

Improving Veteran Engagement in Diabetes Prevention

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No real or potential conflicts of interest



MEDICAL SCHOOL
UNIVERSITY OF MICHIGAN



Translational behavioral science

“Bench to bedside”



Translational behavioral science

“Bench to bedside”



“Lab to living room”



Agenda

- Brief background on patient engagement in prevention of type 2 diabetes
- 2 studies examining factors that influence Veteran engagement in diabetes prevention
 - Randomized trial of screening for diabetes
 - Factorial design experiment using Secure Messaging
- Future directions

Poll question #1

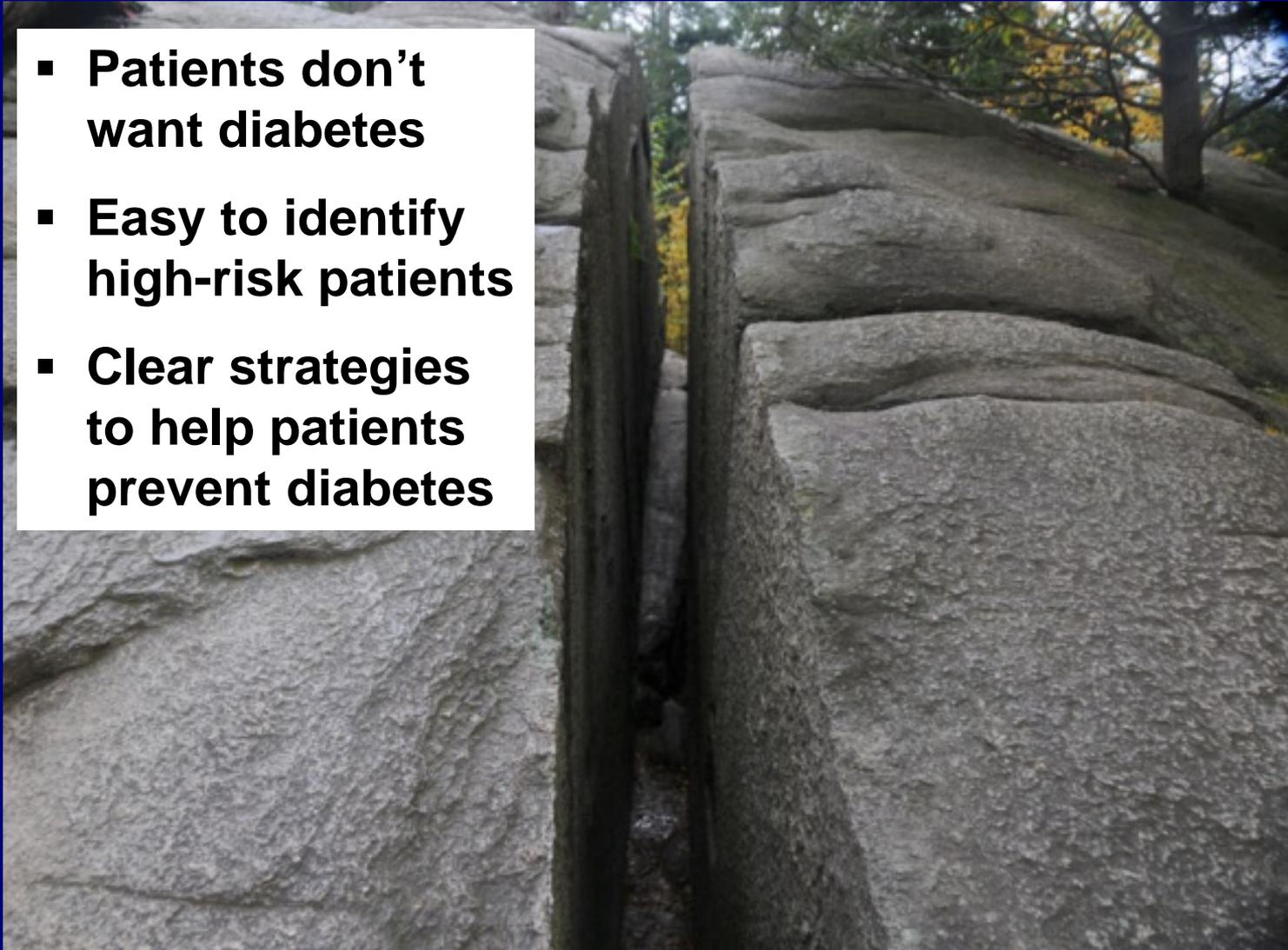
- What is your primary role in VA?
 - Student, trainee, or fellow
 - Clinician
 - Researcher
 - Administrator, manager, or policymaker
 - Other

The chasm of diabetes prevention



The chasm of diabetes prevention

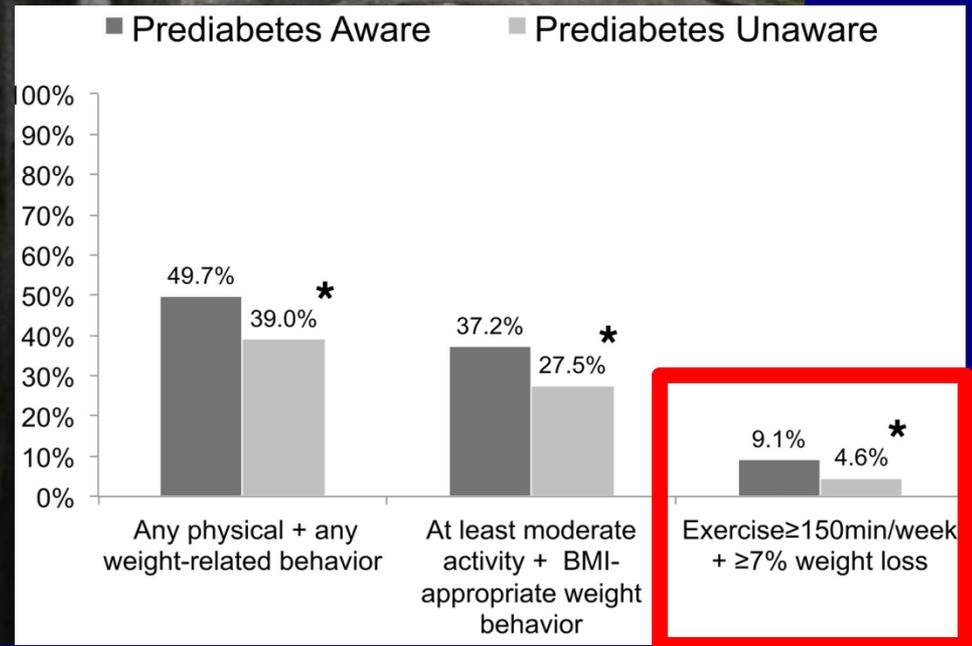
- **Patients don't want diabetes**
- **Easy to identify high-risk patients**
- **Clear strategies to help patients prevent diabetes**



The chasm of diabetes prevention

- Patients don't want diabetes
- Easy to identify high-risk patients
- Clear strategies to help patients prevent diabetes

- Few high-risk patients are engaged in preventive strategies



Poll question #2

- What is the main reason at-risk Veterans may not engage in strategies to prevent diabetes?
 - Underestimation of risk
 - Low motivation
 - Insufficient access to resources
 - Competing demands

Research questions

- How does a prediabetes diagnosis affect Veteran decision-making about diabetes prevention?
- What facilitates and impedes Veteran engagement in diabetes prevention?
- What novel strategies might VA (and other systems, health plans, and employers) use to increase engagement in diabetes prevention?

Study 1: Forging New paths in Diabetes prevenTion (FINDIT)

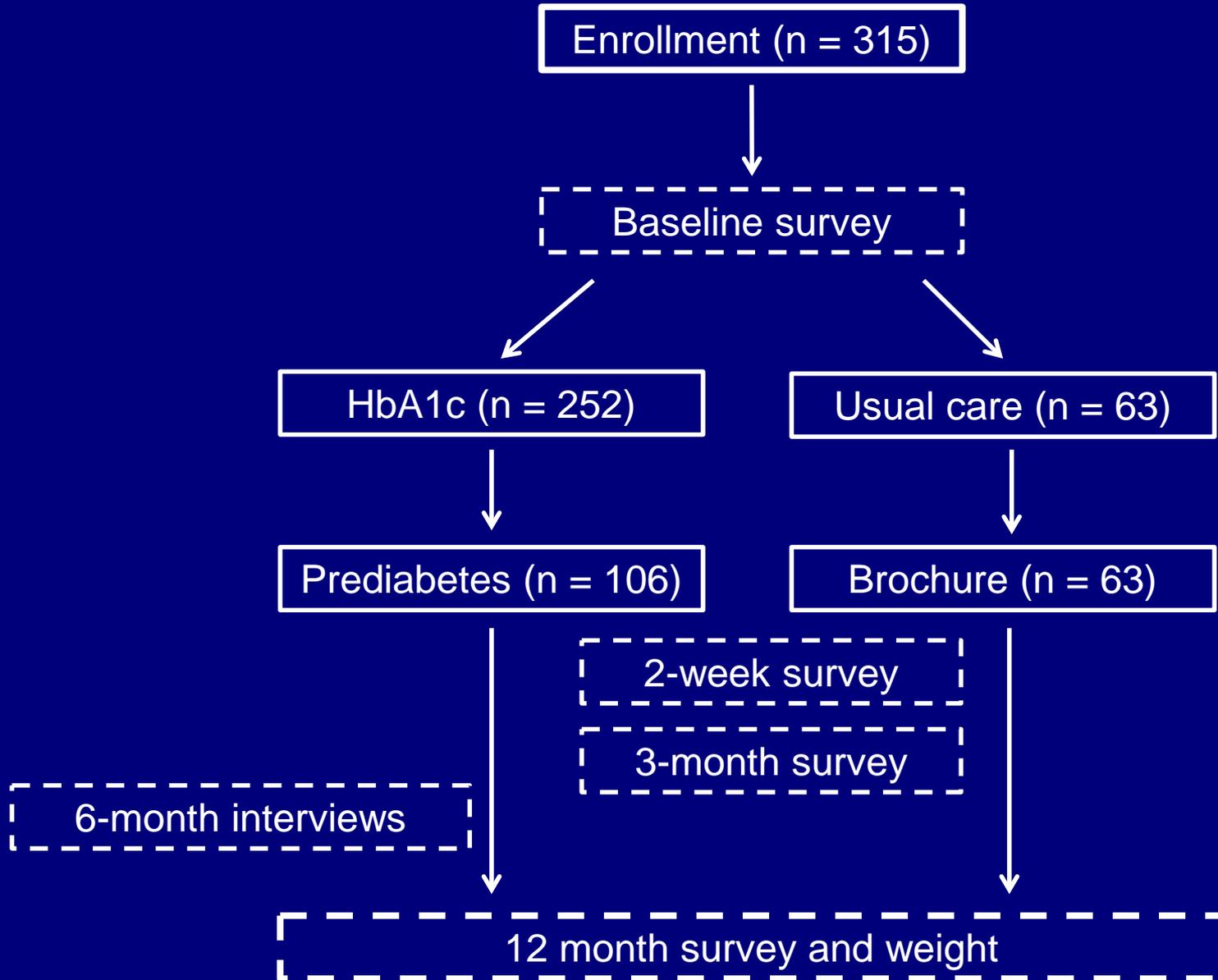
Objective

- To determine the effects of a hemoglobin (HbA1c) test and brief information about prediabetes on Veterans' preventive behaviors, potential mediators of engagement in preventive behaviors, and weight change

Study design

- Randomized trial of 315 non-diabetic patients from the Ann Arbor Veterans Affairs Medical Center (AAVA)
 - 1 or more major risk factors for diabetes
 - Upcoming AAVA Primary Care appointment
 - No HbA1c test in the last 12 months

Study design



Analyses of initial survey data

- Age and gender-adjusted difference-in-differences analyses to compare 2-week and 3-month changes in outcomes between HbA1c test arm patients and brochure arm patients
 - Perception of risk for diabetes in next 3 years (0-100)
 - Level of motivation to prevent T2DM (0-10)
 - Patient activation
 - Physical activity
 - Weight loss attempts

Baseline characteristics

Age, mean (SD)	61.7 (10.9)
Female, n (%)	27 (9)
College degree, n (%)	230 (74)
Race/ethnicity, n (%)	
White, non-Hispanic	253 (82)
Black, non-Hispanic	18 (6)
Hispanic	8 (3)
Income < \$50,000, n (%)	170 (60)
Fair or poor health status, n (%)	92 (30)

Perceived risk of diabetes in next 3 years

	n	Baseline mean (SE)	Difference in differences ^a			
			2 weeks	P	3 months	P
Brochure	63	22.5 (2.6)	Ref		Ref	
All screened	252	24.5 (1.5)	0.4	0.9	-2.3	0.5
Normoglycemia	134	20.9 (1.9)	-6.6	0.04	-6.9	0.04
Prediabetes	106	27.4 (2.6)	6.8	0.06	3.1	0.4

^aAdjusted for age and gender

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Level of motivation to prevent diabetes

	n	Baseline mean (SE)	Difference in differences ^a			
			2 weeks	P	3 months	P
Brochure	63	7.1 (0.4)	Ref		Ref	
All screened	252	6.6 (0.2)	0.5	0.2	0.4	0.3
Normoglycemia	134	6.6 (0.2)	0.01	1.0	-0.06	0.9
Prediabetes	106	6.6 (0.3)	1.0	0.01	0.8	0.03

^aAdjusted for age and gender

Level of motivation to prevent diabetes

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^aAdjusted for age and gender

No differences at 3 months

- Patient activation
- Physical activity
- Attempting weight loss

Conclusions

- Using a screening HbA1c test to identify Veterans with prediabetes and providing brief information about prediabetes increased short-term motivation to prevent diabetes
- Screening HbA1c tests and brief information about test results only led to change in risk perception among Veterans with normoglycemia
- Screening HbA1c tests followed by brief information about test results did not yield short-term changes in Veterans' level of activation or engagement in key preventive behaviors

Limitations

- Single center study
- Self-reported data with potential for social desirability bias
- Definition of prediabetes slightly different than VA/DoD Clinical Practice Guideline
- Current results limited to short-term changes
- Unknown if Veterans had previously been told they had prediabetes

Implications

- National campaigns aiming to identify more Americans with prediabetes and engage them in Diabetes Prevention Programs (DPPs)
- Identifying prediabetes could potentially benefit both Veterans and the VHA
- Limited effects of screening and brief information suggest need for strategies that can help Veterans translate increased motivation into engagement in preventive behaviors

Next steps

- Analysis of data from 20 interviews of Veterans with varying health literacy and health status who were newly found to have prediabetes
- Analyses of 12 month data
 - Primary outcome: weight change (CDW)
 - Secondary outcomes: physical activity, attempting weight loss, MOVE! visits, participation in a DPP, use of metformin, motivation, risk perception, activation, SF-12 scores (surveys and CDW)
 - Mediators and moderators of effects of a prediabetes diagnosis

**Study 2: INcreasing Veteran
ENgagemenT to Prevent Diabetes
(INVENT)**

Objective

- To examine among Veterans with prediabetes the acceptability, feasibility, and preliminary efficacy of 5 messaging strategies grounded in behavioral economics and psychology

Behavioral economics & diabetes prevention

Curr Diab Rep (2017) 17: 73
DOI 10.1007/s11892-017-0894-z



ECONOMICS AND POLICY IN DIABETES (ES HUANG AND AA BAIG, SECTION EDITORS)

A Scoping Review of Behavioral Economic Interventions for Prevention and Treatment of Type 2 Diabetes Mellitus

Jeffrey T. Kullgren^{1,2,3} · Dina Hafez^{1,2,4} · Allison Fedewa⁴ · Michele Heisler^{1,2,3,5}

Abstract

Purpose of Review The purpose of this paper was to review studies of behavioral economic interventions (financial incentives, choice architecture modifications, or commitment devices) to prevent type 2 diabetes mellitus (T2DM) among at-risk patients or improve self-management among patients with T2DM. *Recent Findings* We found 15 studies that used varied study designs and outcomes to test behavioral economic interventions in clinical, workplace, or health plan settings. Of four studies that focused on prevention of T2DM, two found that financial incentives increased weight loss and completion of a

fasting blood glucose test, and two choice architecture modifications had mixed effects in encouraging completion of tests to screen for T2DM. Of 11 studies that focused on improving self-management of T2DM, four of six tests of financial incentives demonstrated increased engagement in recommended care processes or improved biometric measures, and three of five tests of choice architecture modifications found improvements in self-management behaviors.

Summary Though few studies have tested behavioral economic interventions for prevention or treatment of T2DM, those that have suggested such approaches have the potential to improve patient behaviors and such approaches should be tested more broadly.

Study design

- 12 week factorial design pilot experiment
- 144 Veterans with prediabetes (no diabetes diagnosis and recent HgbA1c 5.7 to 6.4%) who are enrolled in VA Secure Messaging
 - Not losing weight and getting ≥ 150 minutes of moderate activity per week
 - No recent participation in a DPP or weight program
 - Not taking metformin
- 5 weekly messaging strategies delivered through VA Secure Messaging
- Primary outcome: self-reported engagement in ≥ 1 strategy to prevent diabetes at 12 weeks

VA Secure Messaging

The screenshot displays the VA Secure Messaging web interface in a browser window. The browser's address bar shows the URL <https://sm.myhealth.va.gov/mhv-sm-web/compose.action>. The page header includes the My HealthVet logo and a user greeting: "Welcome [redacted] Last successful login: Tue Oct 17 2017 @ 06:11 ET". A "Close Secure Messaging" button is visible in the top right.

The main content area is titled "Secure Messaging" and features a "New Message" button. Below this are three action buttons: "Send", "Save as Draft", and "Cancel Message". On the left side, there is a navigation menu with "Inbox (0)", "Drafts [0]", "Sent", "Deleted [0]", and "My Folders" (with an "edit" link and "add new folder" option).

The central form contains the following fields:

- From:** [redacted]
- To:** A dropdown menu is open, showing a list of recipients: [redacted]-PC-KNOXVILLE, ****BHIDYA-PC-KNOXVILLE** (highlighted), CHAPLAINCY-MTN HOME@, DENTAL-MTN HOME@, ELIGIBILITY AND ENROLLMENT TEAM-MTN HOMES, MENTAL HEALTH-KNOXVILLE%, PATIENT ADVOCATE TEAM-MTN HOMES, and PROSTHETICS-FOR ACTIVE PROSTHETICS PATIENTS ONLY@.
- Subject:** CHAPLAINCY-MTN HOME@
- Attach File:** A large empty text area for attaching files.

An "Attention:" warning box on the right states: "Secure Messaging is not an emergency contact system. If you need emergency care, please call 911 or go to your nearest medical center. If you are having a mental health crisis and need to speak with qualified VA counselor please call 1-800-273-8255. This messaging system should be only used for non-urgent, non-critical communication."

The Windows taskbar at the bottom shows the system clock as 6:29 AM on 10/17/2017, along with various application icons.

Standard messages about preventing diabetes

The good news is that there are actions you can take to prevent diabetes:

- Lose at least 7% of your body weight and get at least 30 minutes of moderate physical activity (such as brisk walking or biking) 5 times each week.
- Join a weight loss program like the VA MOVE! program (call 734-769-7100 for information) or a Diabetes Prevention Program (find one at www.tinyurl.com/inventva).
- Ask your VA Primary Care Team whether taking a medication to prevent type 2 diabetes would be right for you.

Strategy 1: urgency framing

The good news is that there are actions you can take *****NOW***** to prevent diabetes:

- Lose at least 7% of your body weight and get at least 30 minutes of moderate physical activity (such as brisk walking or biking) 5 times each week.
- Join a weight loss program like the VA MOVE! program (call 734-769-7100 for information) or a Diabetes Prevention Program (find one at www.tinyurl.com/inventva).
- Ask your VA Primary Care Team whether taking a medication to prevent type 2 diabetes would be right for you.

Strategy 2: social norm framing

The good news is that there are actions you can take to prevent diabetes:

- Lose at least 7% of your body weight and get at least 30 minutes of moderate physical activity (such as brisk walking or biking) 5 times each week.
- Join a weight loss program like the VA MOVE! program (call 734-769-7100 for information) or a Diabetes Prevention Program (find one at www.tinyurl.com/inventva).
- Ask your VA Primary Care Team whether taking a medication to prevent type 2 diabetes would be right for you.

As you consider taking one of these actions to prevent diabetes, think about a person whose opinion really matters to you and what action they would want you to take.

Strategy 3: tailoring to aspirations

The good news is that there are actions you can take to prevent diabetes:

- Lose at least 7% of your body weight and get at least 30 minutes of moderate physical activity (such as brisk walking or biking) 5 times each week.
- Join a weight loss program like the VA MOVE! program (call 734-769-7100 for information) or a Diabetes Prevention Program (find one at www.tinyurl.com/inventva).
- Ask your VA Primary Care Team whether taking a medication to prevent type 2 diabetes would be right for you.

From the survey you took at the beginning of this program, we learned that good personal relationships, feeling healthy, and personal growth are important to you. In order to stay motivated to prevent diabetes, it can help to think about how taking action to prevent diabetes could help you achieve these and other life goals that are important to you.

How could taking at least one of these actions to prevent diabetes help you achieve good relationships, feeling healthy, personal growth, or something else important to you?

Please take a moment to think about these questions. Then hit REPLY, type your answers, and hit SEND.

Strategy 4: preference checklists

The good news is that there are actions you can take to prevent diabetes:

- Lose at least 7% of your body weight and get at least 30 minutes of moderate physical activity (such as brisk walking or biking) 5 times each week.
- Join a weight loss program like the VA MOVE! program (call 734-769-7100 for information) or a Diabetes Prevention Program (find one at www.tinyurl.com/inventva).
- Ask your VA Primary Care Team whether taking a medication to prevent type 2 diabetes would be right for you.

Here are things some Veterans consider when deciding to take actions to prevent diabetes:

1. I want to do everything I can to avoid getting diabetes.
2. My family would want me to take action to prevent diabetes.
3. Avoiding getting diabetes would leave more health care for other Veterans.
4. Preventing diabetes isn't important because if I get diabetes I can just take medicine.
5. Diabetes isn't really all that bad -- I'll just take my chances.
6. I have a lot of other health problems -- preventing diabetes isn't a priority for me right now.

Think about which of these things you would consider in your decision. Then hit REPLY, type the numbers of the things you would consider, and hit SEND.

Strategy 5: implementation intentions

The good news is that there are actions you can take to prevent diabetes:

- Lose at least 7% of your body weight and get at least 30 minutes of moderate physical activity (such as brisk walking or biking) 5 times each week.
- Join a weight loss program like the VA MOVE! program (call 734-769-7100 for information) or a Diabetes Prevention Program (find one at www.tinyurl.com/inventva)
- Ask your VA Primary Care Team whether taking a medication to prevent type 2 diabetes would be right for you.

One helpful way to prevent diabetes is to commit yourself to taking action. From the list above, pick at least one action to take. Then think about when, where, with whom, and in what situation you will take this action. Then hit REPLY, type what you will do, and hit SEND.

Poll question #3

- Which messaging strategy do you think will be most effective?
 - Urgency framing
 - Social norm framing
 - Tailoring to aspirations
 - Preference checklists
 - Implementation intentions

Early insights

- Recruiting Veterans remotely using CDW data is highly feasible
 - 30% of eligible Veterans recruited after a letter and phone call
- High levels of engagement with Secure Messages
 - 82% of all messages read across arms
 - 53% response to “interactive” messages

Next steps

- Finish recruitment this month
- Complete 12-week follow-up in December
- Semi-structured telephone interviews with Veterans from different arms with different levels of engagement with messages

Future directions

- VHA: leverage behavioral science insights and health technologies to promote sustained Veteran engagement in diabetes prevention
 - Patient portals
 - Mobile technologies
- Workplace: translational behavioral research to increase engagement of employees with prediabetes in evidence-based preventive strategies
 - Behavioral economics
 - Self-determination theory

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Thank you!

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