

# Randomized controlled evaluation of an Intensive Management Patient Aligned Care Team for high-need, high-cost Veterans Affairs patients



HERC Cyberseminar  
April 15, 2015

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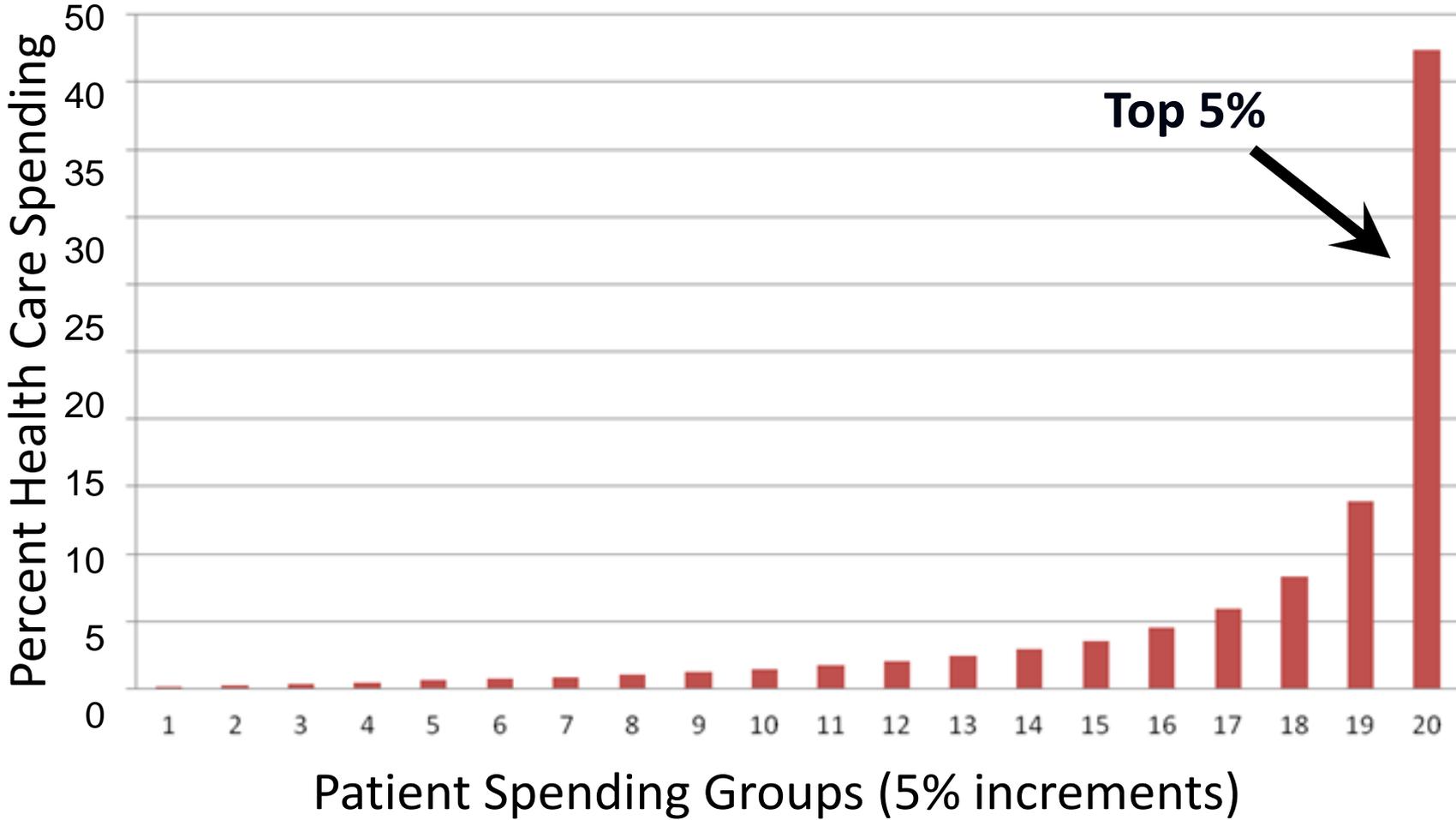
# Poll

What is your primary reason for joining today's discussion?

- A. I would like to develop a clinical program for high-risk VA patients
- B. I am interested in studying interventions for high-risk VA patients
- C. I am in a leadership position and I want to learn about effective interventions for high-risk VA patients
- D. I just find the topic interesting



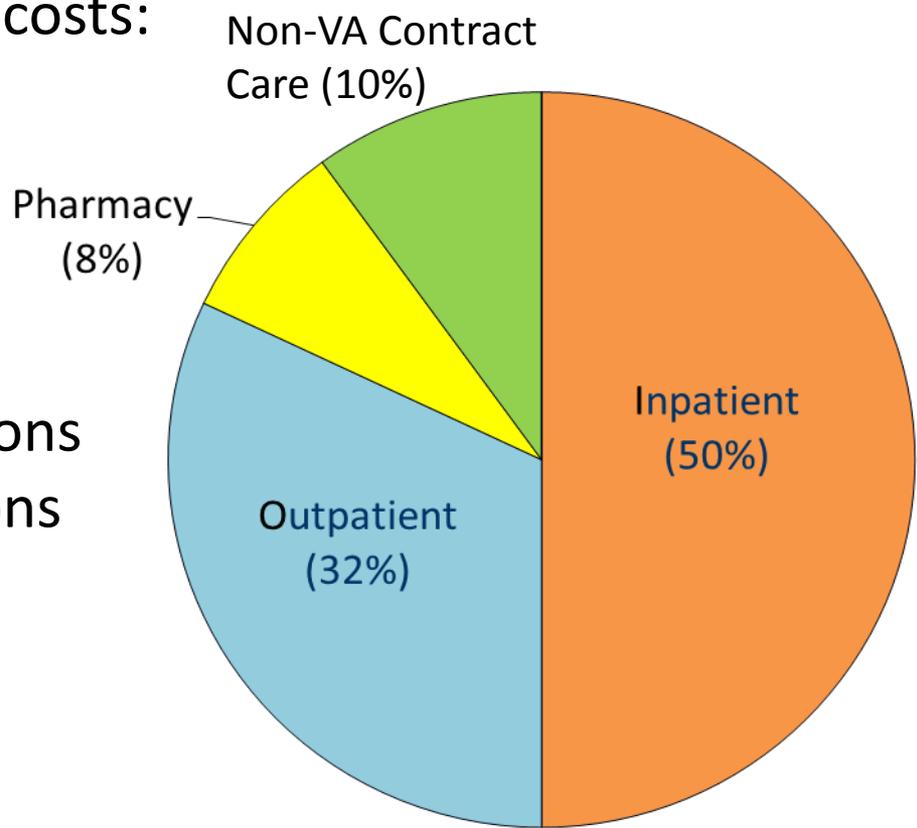
# VA Health Care Cost Distribution, FY 2010





# VA's Top 5% (N = 261,699), FY 2010

- Total Cost, mean (SD) = \$73K (\$64K); median = \$53K
- Aggregate distribution of costs:



- 50% had 1-2 hospitalizations
- 16% had 3+ hospitalizations
- 37% have 1-2 ER visits
- 29% have 3+ ER visits



# VA's Top 5%: Characteristics

	<b>Top 5%</b> (n = 261,700) %	<b>Remaining 95%</b> (n = 4,972,294) %
<b>Age</b>		
<45	7	14
45-64	52	41
65+	41	45
<b>Male</b>	95	93
<b>Insurance</b>		
None	46	41
Major medical, HMO, PPO, Champus, Indemnity	8	18
Medicare/Medicare suppl	44	39
Other	2	2
<b>Died in FY2010</b>	11	2
<b>Homeless</b>	14	2
<b>Married</b>	43	58



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# VA's Top 5%: Chronic Conditions

	<b>Top 5%</b> (n = 261,700)	<b>Remaining 95%</b> (n = 4,972,294)
	%	%
<b>Hypertension</b>	65	35
<b>Diabetes</b>	34	18
<b>Ischemic Heart Disease</b>	28	8
<b>Cancer</b>	25	5
<b>Low Back Pain</b>	21	10
<b>Arthritis</b>	19	8
<b>COPD</b>	14	4
<b>Chronic Renal Failure</b>	14	2
<b>Heart Failure</b>	10	1
<b>Mental Health Conditions</b>		
<b>Any Mental Health Condition</b>	47	18
<b>Depression</b>	22	10
<b>PTSD</b>	13	6
<b>Alcohol Dep/Abuse</b>	12	3
<b>Drug Dep/Abuse</b>	10	2
<b>Schizophrenia</b>	5	1



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# VA's Top 5%: Multimorbidity

	<b>Top 5%</b> (n = 261,700) %	<b>Remaining 95%</b> (n = 4,972,294) %
<b>Multiple Chronic Conditions</b>		
≥ 3 conditions	76	26
≥ 5 conditions	42	7
<b>Multi-System Multimorbidity</b>		
≥ 3 systems affected	65	19
≥ 5 systems affected	19	2



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# Characteristics of VA High-Utilizers

- Frequent hospitalizations and ER visits
- High volume outpatient primary and specialty care
- High rates of multimorbidity (76% have 3+ conditions)
- Mental health conditions (47%)
- High rates of homelessness (14%)
- Insufficient social support

How do we build on existing VA primary care to meet the needs of highly complex patients?



# Poll

Are you familiar with the structure of PACT teams?

- A. Yes
- B. No



## Other Team Members

Clinical Pharmacy  
Social Work  
Nutrition  
Case Managers  
Behavioral Health

## Other Services

Clinical Pharmacy  
Social Work  
Nutrition  
Case Managers  
Integrated Behavioral Health

## Teamlet (1 team per ~ 1200 patients)

Provider (MD or NP)  
Care Manager (RN)  
Clinical Assoc (LPN, MA)  
Clerk

## Patient

and  
caregivers



**VA**  
**HEALTH  
CARE**

Defining  
**EXCELLENCE**  
in the 21st Century



How do we build on existing VA primary care to meet the needs of highly complex patients?



***Intensive management* PACT**



# Intensive Primary Care

**THE NEW YORKER**  
MEDICAL REPORT  
**THE HOT SPOTTERS**



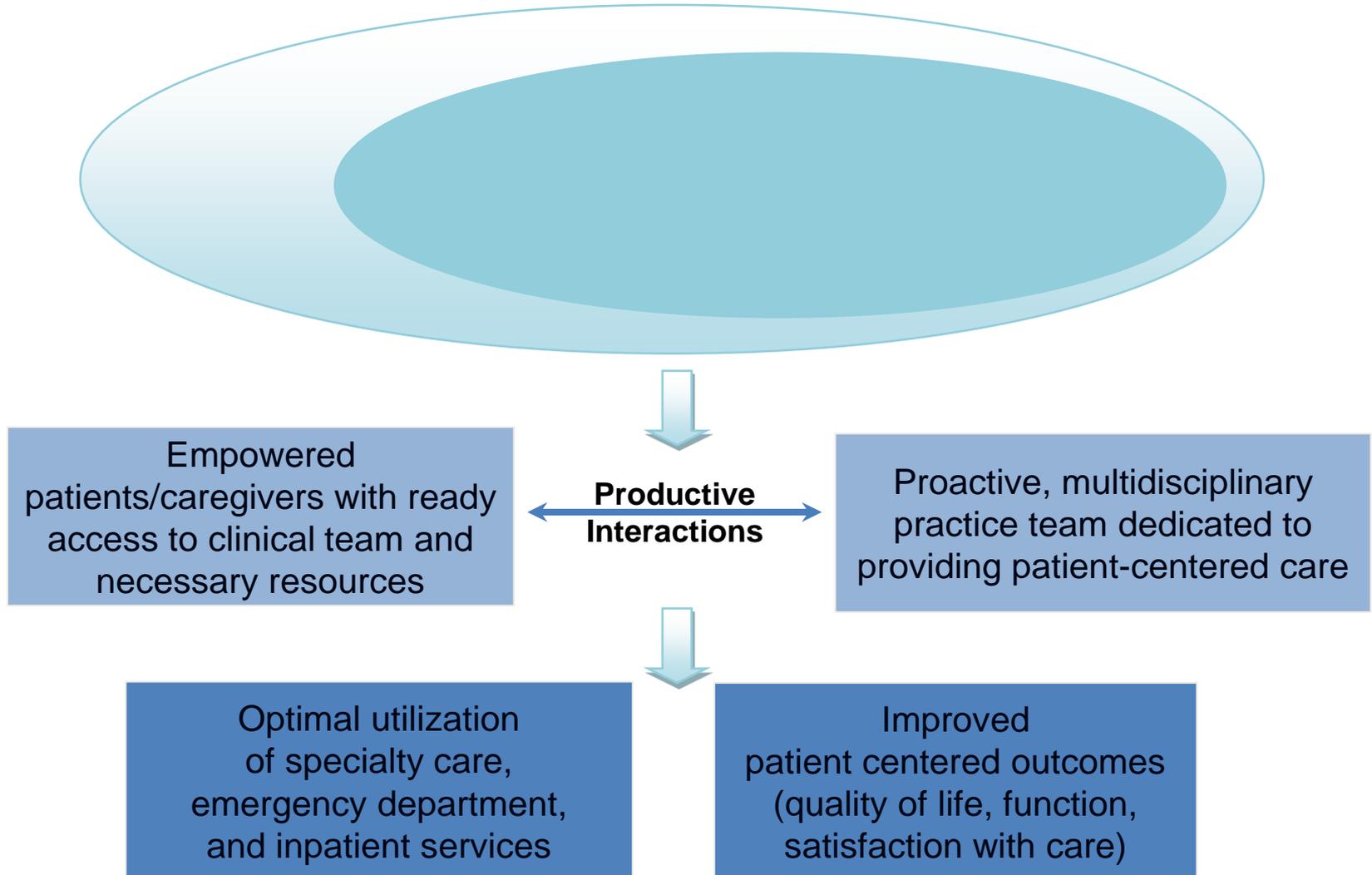
- Exceptional, individualized care
- Frequent in-person contact
- Intensive disease management
- Support during transition from hospital to home
- Access to key community resources

# Intensive Primary Care





# Framework for ImPACT





# What challenges do VA's top 5% face?

*“For someone who has many conditions, and a condition that could kill me at any time, I should be monitored all the time.”*

*“I never know when I am going to have to go to the ER.”*

*“I can't finish programs and I don't know why.”*

*“I wish someone would help me navigate the system. I don't know what resources or programs are available to me.”*

## **Other Themes**

- Continuity/Communication Challenges: Lack of provider continuity, lots of specialists, difficulties coordinating multiple providers
- Need for Social Support and Social Services
- Need for After-Hours Contact/Access (unstable health conditions, anxiety, isolation)

## Core Elements of ImPACT

- Multidisciplinary Team: NP, MD, SW, Recreation Therapist, Clinical Coordinator
- Comprehensive intake; goal-concordant care
- Frequent in-person/phone contact
- After-hours access
- Chronic condition case management
- Coordination of primary and specialty care
- Rapid response to health status deterioration
- Support during transitions from hospital to home
- Access to social and community resources

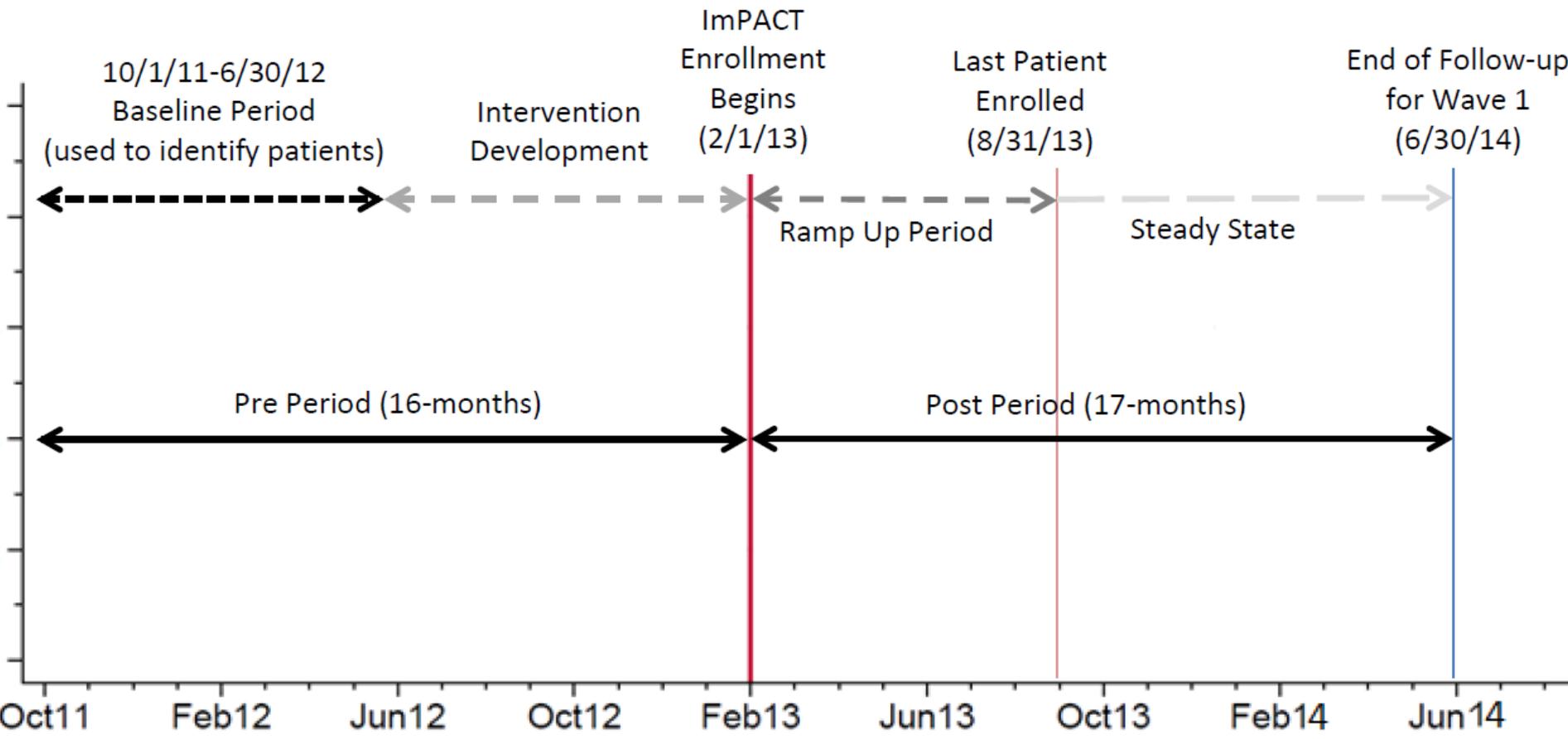


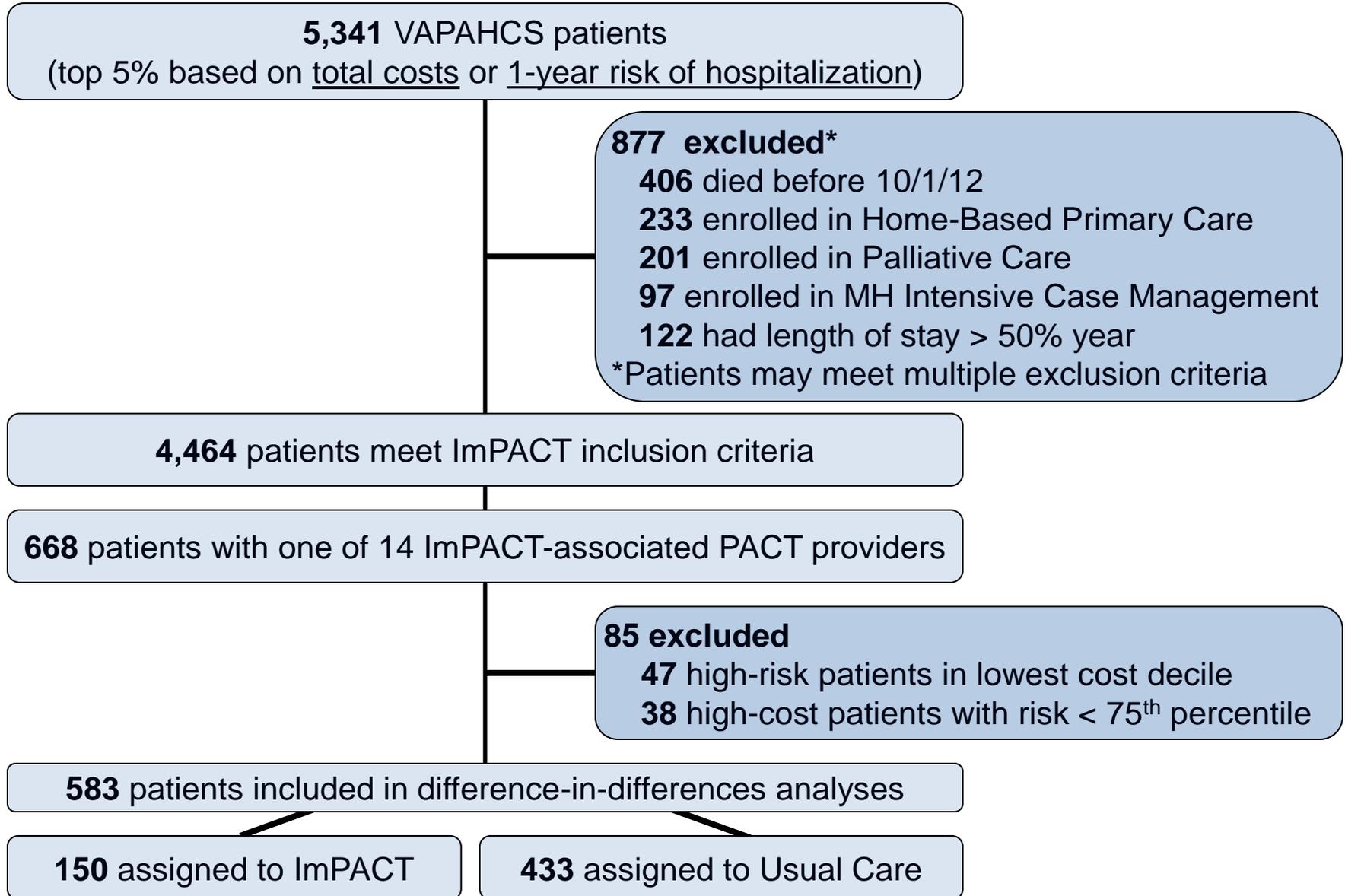
# Study Design

- Hybrid Trial (Type 1)
  - Test clinical intervention while also gathering information about delivery and implementation (Curran *Med Care* 2012)
- Partnered Research
  - ImPACT implemented as QI pilot; offered to random sample of patients
  - ImPACT evaluated by HSR team using administrative data
- Comparison Groups
  - ImPACT (150 eligible patients randomly selected; 140 in final sample)
  - Usual Care (433 eligible patients receiving usual care; 405 in final sample)

# Study Design

- Question
  - What effect did ImPACT have on health care costs and utilization?
- Primary Analysis
  - Intention- to-treat
  - Difference-in-differences
- Secondary Analysis
  - Treatment on the treated
    - Engagement (treatment) = completed intake +  $\geq 3$  additional encounters
  - Instrumental variables analysis
    - Randomization as instrument for engagement
- Stratified analyses for key characteristics
  - e.g., age, MH condition, HF/DM/COPD, recent hospitalization







	<b>ImPACT (n=140)</b>	<b>Usual Care (n=405)</b>	<b>P-Value</b>
	<b>%</b>	<b>%</b>	
<b>Age, mean (SD)</b>	66 (14)	66(13)	0.62
<b>75+</b>	24	24	
<b>Male</b>	93	90	0.33
<b>Urban Location</b>	89	92	0.27
<b>Non-VA Insurance</b>	53	55	0.62
<b>Medicare/Med Advantage</b>	49	51	
<b>Major Medical</b>	9	9	
<b>Medicaid</b>	3	2	
<b>Homeless in 9 mo baseline</b>	25	26	0.87
<b>Chronic Conditions, mean (SD)</b>	10 (4)	11 (3)	0.38
<b>Med/Surg Hosp in 9 mo, mean (SD)</b>	1.2 (1.4)	1.2 (1.4)	0.70
<b>ED Visits in 9 mo, mean (SD)</b>	3.4 (3.3)	3.3 (3.3)	0.70



	<b>ImPACT (n=140)</b>	<b>Usual Care (n=405)</b>	<b>P-Value</b>
	<b>%</b>	<b>%</b>	
<b>Hypertension</b>	71	71	0.94
<b>Joint Disorders</b>	57	59	0.78
<b>Coronary Artery Disease</b>	36	28	0.07
<b>Diabetes Mellitus</b>	34	38	0.40
<b>Renal Failure or Nephropathy</b>	29	25	0.40
<b>Heart Failure</b>	24	21	0.49
<b>Cancer (solid/heme/melanoma)</b>	21	28	0.11
<b>Liver Disease/Hep C</b>	21	26	0.24
<b>Mental Health (Any)</b>	68	69	0.78
<b>Depression</b>	49	48	0.93
<b>Drug Use Disorders</b>	29	25	0.34
<b>PTSD</b>	23	28	0.20
<b>Schizophrenia</b>	8	6	0.42
<b>Alcohol Use Disorders</b>	21	25	0.34

# What Did We Learn?

- **Approximately 2/3rds of invited patients engaged in program**



	<b>ImPACT (n=140)</b>	<b>Engaged (n=96)</b>	<b>Not-Engaged (n=44)</b>	<b>P-Value</b>
	<b>%</b>	<b>%</b>	<b>%</b>	
<b>Age, mean (SD)</b>	66 (14)	68 (14)	62 (13)	0.01
<b>75+</b>	24	30	11	
<b>Male</b>	93			
<b>Urban Location</b>	89	94	80	0.04
<b>Non-VA Insurance</b>	53	59	39	0.02
<b>Medicare/Med Advantage</b>	49	56	34	
<b>Major Medical</b>	9			
<b>Medicaid</b>	3			
<b>Homeless in 9 mo baseline</b>	25			
<b>Chronic Conditions, mean (SD)</b>	10 (4)			
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<b>Cancer (solid/heme/melanoma)</b>	21			
<b>Liver Disease/Hep C</b>	21	17	32	0.04
<b>Mental Health (Any)</b>	68			
<b>Depression</b>	49			
<b>Drug Use Disorders</b>	29	25	39	0.10
<b>PTSD</b>	23			
<b>Schizophrenia</b>	8	5	14	0.09
<b>Alcohol Use Disorders</b>	21	17	32	0.04

# What Did We Learn?

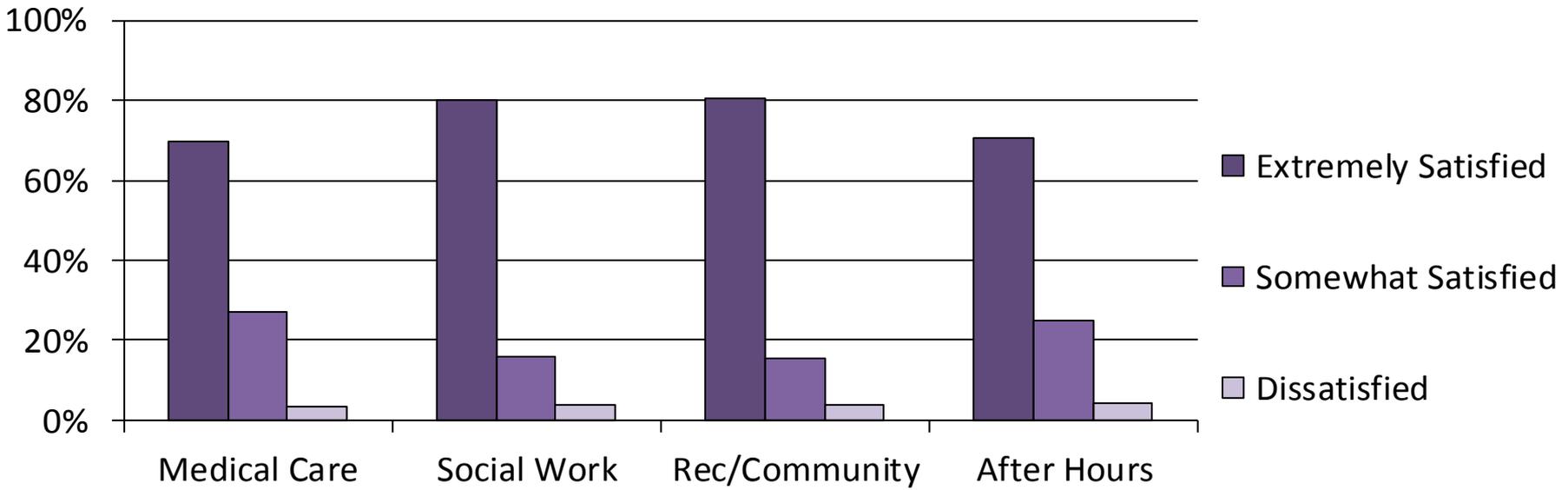
- Approximately 2/3rds of invited patients engaged in program
- **Among those who engaged, most felt it was extremely valuable**



# Were patients satisfied with ImPACT?

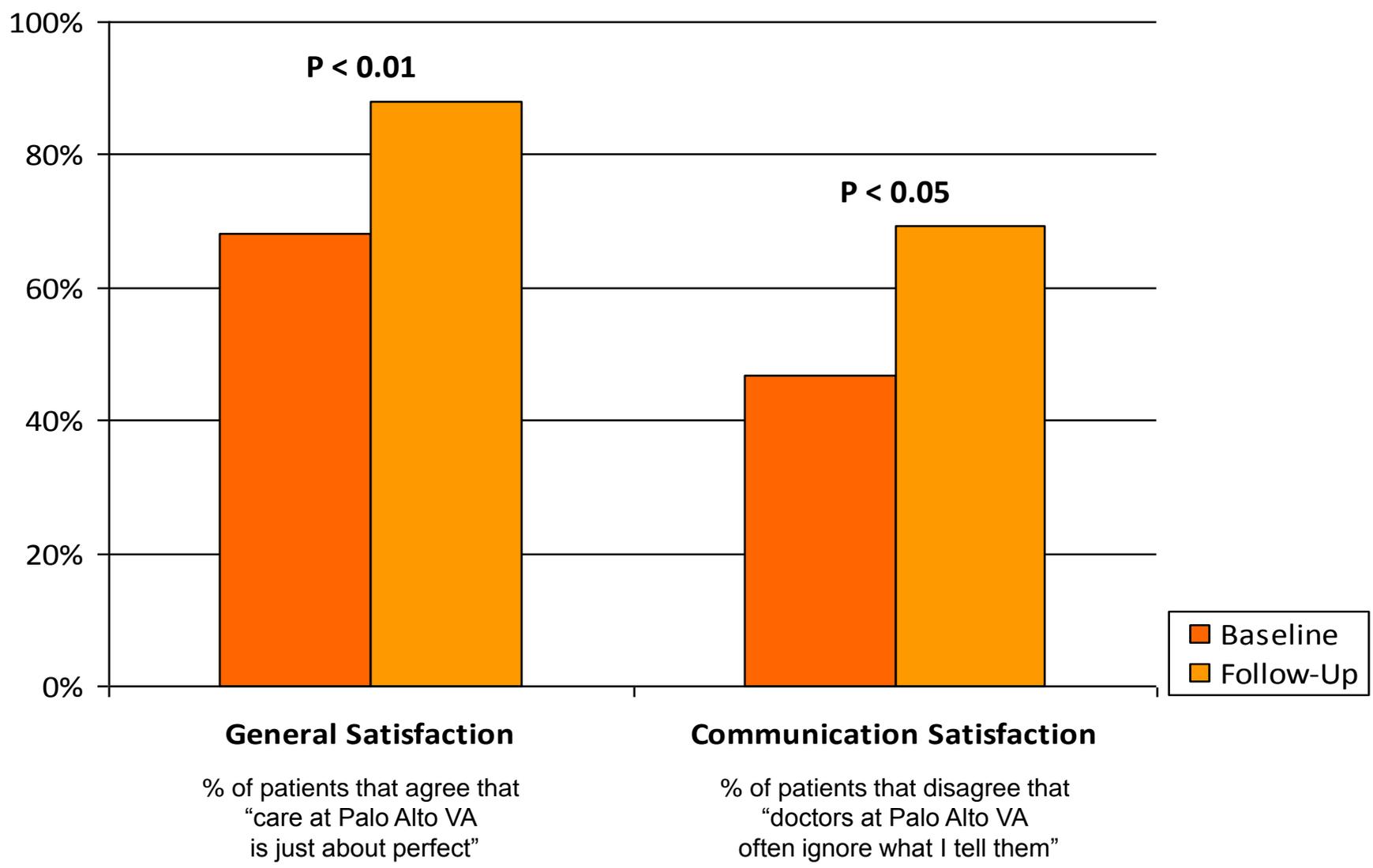
93% of ImPACT patients stated in a survey that they would recommend ImPACT to other patients

- *ImPACT program keeps track of me and my health, wellbeing, and medical care*
- *Knowing that someone has your back means a lot*
- *I don't have to go to the ER for minor things*
- *Having a liaison between myself, my doctor, hospital and pharmacy is so very crucial to me and ImPACT fits the bill! Not to sound like a TV Commercial but "One call does it all"*





# Did ImPACT change patients' satisfaction with VA?

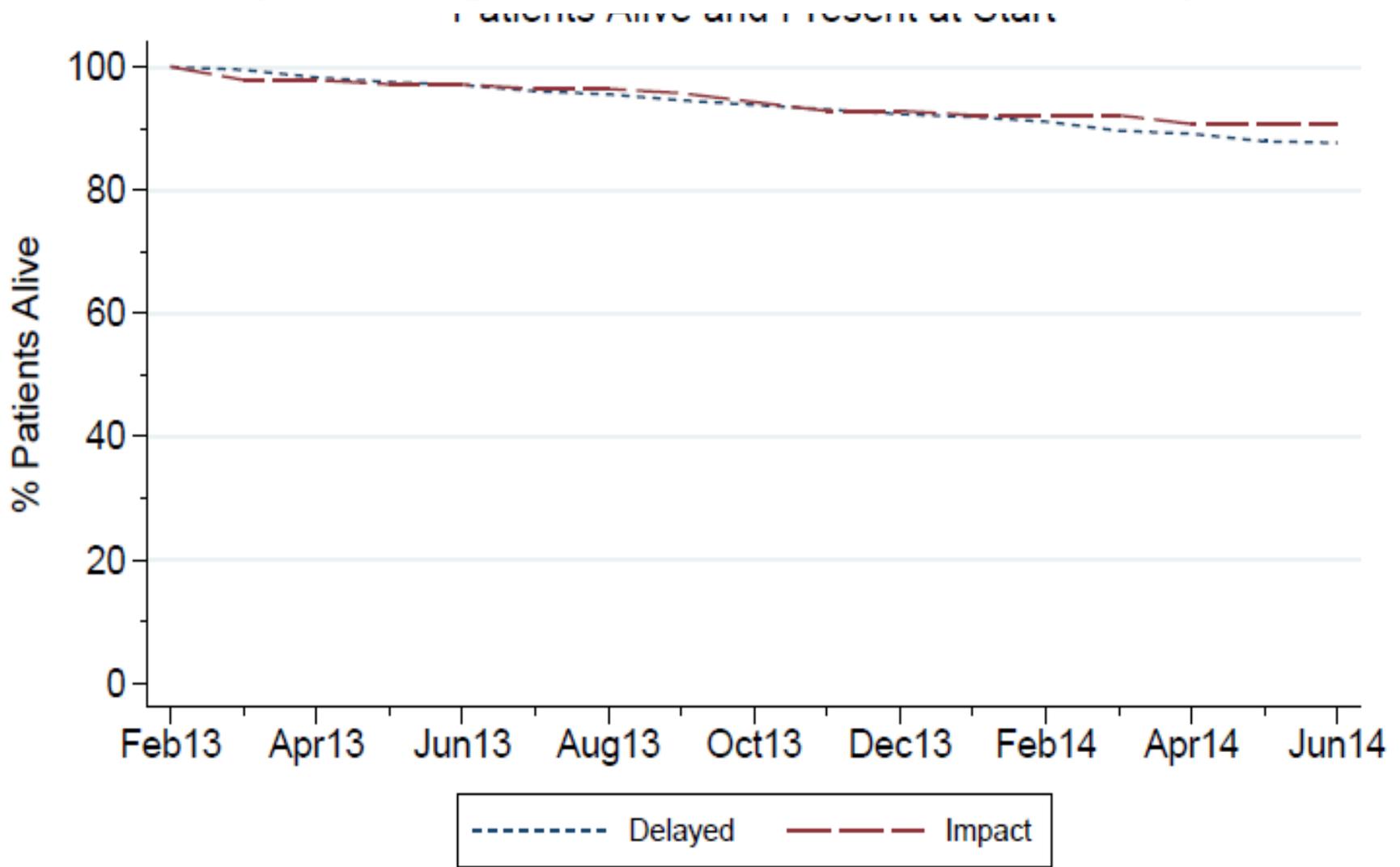


# What Did We Learn?

- Approximately 2/3rds of invited patients engaged in program
- Among those who engaged, most felt it was extremely valuable
- **There was no effect on mortality**



# Mortality among ImPACT and Usual Care patients



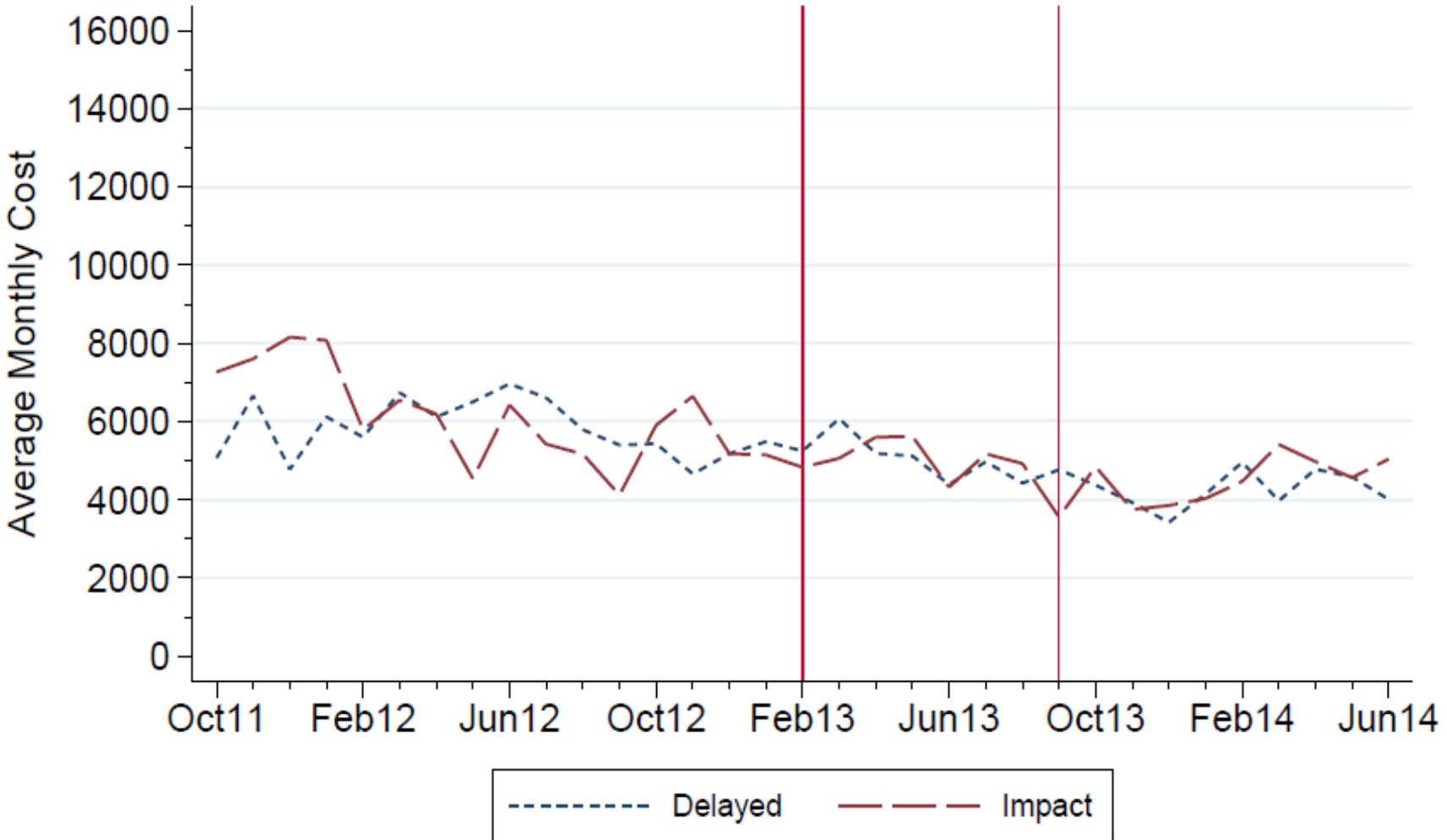
Sample includes those who were alive and present on Feb. 1, 2013.  
Delayed=405, ImPACT=140

# What Did We Learn?

- Approximately 2/3rds of invited patients engaged in program
- Among those who engaged, most felt it was extremely valuable
- There was no effect on mortality
- **The intervention was cost-neutral**



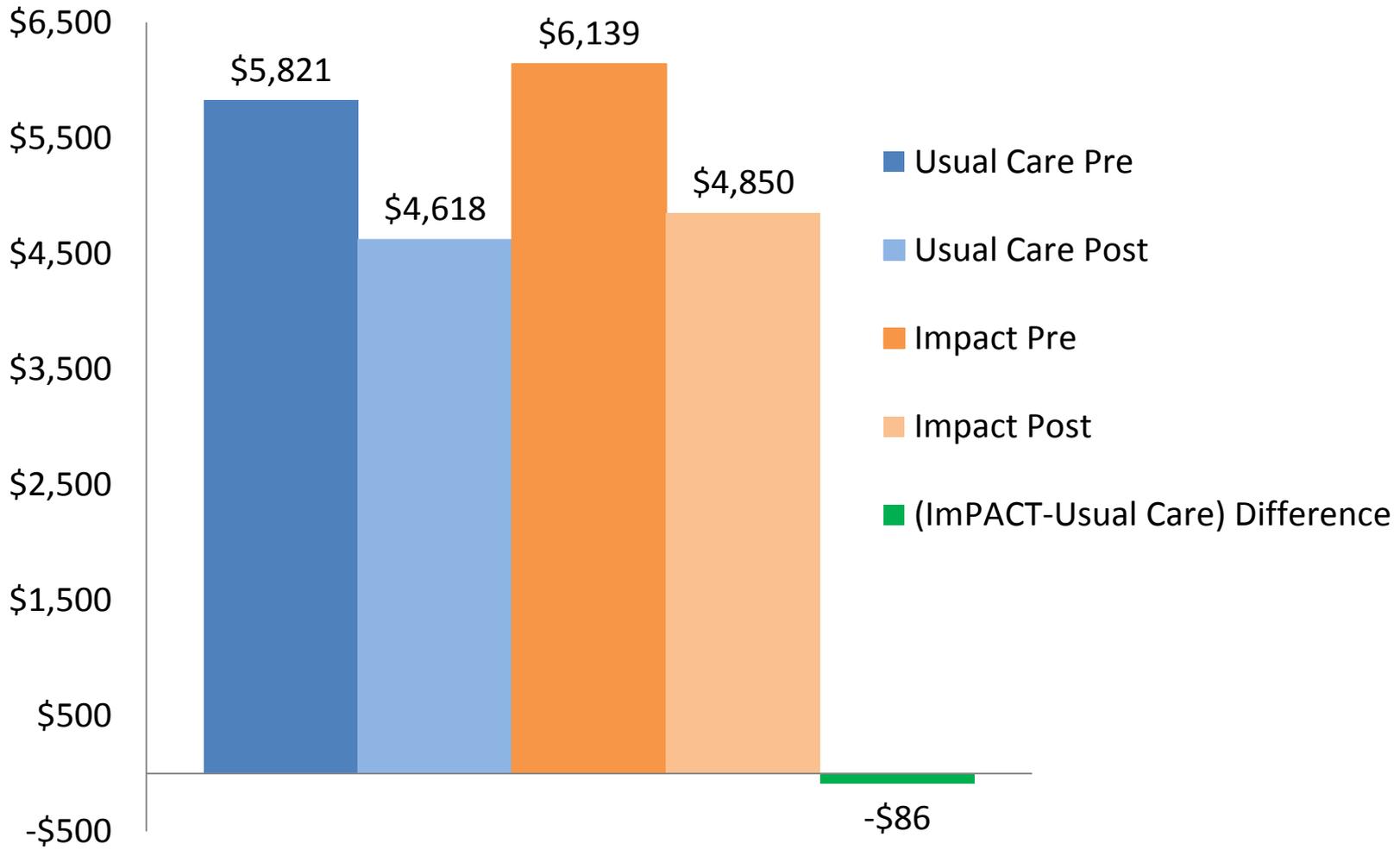
# Average VA Palo Alto person-level monthly costs for ImPACT and Usual Care patients



Sample includes those who were alive and present on Feb. 1, 2013.



# Differences in pre-post total person-level raw costs for ImPACT vs. Usual Care patients



# What Did We Learn?

- Approximately 2/3rds of invited patients engaged in program
- Among those who engaged, most felt it was extremely valuable
- There was no effect on mortality
- The intervention was cost-neutral
- **The intervention could potentially have an effect for certain subgroups of patients**



# Adjusted differences in pre-post monthly costs for ImPACT and Usual Care patients

	Intention-to-Treat (DD)			Treatment on the Treated (IV)	
	n	Mean	SE	Mean	SE
All patients	545	-101	(614)	-134	(881)
Heart failure, diabetes, or COPD	306	-754	(763)	-1134	(1078)
MH condition	380	-40	(714)	-77	(1080)
No MH condition	165	-246	(1,184)	-244	(1,517)
Age < 65 yrs	276	-922	(998)	-1439	(1622)
Age ≥ 65 yrs	269	465	(762)	808	(1016)
High-cost (top 5%) at baseline	356	-5	(815)	96	(1216)
High-risk of hosp (top 5%) at baseline	402	4	(664)	-30	(945)
Hospitalized in 6 mo pre-enroll	197	-198	(1,315)	-198	(1,315)
High-risk of hosp (top 5%) at baseline & hospitalized in 6 mo pre-enroll	171	-657	(1,343)	-827	(1,760)

# What Did We Learn?

- Approximately 2/3rds of invited patients engaged in program
- Among those who engaged, most felt it was extremely valuable
- There was no effect on mortality
- The intervention was cost-neutral
- The intervention could potentially have an effect for certain subgroups of patients
- **We learned a lot about implementation...**

# Implementation Evaluation

- 15 semi-structured interviews with:
  - ImPACT Team (1 MD, 1 NP, 1 RT, 1 SW)
  - Facility Leadership (3 MDs)
  - Providers who interact with ImPACT:
    - PACT providers (3 MDs, 1 NP, 3 RNs), 1 hospitalist
- Consolidated Framework for Implementation Research (CFIR) used to develop interview questions
- Objectives:
  - Identify barriers/facilitators to implementation
  - Understand strengths, opportunities for improvement

# Implementation Facilitators

- Proactive/creative approach of ImPACT staff
  - “More creative ideas to help, more heads to try to figure out what to do with these patients that keep coming back to the ER.” (Other provider)*
  - “[The ImPACT team] jumped in and I could ask them for support so it seemed like a resource” (Other provider)*
- Adaptability of ImPACT’s design
- Local environment/characteristics
  - Leadership engagement, culture of innovation, CPRS

# Implementation Barriers

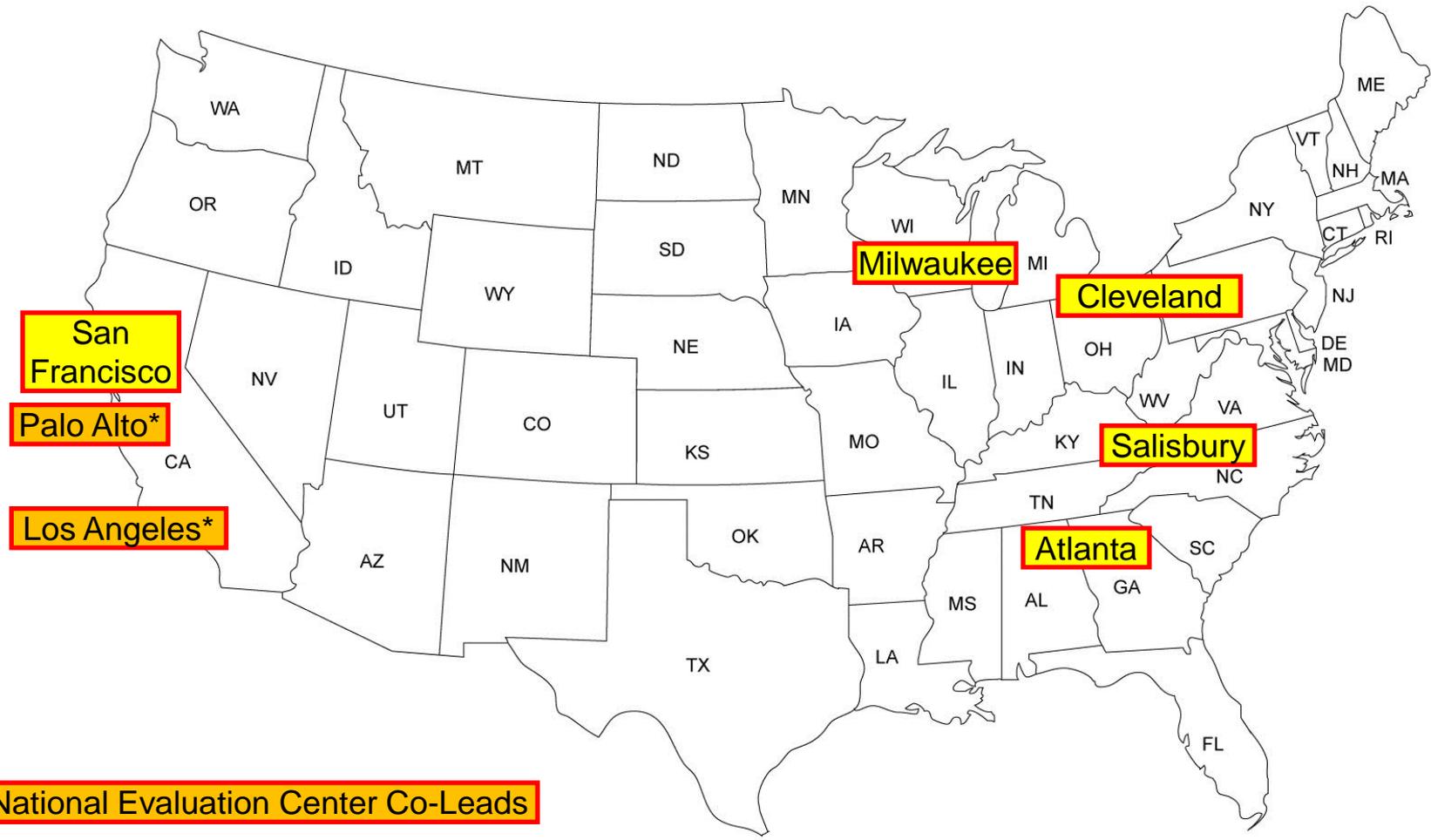
- **Complex patient population**
  - “ [ImPACT], at its core, is trying to address 100 or 200 patient's' individual needs and goals.” (ImPACT staff)
- **Challenges of addressing mental health**
  - MH services located at different site
  - No MH provider on team
- **Difficulty reaching rotating hospital staff**
- **Pressure of pilot intervention/evaluation**
  - “it is hard for a team to work under these conditions [when] what they're spending all their time on may disappear within a short time.” (ImPACT staff)

# What Did We Learn?

- Approximately 2/3rds of invited patients engaged in program
- Among those who engaged, most felt it was extremely valuable
- There was no effect on mortality
- The intervention was cost-neutral
- The intervention could potentially have an effect for certain subgroups of patients
- We learned a lot about implementation
- **Rigorous evaluation of health care delivery models is critical**
- **AND**
- **We still have a lot to learn, so...**



# VA PACT-Intensive Management (PIM) Demonstration Project





# PIM Sites

PIM Site	Distinguishing Elements	Team
San Francisco	Incorporates elements of GRACE (for frail older adults) & MHICM, includes home visits	SW, RN, psychiatrist
Milwaukee	Patients enrolled during hosp, emphasizes post-discharge care and patient goals	RN, clinical educator, psychologist
Cleveland	NP and military medics co-manage care, emphasizes reducing PACT provider burnout	NP, medics
Salisbury	PIM provider assumes care, emphasizes care coordination and patient engagement	PCP, SW, RN, psychologist, peer support
Atlanta	Incorporates home visits and telehealth, emphasizes patient activation	SW, NP

# PIM Evaluation

- National Evaluation Center (Los Angeles/Palo Alto Collaboration)
- Study Design
  - Randomly selected participants vs. high-risk PACT patients in usual care
  - Across and within 5-site evaluation
  - Mixed-methods (administrative data, implementation evaluation)
- Outcomes
  - VA Utilization (hospitalizations, ED visits)
  - Non-VA Utilization
  - Mortality
  - VHA Costs
  - Patient-Centered Outcomes
    - Satisfaction, Access, Care coordination, Patient activation,



# Thank You

## VA High-Utilizer Analyses

Steve Asch  
Jean Yoon  
Todd Wagner  
Tyson Holmes  
Danielle Cohen  
Christine Ritchie  
Jennifer Scott

## ImPACT Evaluation Team

Steve Asch  
Jessica Breland  
Cindie Slightam  
Donn Garvert  
Tyson Holmes  
Frances Wu  
Ava Wong

## ImPACT Clinical Team, Leadership, Advisors

Stephen Ezeji-Okoye	Alan Glaseroff
James Kahn	Ann Lindsay
John Chardos	Danielle Cohen
Jonathan Shaw	Valerie Meausoone
Debra Hummel	Ian Tong
Katie Holloway	Lien Nguyen
Sasha Smither	Terri Rogers
Miriam Trigueros	Jim Hallenbeck

## PACT-Intensive Management

### National Evaluation Center

Lisa Rubenstein  
Steve Asch  
Evelyn Chang  
Jean Yoon  
Michael Ong  
Susan Stockdale  
Ava Wong

## Research Support

VA HSR&D Career Development Award 12-173  
VA HSR&D Pilot Grant (ImPACT evaluation) 13-006  
VA Office of Specialty Care Transformation (ImPACT)  
VA Office of Primary Care Services (PACT-IM NEC)

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