

# *How the U.S. Government Can Use Behavioral Insights to Improve Patient and Provider Use of Health IT: A portfolio of results from the Office of Evaluation Sciences*

*Elana Safran*

*Office of Evaluation Sciences in the U.S. General Services Administration*

**CU-Anschutz**

*November 7, 2019*



Office of Evaluation Sciences

# Table of Contents

OES Overview & Project Criteria	10 min
Project 1: Increasing patient use of health IT	5 min
Project 2: Increasing use of patient generated health data	12 min
Portfolio takeaways & Next steps	

# Office of Evaluation Sciences overview

# What is the Office of Evaluation Sciences (OES)?

OES translates evidence-based insights into recommendations for how to improve government and tests what works

# What is the Office of Evaluation Sciences (OES)?

OES translates evidence-based insights into recommendations for how to improve government and tests what works

Achieved **\$8M+** in  
**cost savings** and  
revenue in less than 15  
months



# What is the Office of Evaluation Sciences (OES)?

OES translates evidence-based insights into recommendations for how to improve government and tests what works

Achieved **\$8M+** in  
**cost savings** and  
revenue in less than 15  
months



Enrolled more than  
**20,000** active duty  
servicemembers into  
retirement savings plans



# What is the Office of Evaluation Sciences (OES)?

OES translates evidence-based insights into recommendations for how to improve government and tests what works

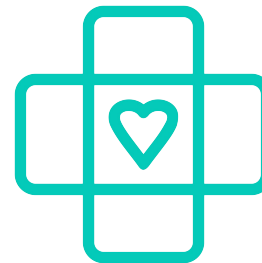
Achieved **\$8M+** in  
**cost savings** and  
revenue in less than 15  
months



Enrolled more than  
**20,000** active duty  
servicemembers into  
retirement savings plans



Informed more than  
**half a million**  
**Americans** about  
the benefits of getting  
vaccinated



# What is the Office of Evaluation Sciences (OES)?

OES translates evidence-based insights into recommendations for how to improve government and tests what works

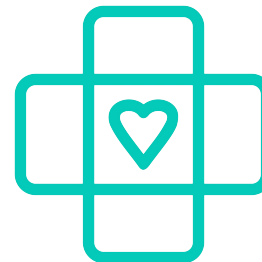
Achieved **\$8M+** in **cost savings** and revenue in less than 15 months



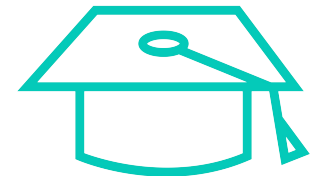
Enrolled more than **20,000** active duty servicemembers into retirement savings plans



Informed more than **half a million Americans** about the benefits of getting vaccinated



Showed text message reminders could increase college enrollment **by 6%**





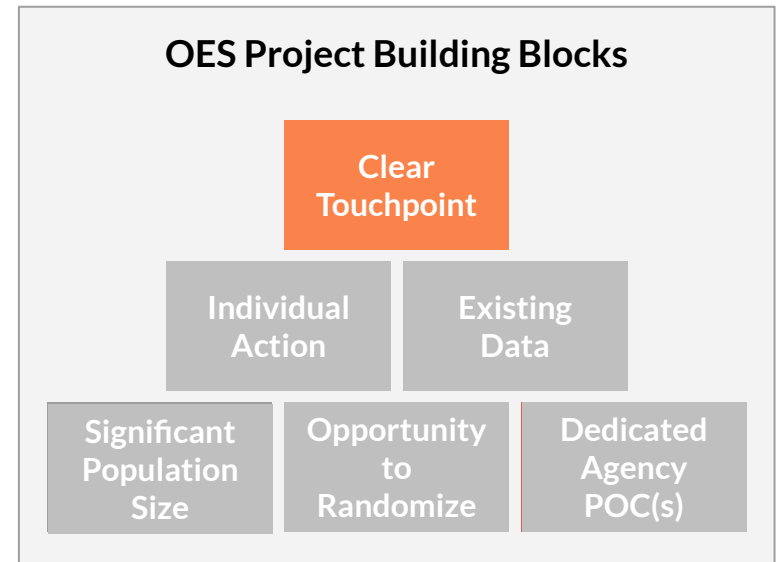
# OES Project Criteria

What makes a project or challenge a good fit for OES?

# OES Project Criteria

## What makes a project or challenge a good fit for OES?

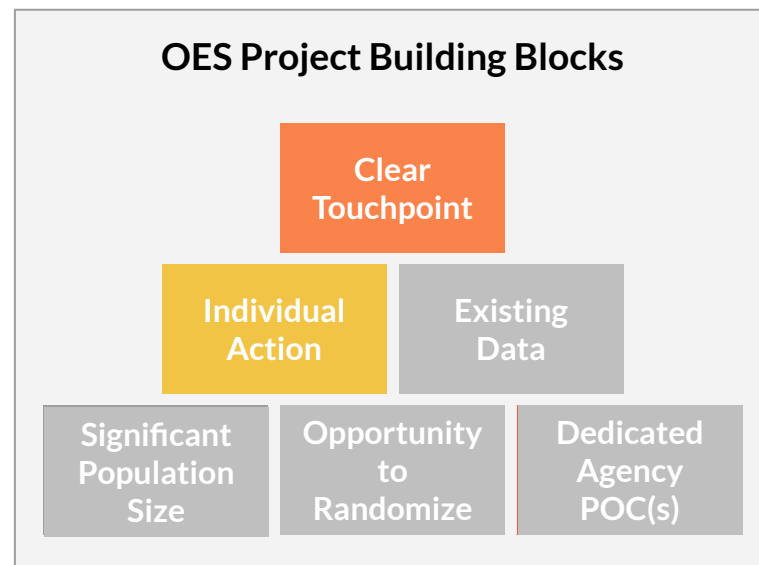
- A **clear touchpoint** between the Federal agency program and an individual



# OES Project Criteria

## What makes a project or challenge a good fit for OES?

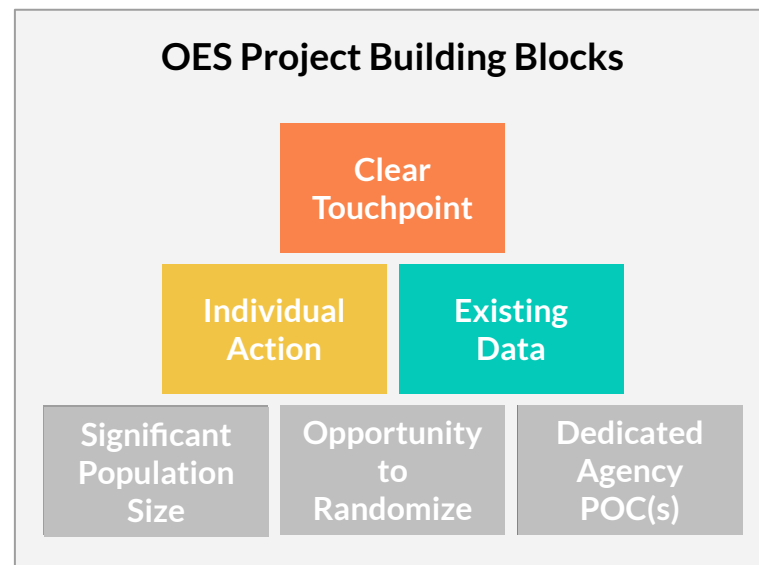
- A **clear touchpoint** between the Federal agency program and an individual
- An outcome of interest **depends in part on people's actions**



# OES Project Criteria

## What makes a project or challenge a good fit for OES?

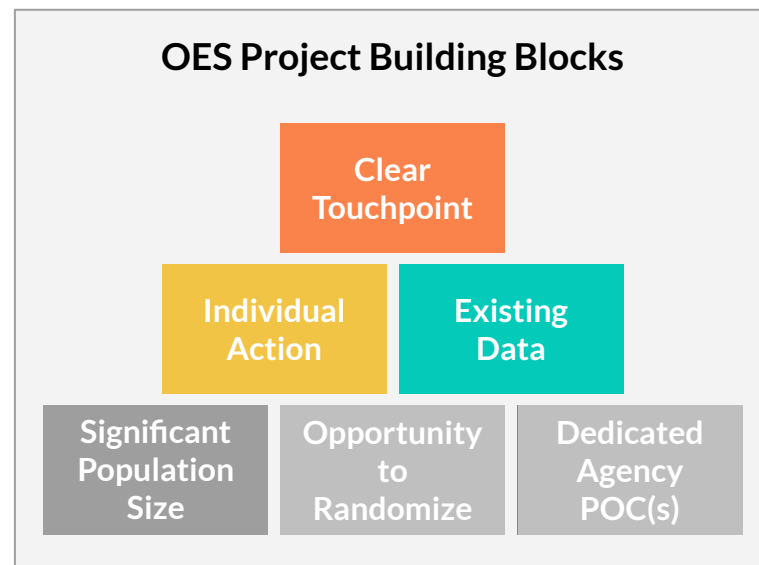
- A **clear touchpoint** between the Federal agency program and an individual
- An outcome of interest **depends in part on people's actions**
- An outcome of interest that is reflected in **data that is currently collected** (or could be easily collected) by the Federal agency



# OES Project Criteria

## What makes a project or challenge a good fit for OES?

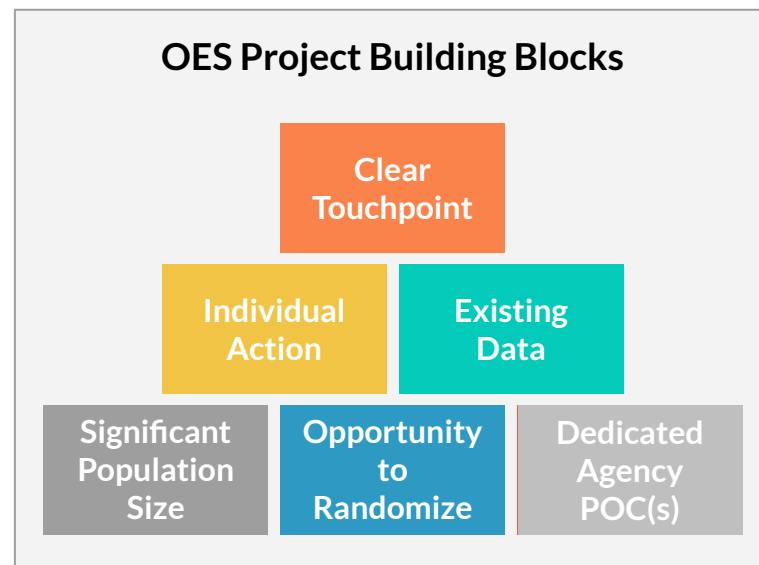
- A **clear touchpoint** between the Federal agency program and an individual
- An outcome of interest **depends in part on people's actions**
- An outcome of interest that is reflected in **data that is currently collected** (or could be easily collected) by the Federal agency
- A program **population size** that is large enough to be statistically and policy relevant



# OES Project Criteria

## What makes a project or challenge a good fit for OES?

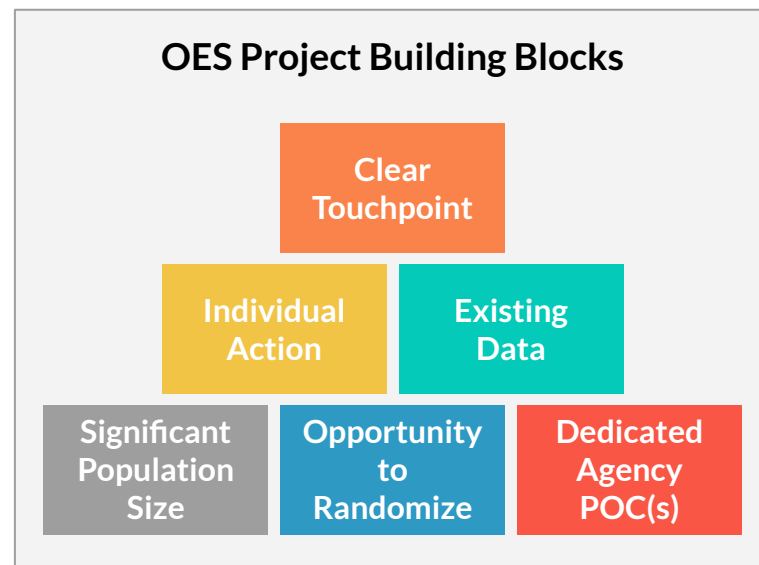
- A **clear touchpoint** between the Federal agency program and an individual
- An outcome of interest **depends in part on people's actions**
- An outcome of interest that is reflected in **data that is currently collected** (or could be easily collected) by the Federal agency
- A program **population size** that is large enough to be statistically and policy relevant
- The ability to assign groups of people to **different versions of an intervention** to compare outcomes and learn what works



# OES Project Criteria

## What makes a project or challenge a good fit for OES?

- A **clear touchpoint** between the Federal agency program and an individual
- An outcome of interest **depends in part on people's actions**
- An outcome of interest that is reflected in **data that is currently collected** (or could be easily collected) by the Federal agency
- A program **population size** that is large enough to be statistically and policy relevant
- The ability to assign groups of people to **different versions of an intervention** to compare outcomes and learn what works
- An **agency collaborator** willing to work alongside OES and to share results across government



# OES Portfolio

OES has completed 70+ evaluations across the federal government



Department of Agriculture



Department of Defense



Department of Education



Department of Energy



Department of Health & Human Services



Department of Housing & Urban Development



Department of Justice



Department of Labor



Department of the Treasury



Department of Veterans Affairs



General Services Administration



Social Security Administration

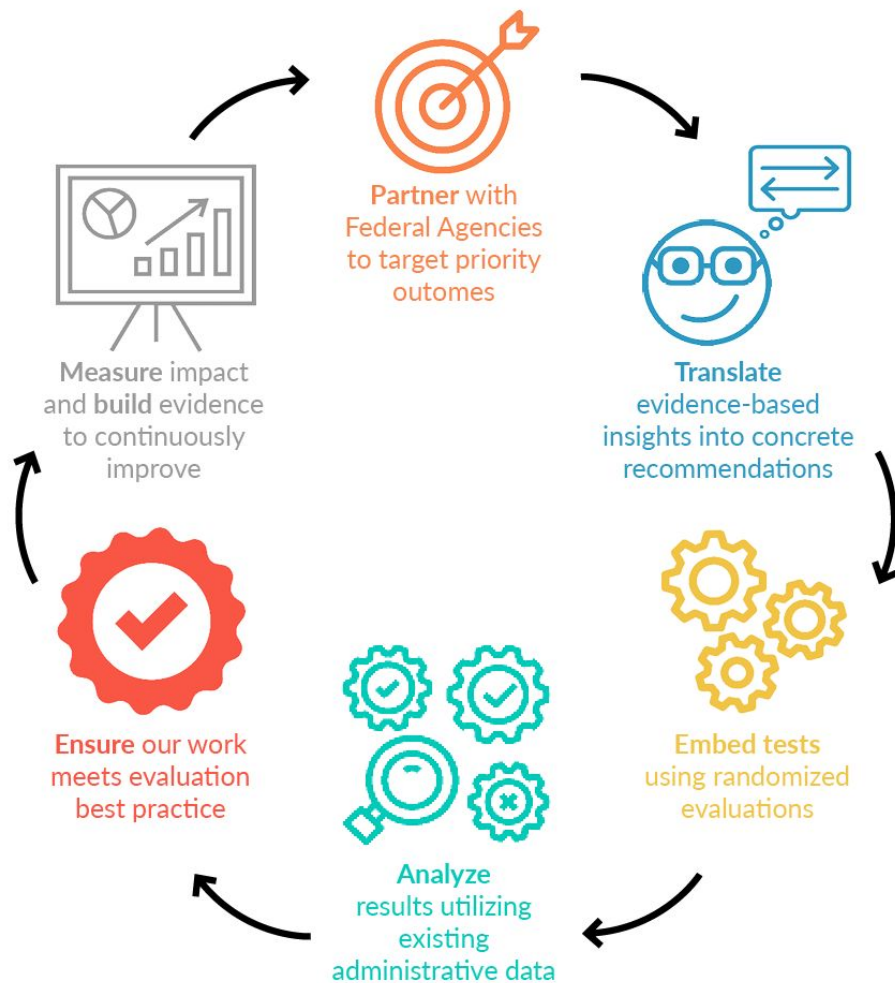


United States Agency for International Development



# What does OES do?

Team members work across government to provide end-to-end support in the design of an evidence-based program change and test to measure impact.



**OES Example:**

Increasing patient use of  
health IT (2016)

# Increasing Patient Use of Health IT

*A collaboration between OES and Health and Human Services (HHS)*

## What was the challenge?

The use of electronic health records (EHRs) has potential to yield benefits for both patients and healthcare providers, and the Centers for Medicare and Medicaid Services (CMS) oversees Medicare and Medicaid EHR Incentive Programs to **provide incentives for providers to adopt and demonstrate “meaningful use” of EHRs.**

## What was the program change?


Patients receive a paper After Visit Summary (AVS) following visits to local health system providers that contains medical details of the visit and instructions to activate their online patient portal account to access EHRs.

OES redesigned the AVS' last page to **make EHR benefits salient, highlight clear steps, and encourage action.**

Simplify your life: Sign in to Your MyChart Account Today!

MyChart – Take control of your medical records  
MyChart allows you immediate, secure and confidential access to your medical records. You can even access your lab results and images (x-rays, MRIs, etc.) at any time.

Sign in using three easy steps: We've started for you!



1. Log on to [inova.org/mychart](http://inova.org/mychart)
2. Click on [Activate Your Account](#) to access the new member sign up page
3. Enter your unique MyChart Access Code exactly as it appears below to complete the sign-up process.

**MyChart Access Code: SQ32B-JWTG9-T6JZE**  
Expires: 6/29/2015 4:49 PM (If your code has expired, please contact us to receive a new one)

Remember, MyChart is **NOT** to be used for urgent needs.  
For medical emergencies, dial 911.

Questions  
If you have questions please refer to the FAQs located on the MyChart home page. You can also email [customer.service@inova.org](mailto:customer.service@inova.org) or call 1-855-MY-INOVA (1-855-694-6682) to talk to our MyChart staff.

Proxy access for children 0-12 years old  
Proxy access allows approved persons to access the medical record of children 0-12 years of age. To obtain proxy access, please speak to a Hospital staff member for specific legal requirements.

# Increasing Patient Use of Health IT

*A collaboration between OES and Health and Human Services (HHS)*

## How did the evaluation work?

The local health System implemented the redesigned AVS for all primary care clinics within the local health care system, while non-primary care providers and affiliates continued to use the original AVS.

## What was the impact?

Initial analysis and estimates suggest that the revised AVS instructions lead to a **9.98% increase in the probability that patients would activate their online portal account** upon receiving their AVS.

**Project results:**  
Increasing use of patient  
generated health data (2019)

# Diabetes and Patient-Generated Health Data (PGHD)

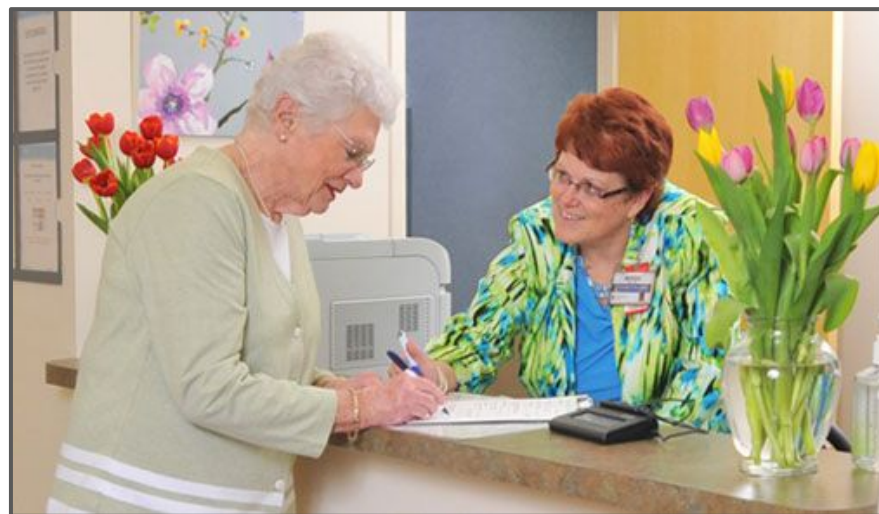
- ★ **ONC's Federal Health IT Strategic Plan 2015-2020** identifies PGHD as an important area for advancing person-centered and self-managed health
- ★ Self monitoring blood glucose can help improve health of people with diabetes<sup>1</sup>

## Inova Health System:

- 20 primary care practices in the DC metro area
- 7,052 patients with diabetes with active MyChart accounts

## MyChart Features:

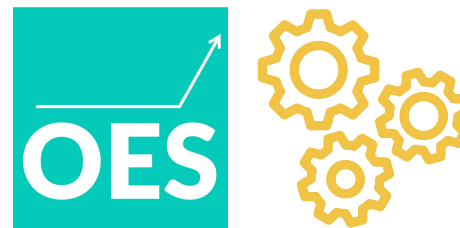
- Blood glucose tracking is available but not used
- Allows providers to access information in real time
- Possible to track automatically with iOS/compatible glucometer



<sup>1</sup> Kirk JK, Stegner J. Self-Monitoring of Blood Glucose: Practical Aspects. Journal of Diabetes Science and Technology. 2010;4(2):435-439.

# Research Questions

- 1) Provider encouragement: Does **encouraging physicians to send bulk online orders** of blood glucose flowsheets increase patient adoption?
- 2) Patient reminders: Does **additional reminder messaging** to patients increase adoption (i.e., submission of at least one flowsheet) relative to no reminder messaging?
- 3) Does promotion of PGHD result in:
  - a) Increases in **doctor-patient interaction**?
  - b) Changes to **patient treatment**?
  - c) Reduction in **A1c levels**?



Root, Allyson B. (2018). Blood Glucose Monitoring in Electronic Health Records. Identification No. NCT03542487. Retrieved from: <https://clinicaltrials.gov/ct2/show/NCT03542487>.

# Summary of the Sample Population

	<b>Control Mean (26 weeks post-int.)</b>
<b>Demographics (N = 3,641)</b>	
Age	58.9 years
Male	54%
<b>Flowsheet measures</b>	
Receive a flowsheet order	0.1%
Flowsheet use	0.1%
<b>Health measures</b>	
Change in active medications	20.4%
Prescriptions ordered	5.8
Diabetes prescriptions ordered	0.8
A1c test ordered	46.4%
A1c level	7.20



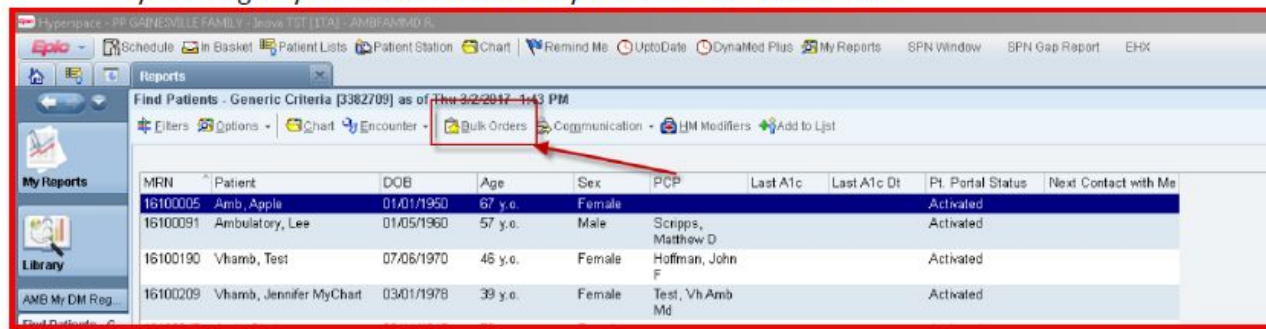
# Intervention Design: Provider Encouragement

- 20 primary care practices with 68 providers and 7,052 patients
- 10 practices (34 providers and 3,411 patients) randomly assigned to **Provider Encouragement** intervention:
  - Invited to attend a virtual training
  - Offered in-person support
  - Given a template for reaching out to patients

## Instructions for Placing the Order

The Bulk Orders feature in Reporting Workbench provides an easy way for clinicians to place recommended orders quickly and create Bulk Communications to be sent to patients when those orders are placed. The process for placing a bulk order is outlined below:

1. The physician will select “My Reports”, search the Library tab and select the report titled “AMB My DM Registry Patients without a MyChart Glucose Flowsheet”.



The screenshot shows the Epic Reporting Workbench interface. The top navigation bar includes buttons for Schedule, In Basket, Patient Lists, Patient Station, Chart, Remind Me, UptoDate, DynaMed Plus, My Reports, SPN Window, SPN Gap Report, and EHX. The 'My Reports' section is active, showing a search for 'Find Patients - Generic Criteria [3382709] as of Thu 3/22/2017 1:43 PM'. Below the search bar, there are buttons for Filters, Options, Chart, Encounter, Bulk Orders, Communication, and HM Modifiers. A table of patient data is displayed below, with columns for MRN, Patient, DOB, Age, Sex, PCP, Last A1c, Last A1c Dt, Pt. Portal Status, and Next Contact with Me. The 'Bulk Orders' button is highlighted with a red box, and a red arrow points to it from the text above.

MRN	Patient	DOB	Age	Sex	PCP	Last A1c	Last A1c Dt	Pt. Portal Status	Next Contact with Me
16100005	Amb, Apple	01/01/1950	67 y.o.	Female				Activated	
16100091	Ambulatory, Lee	01/05/1960	57 y.o.	Male	Scrapps, Matthew D			Activated	
16100190	Vhamb, Test	07/06/1970	46 y.o.	Female	Hoffman, John F			Activated	
16100209	Vhamb, Jennifer MyChart	03/01/1978	39 y.o.	Female	Test, Vh Amb Md			Activated	

# Intervention Design: Patient Reminders

- 2,182 patients whose providers placed orders for flow sheets
- Assigned to 1 of 4 **Patient Reminders** groups based on first letter of last name
- Sent via secure message in the patient portal

## (1) Basic Reminder:

*Don't forget to track your blood glucose through MyChart! Keeping track of your blood glucose can help you manage your diabetes and reduce your chances for developing complications like heart disease, kidney damage, and eye damage.*

*Sincerely, Inova Medical Group*

## (2) Physician Accountability:

*... Viewing your results helps me to respond if they are out of range, and improve your diabetes treatment to help you stay healthy. We will talk about your results at your next office visit....*

*Sincerely, [Your Practitioner]*

## (3) Gift Card:

*... You have been chosen for a special program to help you get started tracking your blood glucose through MyChart. For each day that you track your blood glucose on MyChart through August 2018, **you will be entered to receive one of fifty \$50 gift cards** to Amazon.com. You'll be sent a secure message through MyChart in September 2018 if you've been selected to receive a gift card...*

## (4) No Reminder

# Project Timeline

	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018
<b>Baseline data</b>	Baseline data collected (14 weeks prior to start)									
<b>Intervention - Provider Encouragement</b>	Rand. conducted at the practice level				Int. starts: practice orientation meetings					
<b>Intervention - Patient Reminders</b>					Intervention starts: Reminder messages sent every two weeks (for 12 weeks)					
<b>Outcome data</b>					First period of outcomes (1-14 weeks)			Second period of outcomes (15-26 weeks)		

## Results – Research Question 1

**Does encouraging physicians to send bulk online orders of blood glucose flowsheets increase patient adoption?**

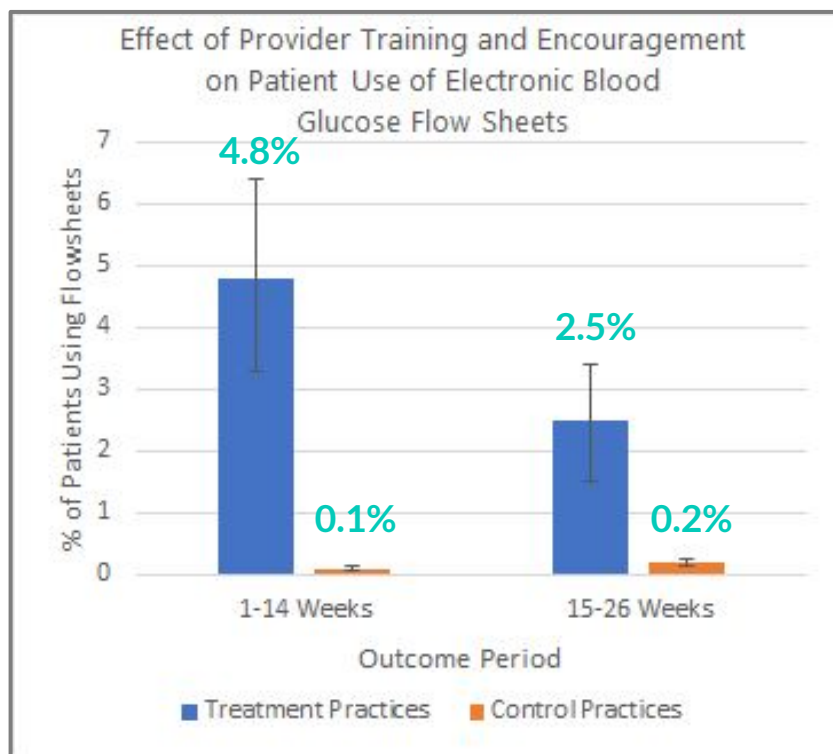
# Results – Research Question 1

**Does encouraging physicians to send bulk online orders of blood glucose flowsheets increase patient adoption?**

- ★ **More likely to receive an order for electronic flow sheets (63.7% vs. 0.1%)**

# Results – Research Question 1

Does encouraging physicians to send bulk online orders of blood glucose flowsheets increase patient adoption?



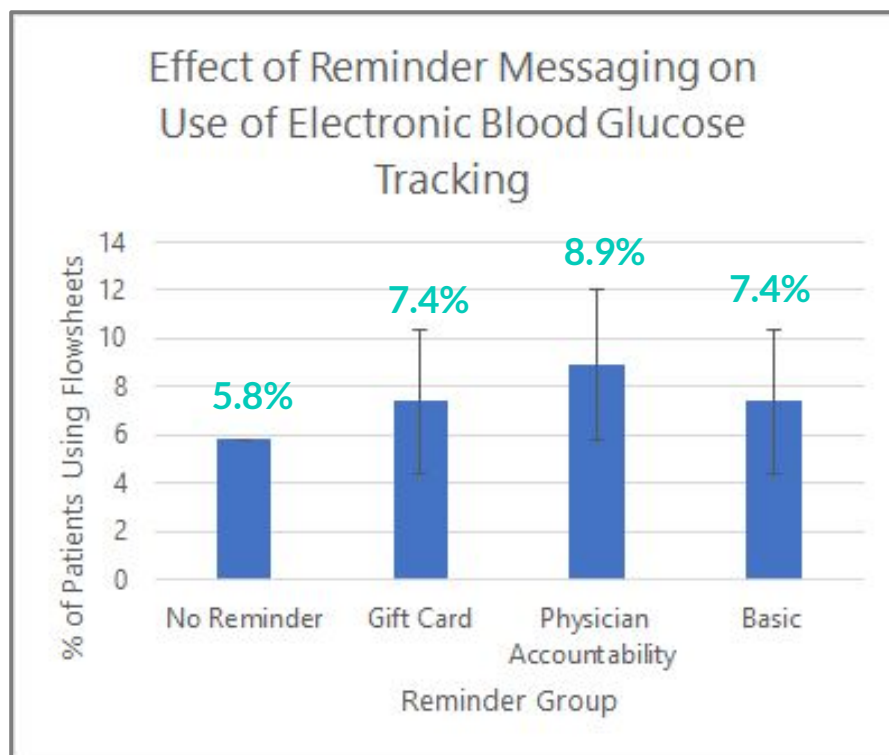
- ★ More likely to receive an order for electronic flow sheets (63.7% vs. 0.1%)
- ★ More likely to use the flow sheet (see graphic)

## Results – Research Question 2

Does **additional reminder messaging** to patients increase adoption (i.e., submission of at least one flowsheet) relative to no reminder messaging?

## Results – Research Question 2

Does **additional reminder messaging** to patients increase adoption (i.e., submission of at least one flowsheet) relative to no reminder messaging?



- ★ Patients sent the **Physician Accountability** reminder were more likely to use flow sheets
- ★ Patients sent the **Gift Card** or **Basic** reminders did not have significantly different flow sheet use rates



## Results – Research Question 3

Does promotion of PGHD result in:

- a) Increases in **doctor-patient interaction**?
- b) Changes to **patient treatment**?
- c) Reduction in **A1c levels**?

## Results – Research Question 3

Does promotion of PGHD result in:

- a) Increases in **doctor-patient interaction?**
  - b) Changes to **patient treatment?**
  - c) Reduction in **A1c levels?**
- ★ Provider encouragement: Patients at treatment practices were **less likely to see a change to active medications**

## Results – Research Question 3

Does promotion of PGHD result in:

- a) Increases in **doctor-patient interaction?**
  - b) Changes to **patient treatment?**
  - c) Reduction in **A1c levels?**
- 
- ★ Provider encouragement: Patients at treatment practices were **less likely to see a change to active medications**
  
  - ★ Patient Reminders: Patients sent the Physician Accountability reminder:
    - **fewer prescriptions ordered overall**
    - **fewer diabetes-related prescriptions ordered**
    - **less likely to receive an A1c test**
    - **no change in A1c levels**

# Summary of Key Results

	Mean (26 weeks post-int.)	Provider Encouragement	Patient Reminders – Physician Accountability
<b>Flowsheet measures</b>			
Receive a flowsheet order	0.1%	✓	
Flowsheet use	0.1%	✓	✓
<b>Health measures</b>			
Change in active medications	20.4%	✓	
Prescriptions ordered	5.8		✓
Diabetes prescriptions ordered	0.8		✓
A1c test ordered	46.4%		✓
A1c level	7.20	□	□

**What's next?**

# Portfolio takeaways

- Learned how promising and low-cost interventions can be tested rapidly with private and federal partners, building to a portfolio of evidence
  - Potential to generate additional evidence as in line with ONC priorities
- Providers can play a meaningful role in encouraging patient uptake of health IT (secure messaging, PGHD)
- Provider-focused messages seem to be more effective than generic messages
- Potential for cost savings:
  - The intervention resulted in an estimated 17% reduction in formal lab A1c tests – average cost is about \$27 per outpatient test at Inova
- Role of behavioral science in health IT – and to generate additional evidence as in line with ONC priorities

# Learn more!

- [Increasing Patient Use of Health IT](#): Revising patient instructions following appointments led to 9.98% increase in online health portal activation.
- [Increasing Use of Patient Generated Health Data through Provider Encouragement](#): A virtual provider training and encouragement increased use of electronic blood glucose flow sheets
- [Increasing Use of Patient Generated Health Data through Patient Reminders](#): Sending reminder messages focused on provider accountability increased patients' use of electronic blood glucose flow sheets
- Working Paper: “Electronic Blood Glucose Monitoring: Impacts on Physician and Patient Behavior.” Authors: Allyson Root, Season Majors, Christopher Connolly, Hassan Ahmed, Mary Ann Friesen

Elana Safran — [elana.safran@gsa.gov](mailto:elana.safran@gsa.gov)

Allyson Root — [allysonb.root@gmail.com](mailto:allysonb.root@gmail.com)

[\*\*https://oes.gsa.gov\*\*](https://oes.gsa.gov)

# Join our team! Two Fellowship opportunities based in Washington D.C.

- **Annual Fellowship:** Team members work alongside agency collaborators to apply behavioral insights, make concrete recommendations on how to improve government, and evaluate impact using administrative data. One year fellowships begin in Fall 2020. **The application deadline is December 15, 2019.**
- **Evidence Fellowship:** OES is uniquely situated at the center of government to share leading practices, develop resources and build skills in the Federal workforce on evidence and evaluation. Six-month details beginning in January 2020 are *open to Federal employees only*. Applications are reviewed on a rolling basis; **the final application deadline is November 20, 2019.**

**Apply today! <https://oes.gsa.gov/contact/>**



# Thank you!

- **Project and agency collaborators, including:**
  - The Office of the National Coordinator for Health Information Technology (ONC)
  - Inova Health System
- **Academic affiliates**
  - University of California, Berkeley
- **Funding for Allyson's dissertation**
  - Abdul Latif Jameel Poverty Action Lab (J-PAL)
- **OES team members (including research support squad and project leads)**