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

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

CU-Anschutz
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<td>Project 2: Increasing use of patient generated health data</td>
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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.
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- 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
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- 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?
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- 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
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What makes a project or challenge a good fit for OES?

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

[Diagram showing OES Project Building Blocks: Clear Touchpoint, Individual Action, Existing Data, Significant Population Size, Opportunity to Randomize, Dedicated Agency POC(s)]
OES Project Criteria

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- 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 Project Building Blocks

- Clear Touchpoint
- Individual Action
- Existing Data
- Significant Population Size
- Opportunity to Randomize
- Dedicated Agency POC(s)
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.
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

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

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?

## Summary of the Sample Population

<table>
<thead>
<tr>
<th>Demographics (N = 3,641)</th>
<th>Control Mean (26 weeks post-int.)</th>
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<tbody>
<tr>
<td>Age</td>
<td>58.9 years</td>
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<tr>
<td>Male</td>
<td>54%</td>
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**Flowsheet measures**

<table>
<thead>
<tr>
<th>Receive a flowsheet order</th>
<th>0.1%</th>
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<tr>
<td>Flowsheet use</td>
<td>0.1%</td>
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**Health measures**

<table>
<thead>
<tr>
<th>Change in active medications</th>
<th>20.4%</th>
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<tbody>
<tr>
<td>Prescriptions ordered</td>
<td>5.8</td>
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<tr>
<td>Diabetes prescriptions ordered</td>
<td>0.8</td>
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<tr>
<td>A1c test ordered</td>
<td>46.4%</td>
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<tr>
<td>A1c level</td>
<td>7.20</td>
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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
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

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<td><strong>Baseline data</strong></td>
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<td><strong>Intervention - Provider Encouragement</strong></td>
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<td><strong>Intervention - Patient Reminders</strong></td>
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<td><strong>Int. starts: practice orientation meetings</strong></td>
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<td><strong>Intervention starts: Reminder messages sent every two weeks (for 12 weeks)</strong></td>
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<td><strong>Outcome data</strong></td>
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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*?
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★ 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

<table>
<thead>
<tr>
<th></th>
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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.


Elana Safran — elana.safran@gsa.gov
Allyson Root — allysonb.root@gmail.com

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)**