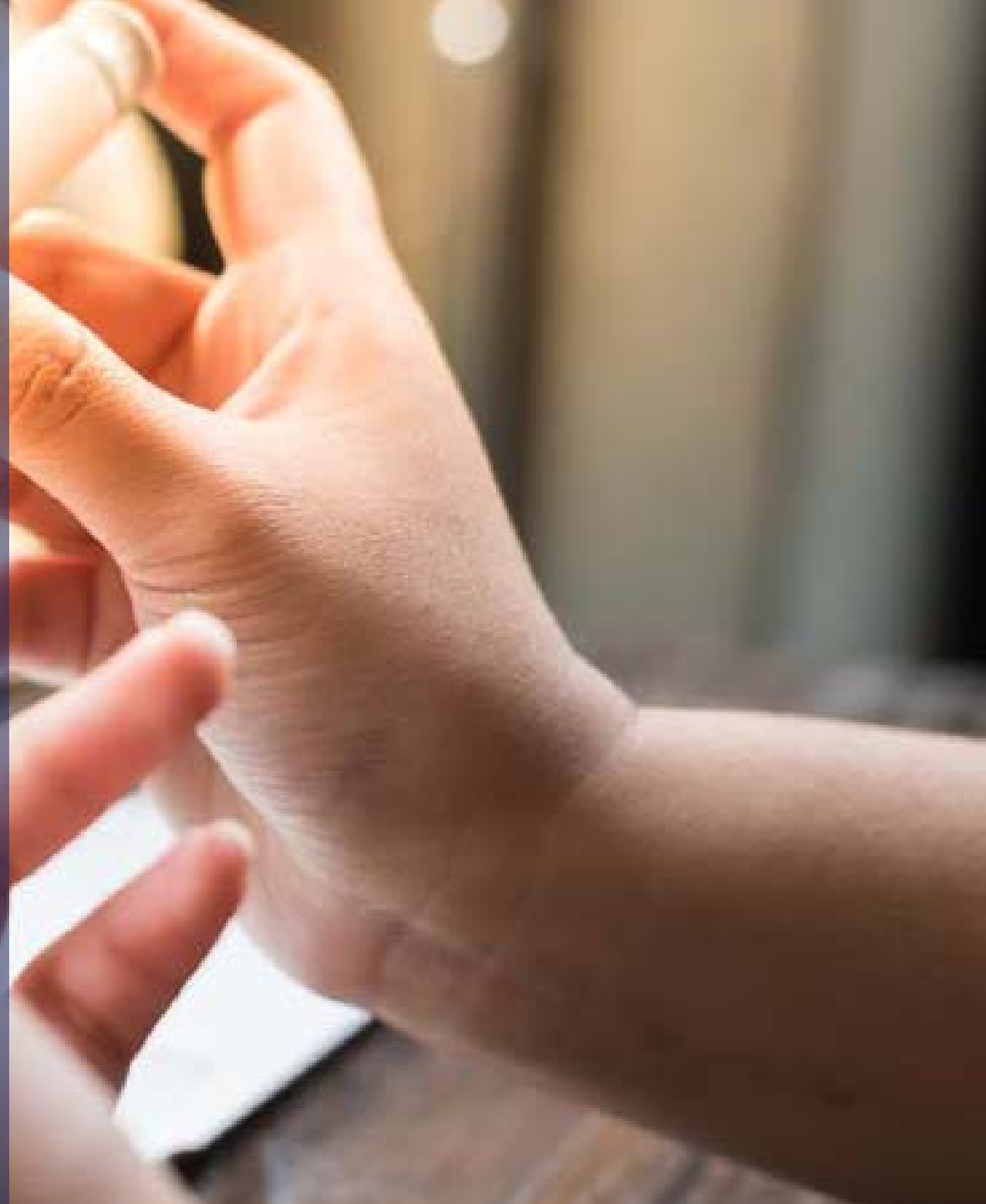
Secondary Outcomes

- No significant differences for
 - Problem Areas In Diabetes (PAID)
 - Diabetes Symptoms Checklist (DSC)
 - Diabetes Empowerment Scale (DES-SF)
 - Diabetes Treatment Satisfaction
- Communication Assessment Tool
- Summary of Diabetes Self-Care Activities was significant (but related to the blood sugar testing in arms)



Limitations

- Test of continuing monitoring rather than initiating monitoring
- Not all patients adhered to the group assigned; however no difference in ITT and per-protocol analyses
- Patients belonged to one health care system
- Findings do not apply to patients on insulin





“Given the time and resource intensive nature of self-monitoring of blood glucose (SMBG), to test or not to test, is a critically important question facing the millions of patients living with non-insulin treated type 2 diabetes”

PCORI-funded Lead Researcher, Katrina Donahue, MD, MPH



APRIL REESE, MPH

Formerly - N.C. Department of Health and Human Services
Health Systems and Community Connections Unit Manager,
Community and Clinical Connections for Prevention and Health

Patient Advocate – Advisor to PCORI Study

Reactor Panel



Tony Hampton, MD, MBA, CPE
Family Practice Physician



Cheryl Larson
President & CEO, Midwest Business Group on Health

Employer Key Take-Aways



Re-examine Current Approach to Diabetes Management

Although unclear medical guidelines have led to a lack of consensus regarding the benefits of SMBG, employers should consider taking an informed approach to these findings by proactively reviewing their current type 2 diabetes health management approach.



Support Shared Decision-making

Dr. Donahue and her team is to move towards a more patient-centered approach where patients and providers discuss the pros and cons of SMBG. Employers can play a significant role in this process through workplace programs that educate employees and guide them in how to seek support from their provider.

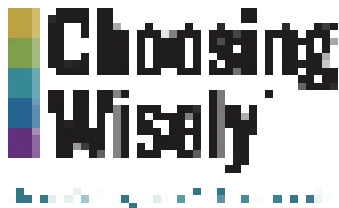
Because the study population included patients with Type 2 Diabetes not using insulin, these results cannot be generalized to insulin users.

Industry Perspectives



American Academy of Family Physicians reports on SMBG through Choosing Wisely

“SMBG testing has no benefit in patients with Type 2 Diabetes who are not on insulin or medications associated with hypoglycemia, and small, but significant, patient harms are associated with daily glucose testing. SMBG should be reserved for patients during the titration of their medication doses or during periods of changes in patients’ routines”.



Potential Impact

- **7 million people spared the inconvenience and pain**
- **\$1,630 saved/ patient in testing**
- **10 billion finger sticks avoided**
- **\$12 billion saved in costs**
- **NO negative impact on health**

REFERENCE Young LA, Buse JB, Weaver MA, et al. Glucose Self-monitoring in Non-Insulin-Treated Patients With Type 2 Diabetes in Primary Care Settings. JAMA Intern Med. 2017;177(7):920.



Resources

PCORI Research Impact



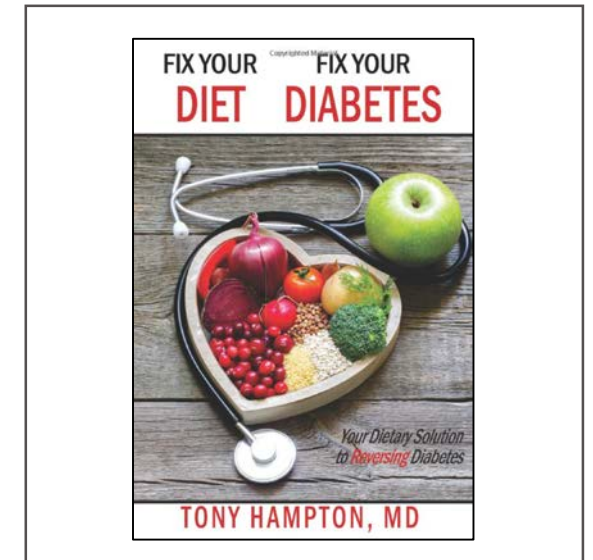
[https://www.pcori.org/
impact/addressing-type-2-
diabetes](https://www.pcori.org/impact/addressing-type-2-diabetes)

Employer Toolkit: Diabetes Management in the Workplace



[www.mbg.org/
resources/employertoolkit
s](http://www.mbg.org/resources/employertoolkits)

Tony Hampton, MD Website



www.drtonyhampton.com



ON THE HORIZON

There are more than 1000 research projects underway in the PCORI portfolio and over 180 that will have published results in 2018.



**Non-drug Therapies
Reduce Opioid Risks and
Healthcare Costs**



**Can a Health Plan
Initiative Mitigate Long-
term Risks of
Opioid Therapy?**



**Telehealth Video Calls
are Helping Patients
with Parkinson's**

Wrap up



Research Review



Available under resources on the National Alliance website: www.nationalalliancehealth.org



Give us Your Feedback



You will receive Survey link via email. Please complete by October 26, 2018.

THANK YOU

Advisory Committee Members

- Neil Goldfarb, Greater Philadelphia Business Coalition on Health (Chair)
- Dr. David Asch, University of Pennsylvania
- Karen Van Caulil, Florida Health Care Coalition
- Jack Mahoney, Florida Health Care Coalition
- Bruce Sherman, Employers Health Coalition & Buck Consultants at Xerox
- Emma Hoo, Pacific Business Group on Health
- Pat Montoya, New Mexico Coalition on Healthcare Value
- Michael Thompson, National Alliance (Administrative Official)

Project Team

- Margaret Rehayem, National Alliance (Project Lead)
- Susan Frank, Frank Vision, LLC (Project Coordinator)
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- Alyssa Barilotti, National Alliance (Project Assistant)