Systems for Action
National Coordinating Center
Systems and Services Research to Build a Culture of Health

Strategies to Achieve Alignment, Collaboration, and Synergy across Delivery and Financing Systems

Finance & Service Delivery Integration for Mental Illness & Substance Abuse

Research In Progress Webinar
Wednesday, October 18, 2017 12:00-1:00pm ET/ 11:00am-12:00pm CT

Funded by the Robert Wood Johnson Foundation

UK College of Public Health
Center for Public Health Systems and Services Research

Agenda

S4A Systems for Action

Welcome: Anna G. Hoover, PhD, RWJF Systems for Action National Coordinating Center, University of Kentucky College of Public Health

Finance & Service Delivery Integration for Mental Illness & Substance Abuse

Presenter: Michael S. Shafer, PhD, Professor, School of Social Work; Director, Center for Applied Behavioral Health Policy; & Affiliate Professor, School of Criminology & Criminal Justice, College of Public Service and Community Solutions, Arizona State University
michael.shafer@asu.edu

Commentary: **Christopher D. Maxwell, PhD, MA,** Professor, School of Criminal Justice, College of Social Science, Michigan State University
CMaxwell@msu.edu

Questions and Discussion: Moderated by Dr. Hoover

Presenter

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[Michael S. Shafer, PhD]

Professor, School of Social Work

Director, Center for Applied Behavioral Health Policy

Affiliate Professor, School of Criminology & Criminal Justice, College of Public Service and Community Solutions

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Robert Wood Johnson Systems for Action
Webinar
October 18, 2017

Finance & Service Delivery Integration for Mental Illness & Substance Abuse

Michael S. Shafer, William Riley, George Runger,
Kailey Love, Gevork Harootunian, Christina Boudreau, Varnika Angampally, Elsa Vazquez, Nicole Janich, Nick Buckley

WHAT's OUR GOAL?

OUR GOAL IS TO DEMONSTRATE PROOF OF CONCEPT THAT INTER-OPERABILITY CAN BE ACHIEVED BETWEEN SILOED INFORMATION SYSTEMS.

OUR GOAL IS TO ASSESS THE IMPACT OF THESE INTEGRATED INFORMATION SYSTEMS UPON POLICY-MAKING DECISION MAKING PROCESSES.

FOUR AIMS

AIM 1: To create an *INTEGRATION QUOTIENT* for every individual enrolled in the RBHA network as SMI, GMHSA, or children.

AIM 2: To develop predictive models of psychiatric and general hospitalization based upon behavioral health and med/surg service utilization patterns observed prior to and following periods of hospitalization.

AIM 3: To develop predictive models of criminal justice systems involvement based upon behavioral health and med/surg service utilization patterns observed prior to, during, and following periods of CJ system involvement.

AIM 4: To transform our proof of concept analyses into visualizations that facilitate evidence-informed and actionable dialogue and decision-making between multi-sector policy-makers that can lead to a culture of health for Medicaid enrolled individuals experiencing behavioral health issues.

AHCCCS CLAIMS

ADHS Hospital Discharge

Linking Data Across Systems to Create Data-Informed Approaches to Create Better Health
&
Social Outcomes

MCSO Jail Booking Roster

Adult Probation Enterprise Tracking System

Homeless Management Information System

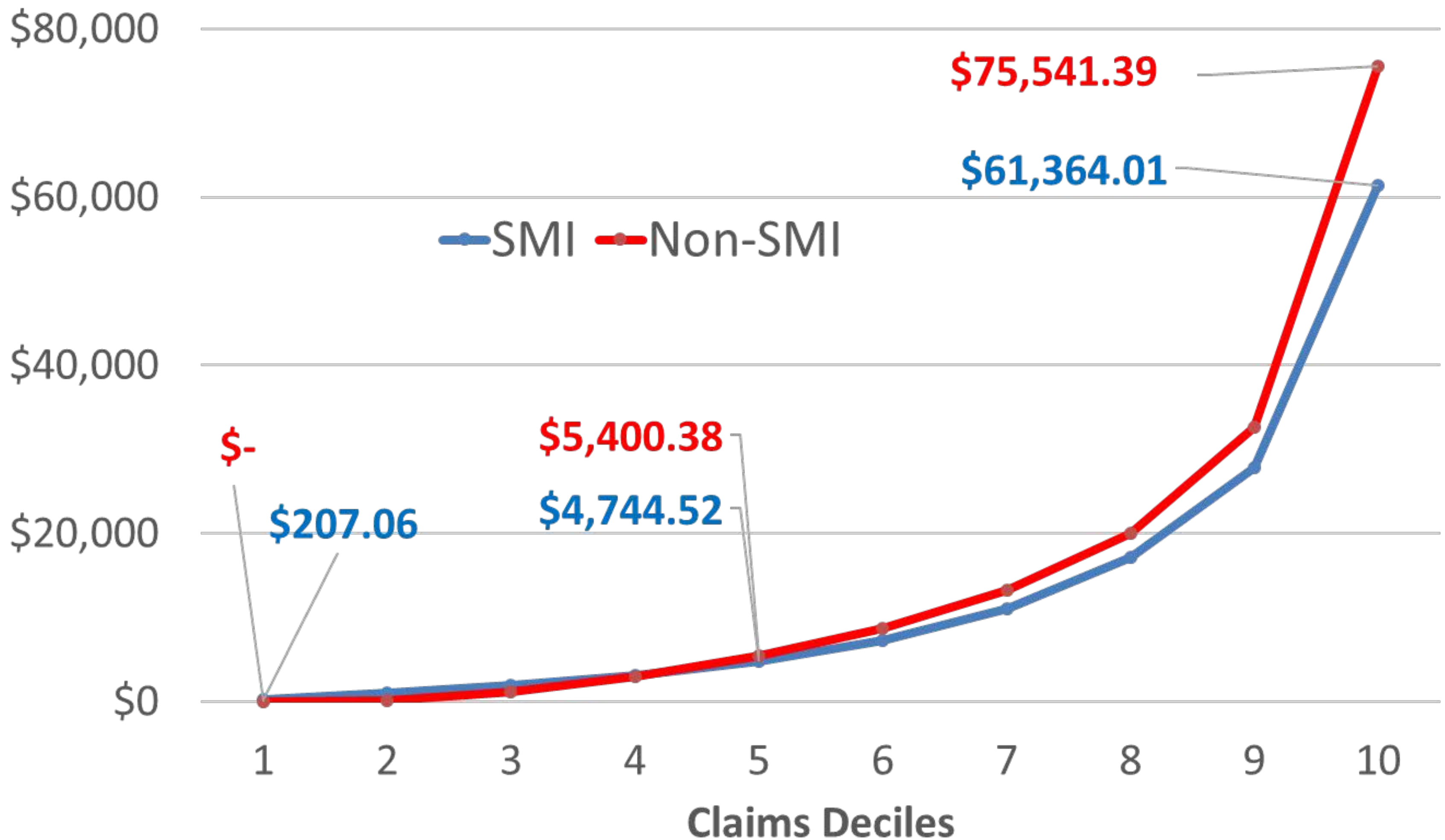
FOUR AIMS

AIM 1: To create an *INTEGRATION QUOTIENT* for every individual enrolled in the RBHA network as SMI, GMHSA, or children.

The *INTEGRATION QUOTIENT* will express the total Medicaid claims on an individual, the relative proportion of those claims on behavioral health versus physical health services, and the composition of service procedures.

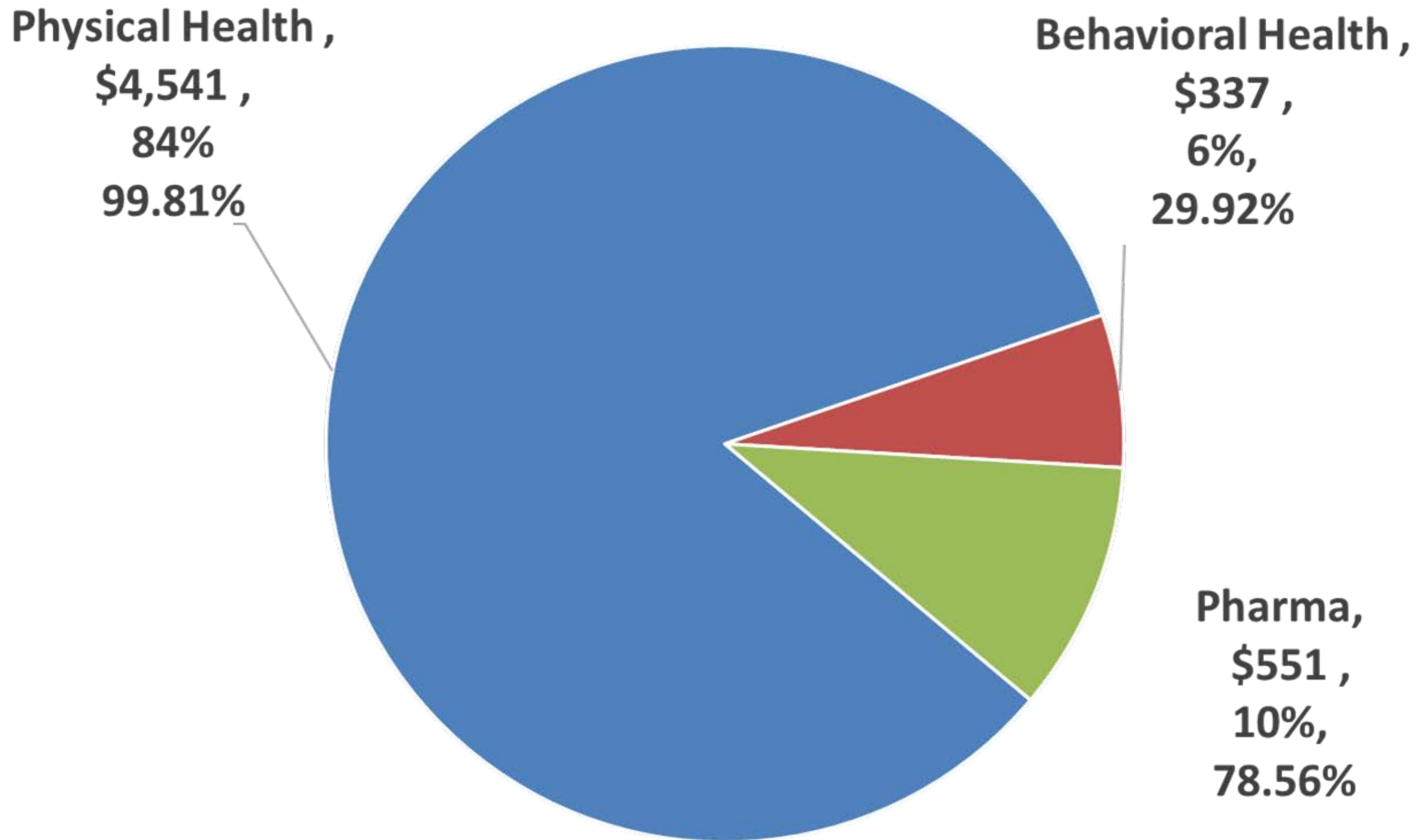
AHCCCS Total Claims

Maricopa County only, SFY 2015



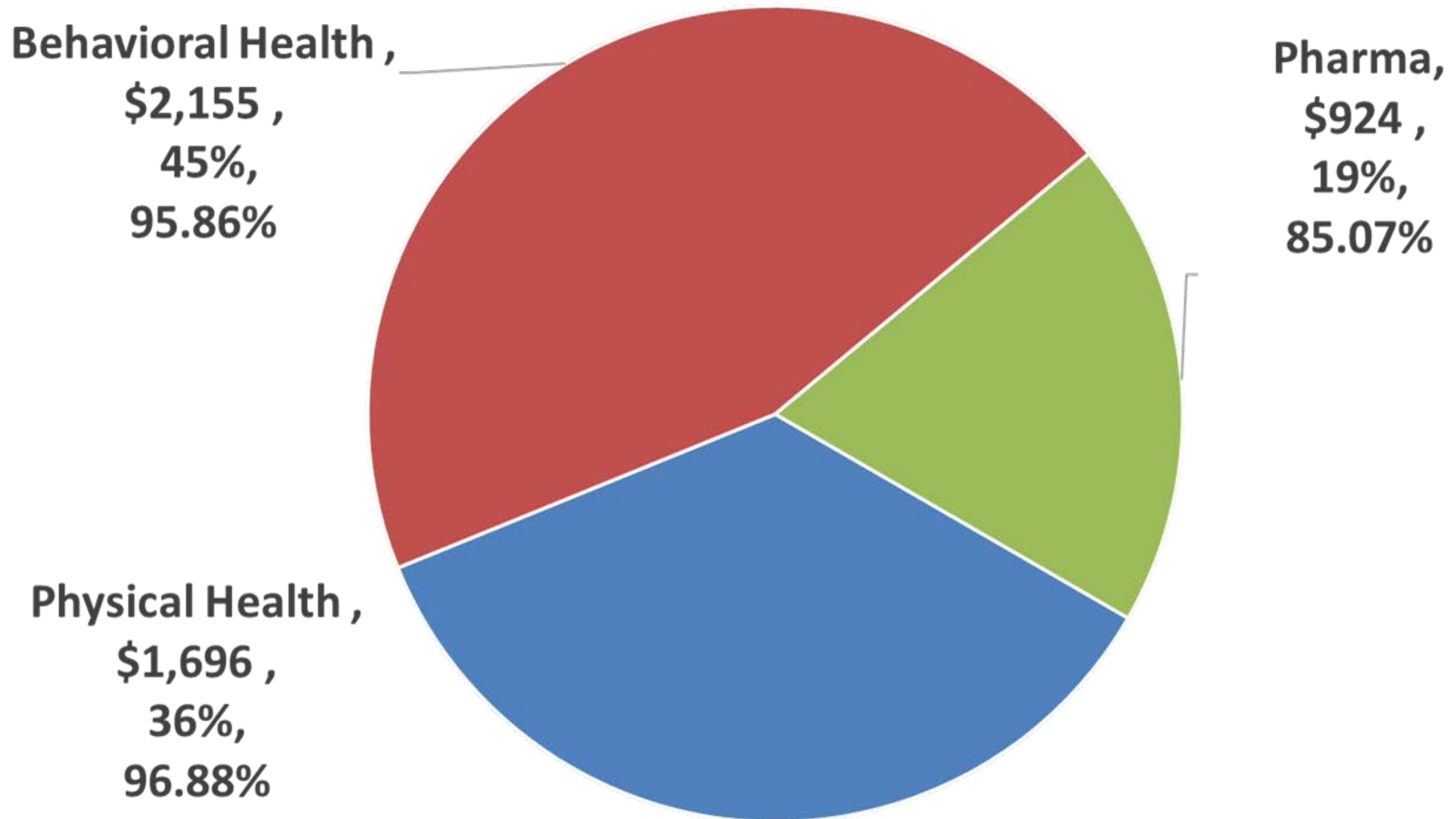
AHCCCS Claims, non-SMI, 5th decile

median claim per patient
% total claims
% of sample w/ $\geq$ 1 claim



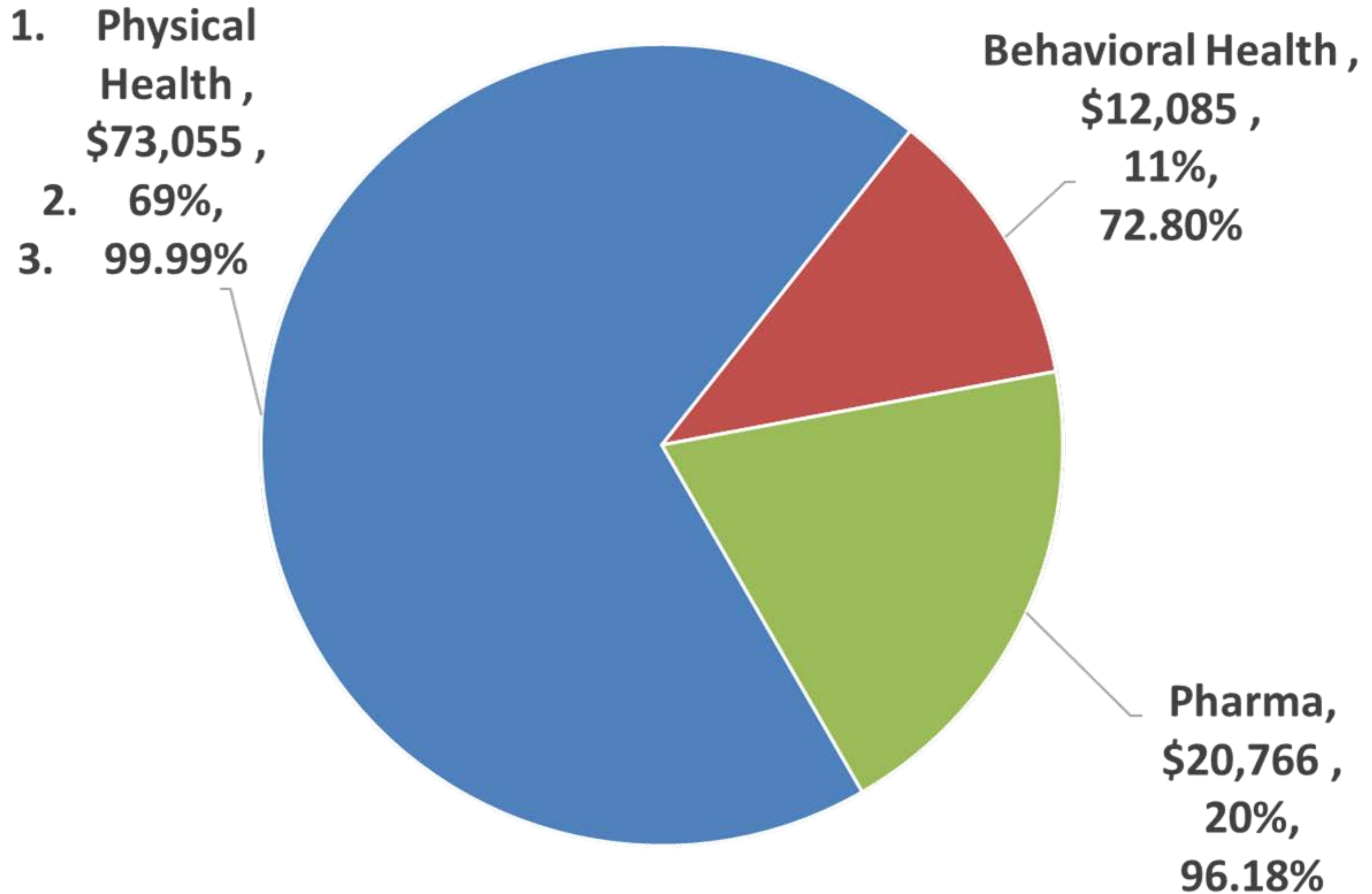
AHCCCS Claims, SMI, 5th decile

median claim per patient
% total claims
% of sample w/ > 1 claim



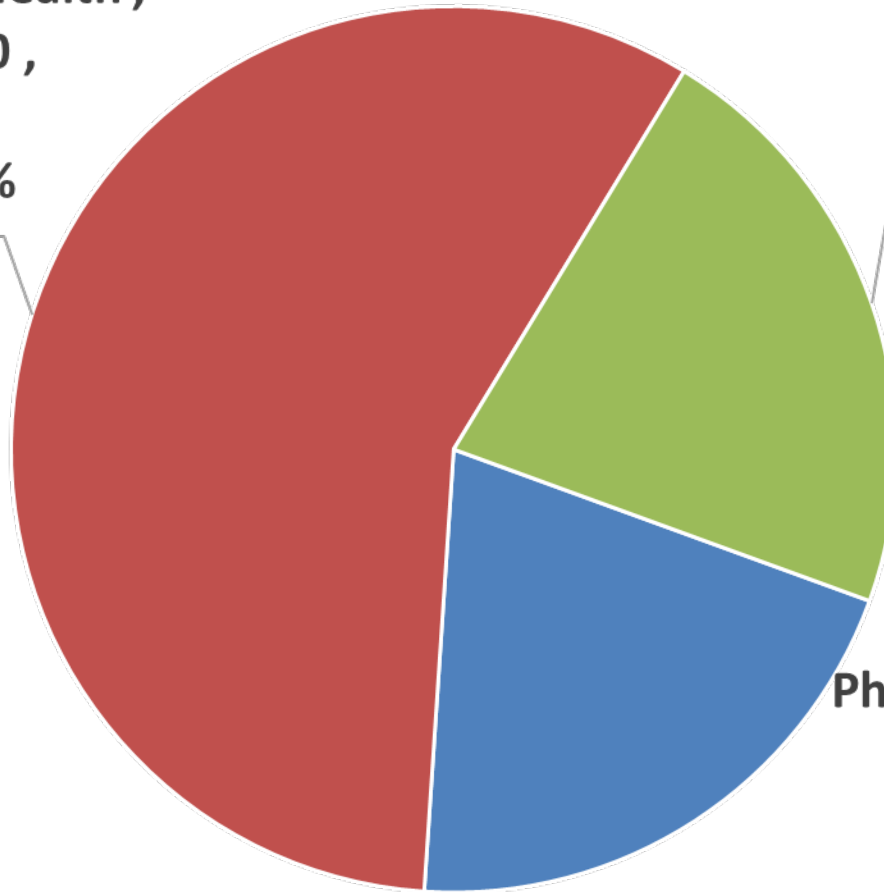
AHCCCS Claims, non-SMI, 10th decile

median claim per patient
% total claims
% of sample w/ ≥ 1 claim

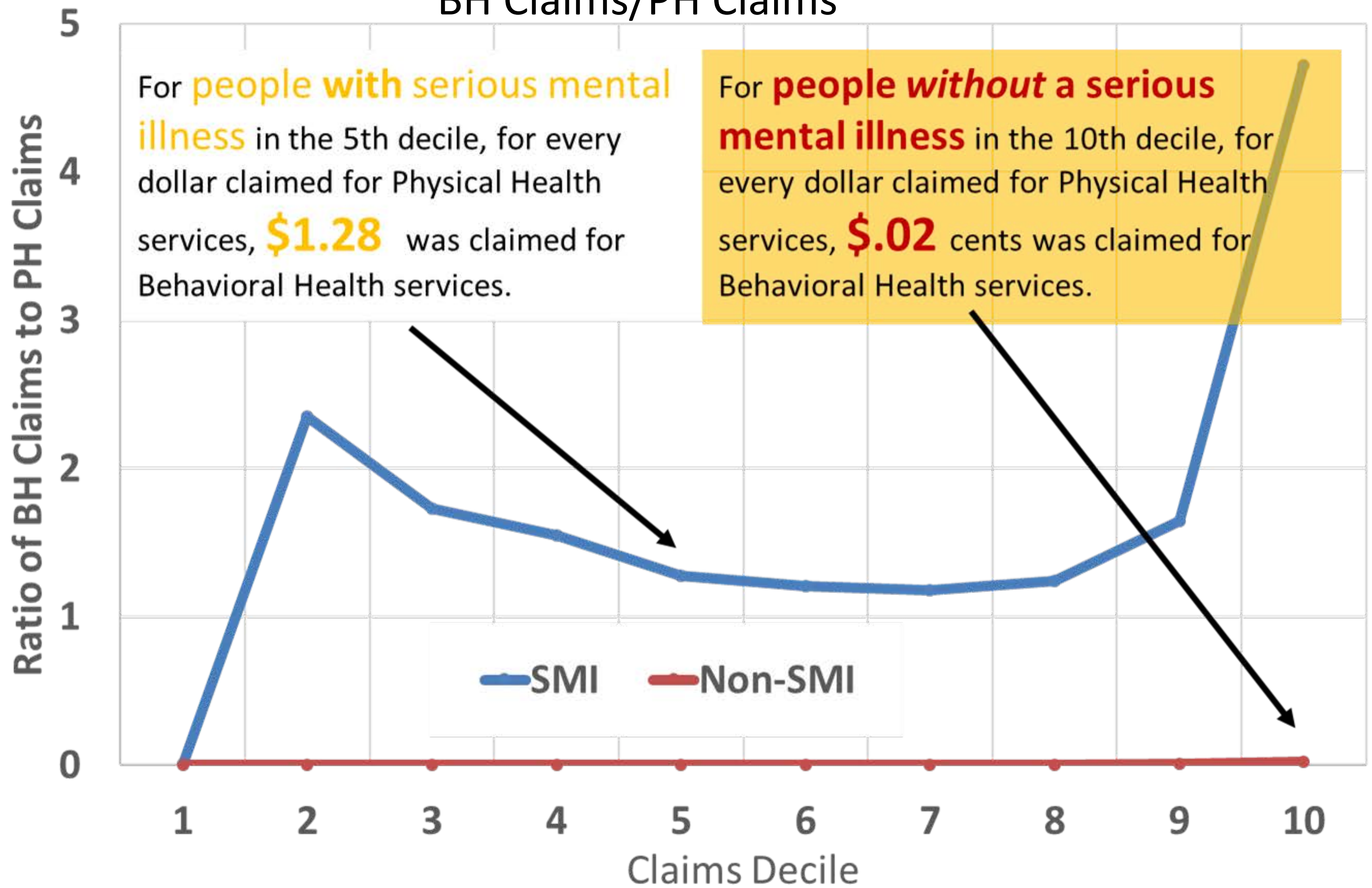


AHCCCS Claims, SMI, 10th decile

median claim per patient
% total claims
% of sample w/ $\geq$ 1 claim

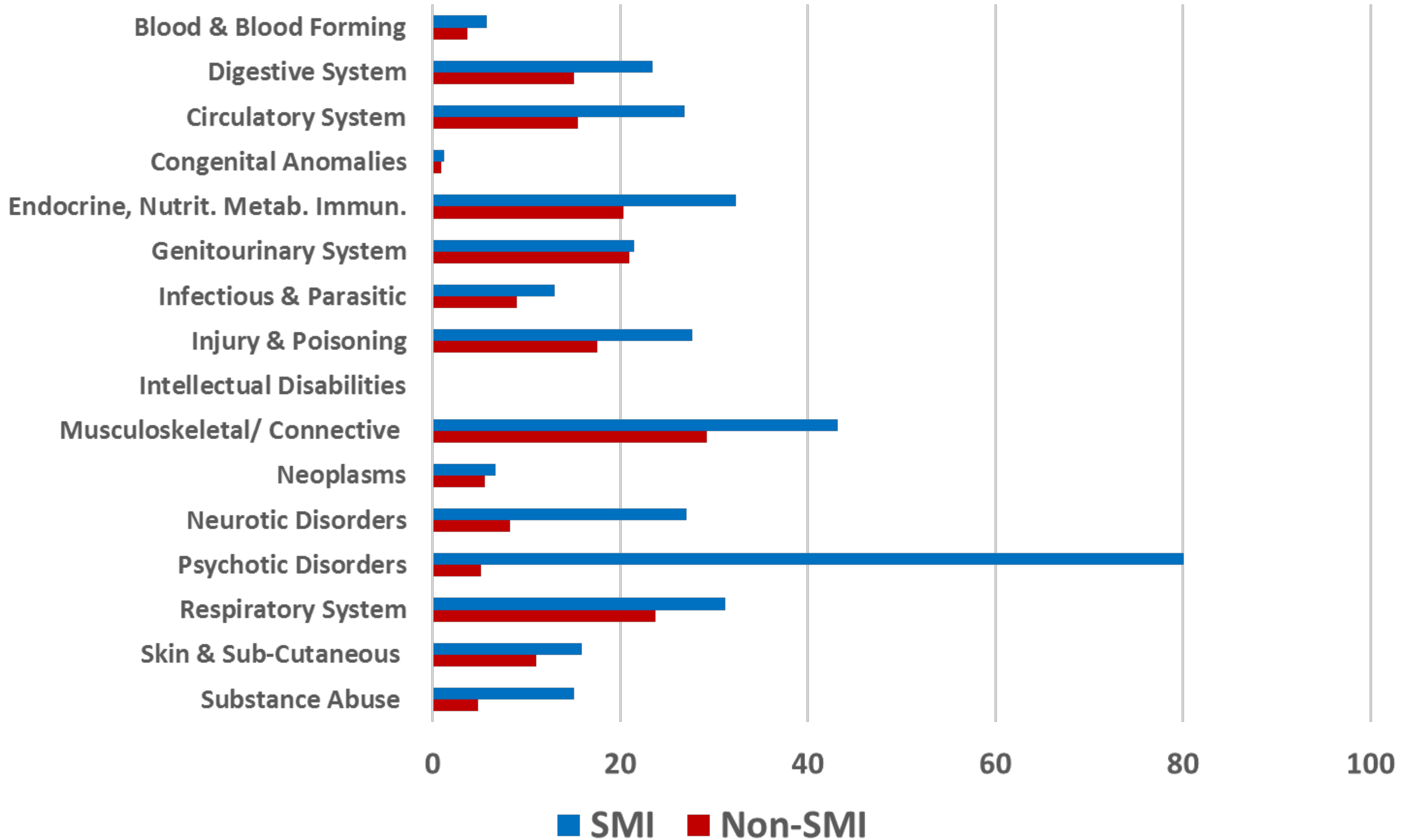


AHCCCS Claims Integration Quotient



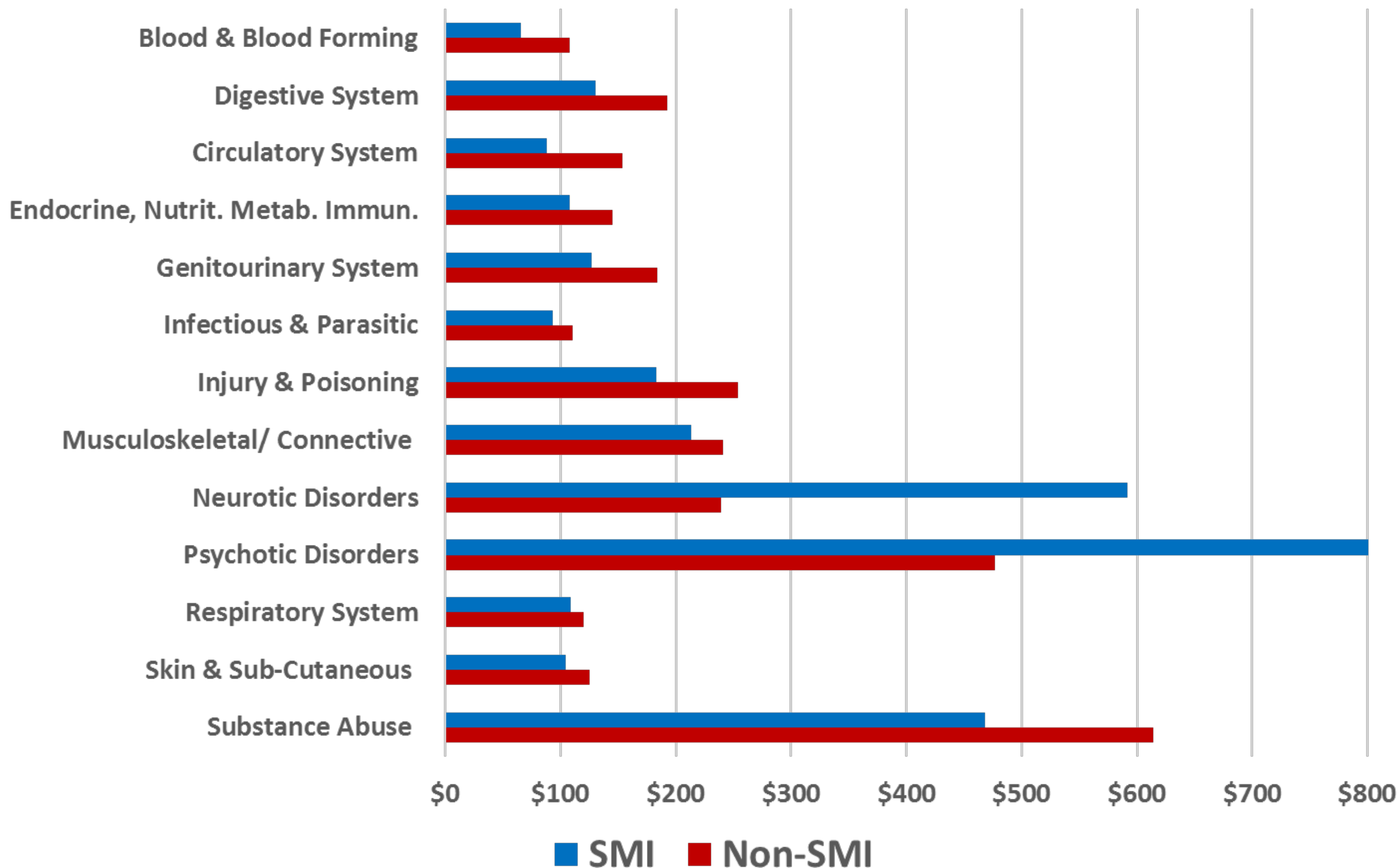
AHCCCS Claims Analysis

Claims by Disease Code



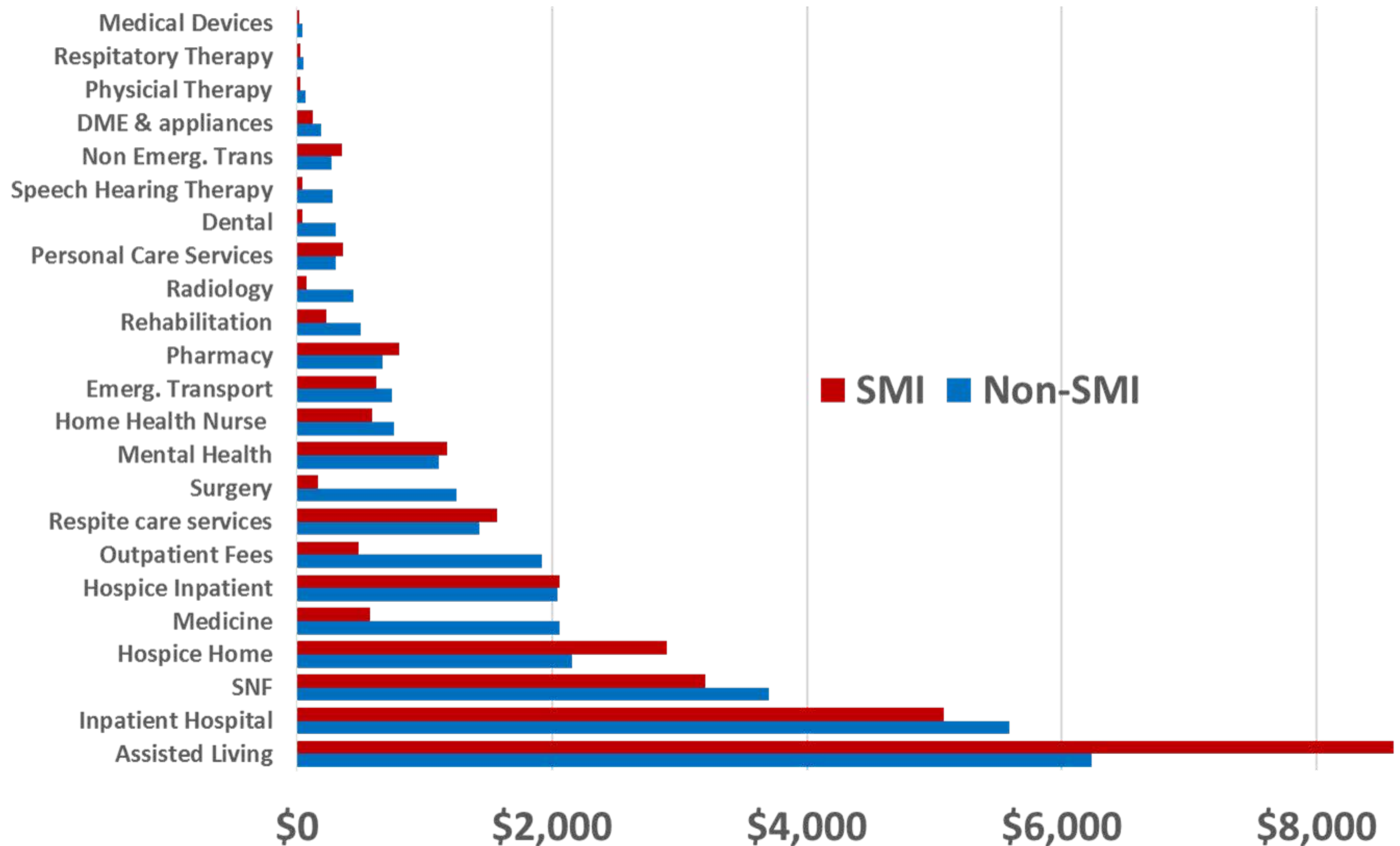
AHCCCS Claims Analysis

Median per Patient Claim Value by Disease Code



AHCCCS Claims Analysis

Median per Patient Claim Value by Procedure Code



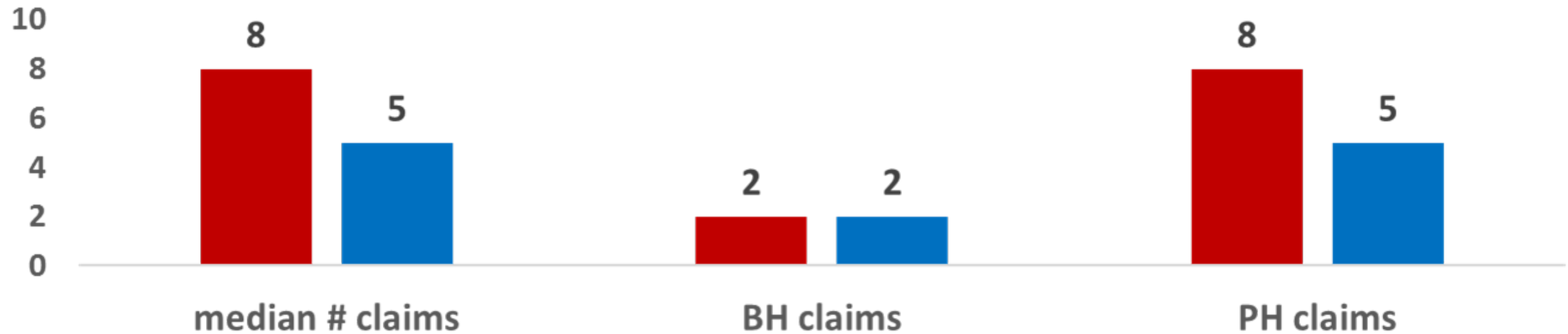
FOUR AIMS

AIM 2: To develop predictive models of psychiatric and general hospitalization based upon behavioral health and med/surg service utilization patterns observed prior to and following periods of hospitalization.

- ✓ Focused analysis on high cost/high utilizers
- ✓ Analysis of pre- and post-hospitalization service patterns

AHCCCS Claims Analysis

ED Claims



Median Claims Value Per Patient

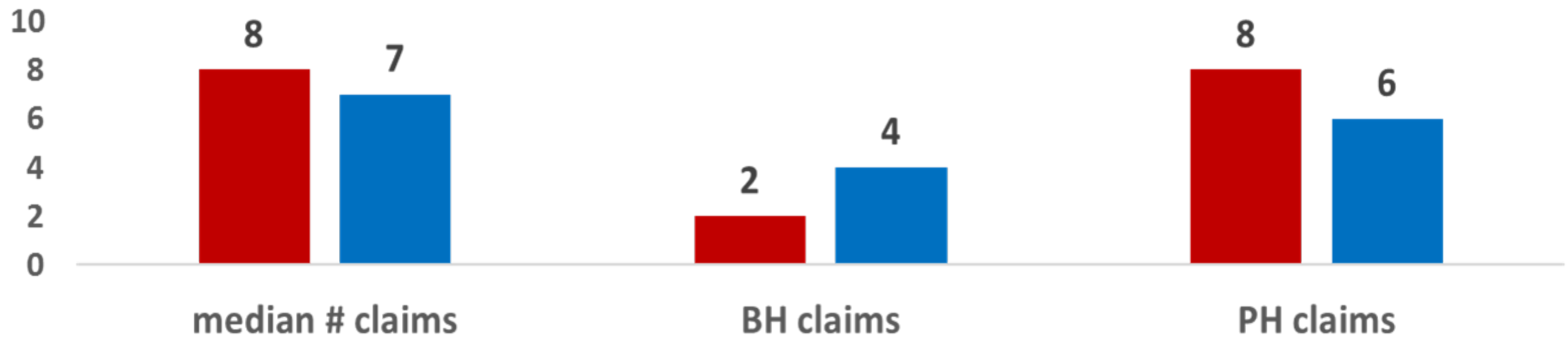
Non-SMI SMI

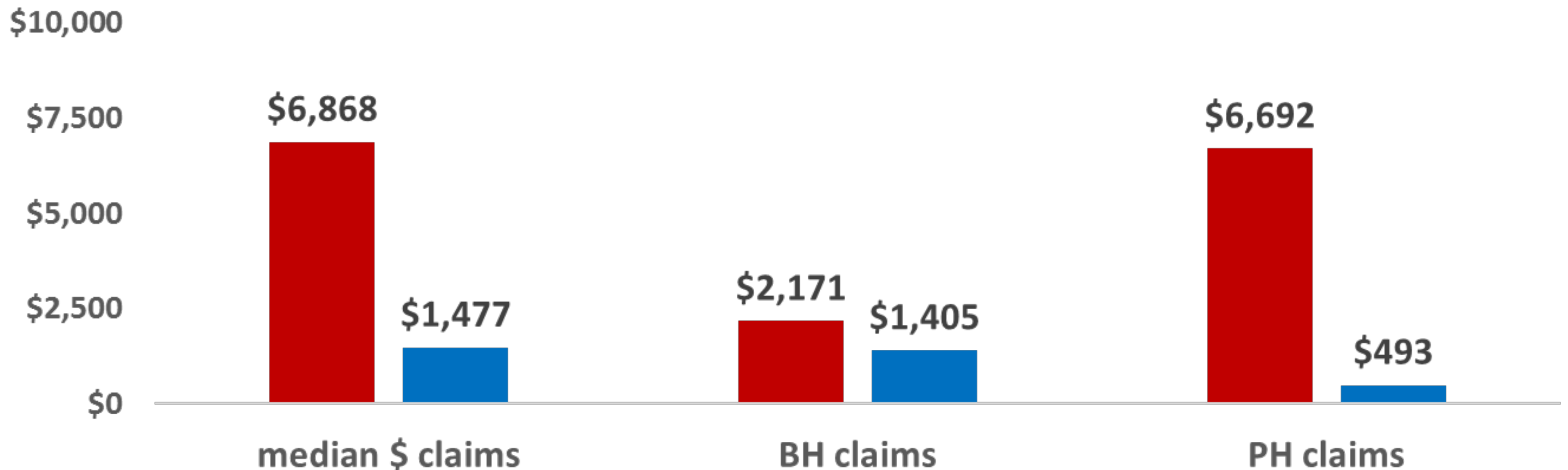
$1,500
$1,000
$500
$0

$1,245
$473
$429
$54
$1,205
$417

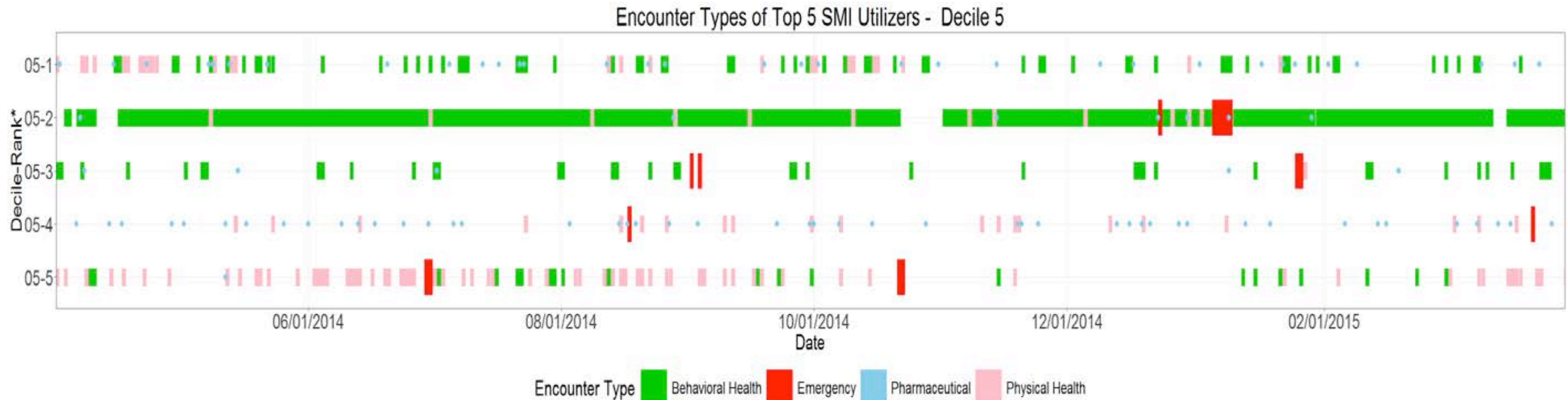
median $ claims
BH claims
PH claims

AHCCCS Claims Analysis
Inpatient Claims



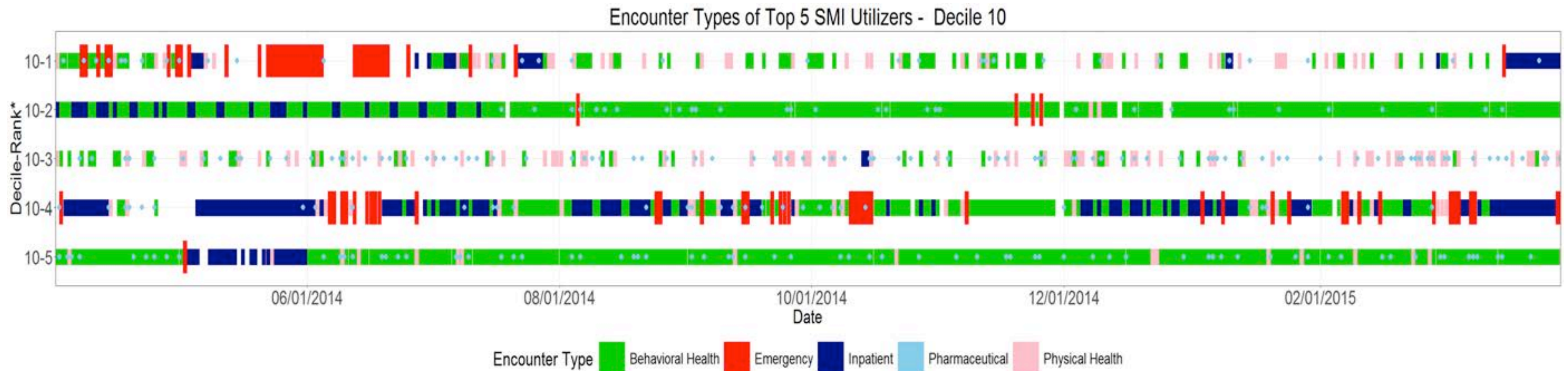


Encounter Timeline – 5th decile



Rank	Gender	Age	Integration Quotient	Total Claims Value
1	F	45	$1.64	$5,867.18
2	F	53	$0.66	$5,866.85
3	M	41	$0.35	$5,864.31
4	F	58	$0.00	$5,862.18
5	F	56	$0.49	$5,861.21

Encounter Timeline – 10th decile



Rank	Gender	Age	Integration Quotient	Total Claims Value
1	M	28	$0.18	$1,429,580.30
2	F	19	$170.29	$257,197.07
3	F	35	$0.14	$228,492.98
4	M	34	$3.45	$218,103.77
5	F	40	$20.18	$215,274.58

FOUR AIMS

AIM 3: To develop predictive models of criminal justice systems involvement based upon behavioral health and med/surg service utilization patterns observed prior to, during, and following periods of CJ system involvement.

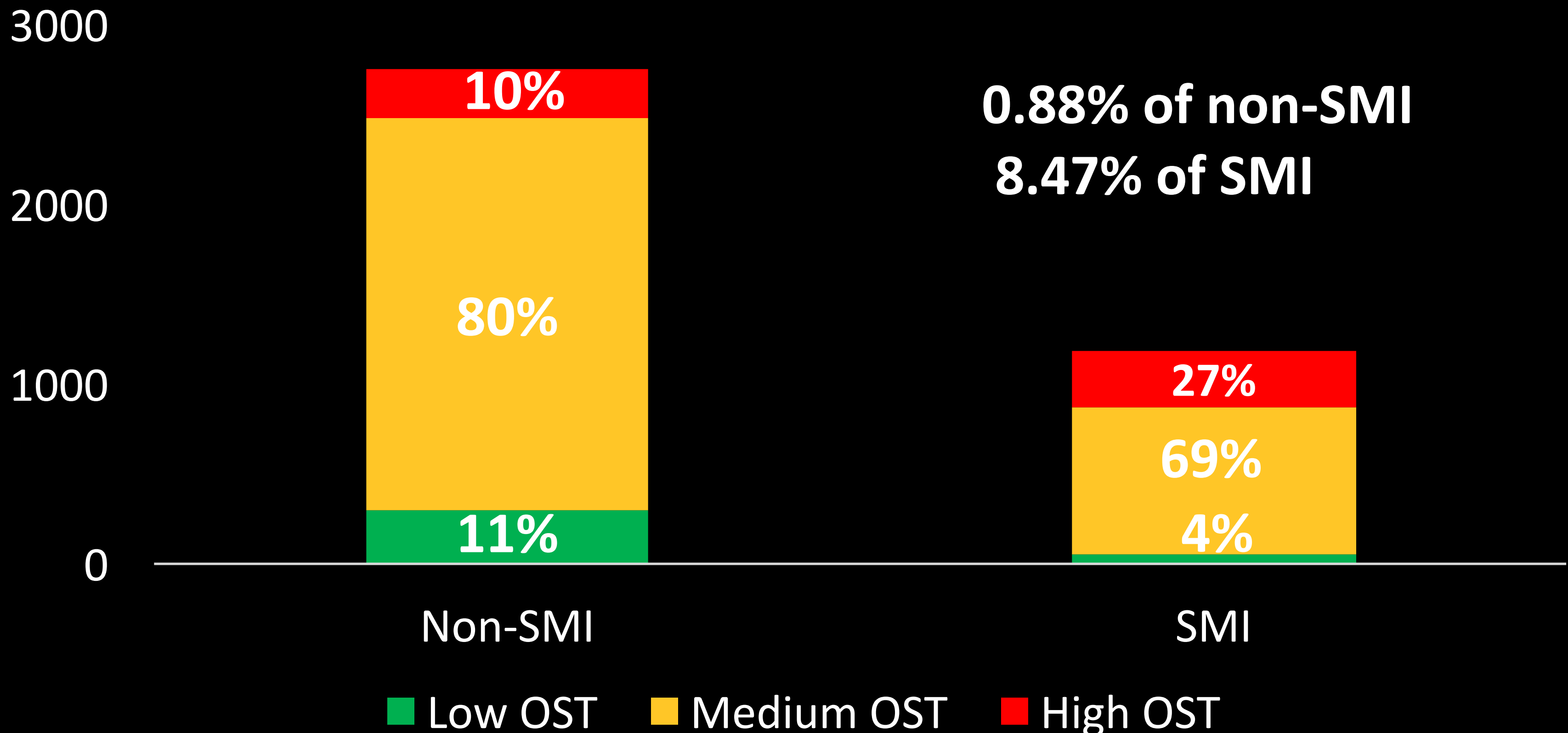
- ✓ Focused analysis on frequent flyers
- ✓ Analysis of pre- and post-booking service patterns
- ✓ Analysis of concurrent service patterns (probation & behavioral health services)

Criminal Justice Systems Involvement –

Jail Bookings

Arrests/Booking (smi *only*)				
	mean	median	max	rates per 1,000
pre-study period	1.6	1	11	103
study period	1.48	1	10	86
post study period	2.07	1	16	149

Criminal Justice Systems Involvement –
Probation Risk Assessments



Multi-Systems Involvement

All Medicaid Claimants in Maricopa County
SFY 2015, n = 326,678

	Non-SMI claimants %	SMI claimants %
Emergency Department	67.51%	49.23%
Inpatient	46.03%	26.85%
Jail Bookings	n/a	n/a
Probation	.88%	8.47%
HMIS	n/a	n/a

FOUR AIMS

AIM 4: To transform our proof of concept analyses into visualizations that facilitate evidence-informed and actionable dialogue and decision-making between multi-sector policy-makers that can lead to a culture of health for Medicaid enrolled individuals experiencing behavioral health issues.

ASU Decision Theater

Conclusions/Discussion

Compared to people who are not SMI, patients with SMI found to:

- Generate comparable total health care claims value up through the 5*th* decile
- Generate markedly lower value health claims at deciles 6 – 10
- Receive significantly more behavioral health care
- Receive significantly less physical health care
- Experience less ER/ED services
- Experience less inpatient care

Next Steps

- Re-evaluate the metric for creation of strata/ deciles
- Evaluate relationships between patient characteristics and claim patterns
- Replicate analysis for GMHSA/Children's
- Continue analysis and linking with other data sets already in possession
- Secure additional data sets
- Create and evaluate visualization platforms for multi-system policy dialogues
- Secure additional funding (RWJ or NIMH) to bring to statewide scale

Commentary

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Questions and Discussion

Webinars

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Archives

http://systemsforaction.org/research-progress-webinars

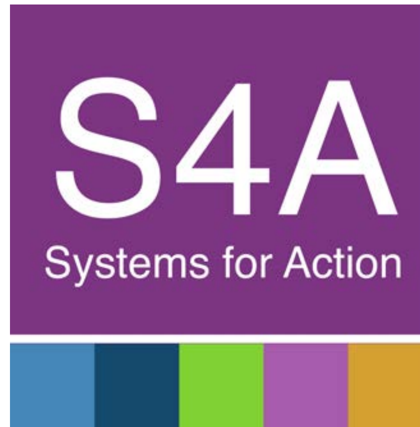
Upcoming

Thursday, November 2, 12-1pm ET/ 9-10am PT
Testing a Community Complex Care Response Team to Improve Geriatric Public Health Outcomes
Carolyn E. Ziminski Pickering, PhD, MSN, BSN, University of Texas Health Science Center, San Antonio; and Christopher Maxwell, PhD, School of Criminal Justice, Michigan State University

Wednesday, November 15, 12-1pm ET/ 9-10am PT
Implementing a Culture of Health among Delaware's Probation Population
Daniel J. O'Connell, PhD, and Christy Visher, PhD, Department of Criminal Justice, Center for Drug & Health Studies, University of Delaware

Wednesday, December 6, 12-1pm ET/ 9-10am PT
Housing for Health: Cross-Sector Impacts of Supportive Housing for Homeless High Users of Health Care
Ricardo Basurto Davila, PhD, MS, Chief, Policy Analysis Unit, LA County Dept. of Public Health and Corrin Buchanan, MPP, Program Manager, Housing for Health, LA County Dept. of Public Services

Thank you for participating in today's webinar!



For more information about the webinars, contact:

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Speaker Bios

Dr. William Riley is a Professor in the School for the Science of Health Care Delivery at Arizona State University, where he teaches process engineering, health finance, and health care quality and safety design. He previously served as the Associate Dean for the School of Public Health at the University of Minnesota and currently serves as the Director of the National Safety Net Advancement Center. Dr. Riley brings 25 years of senior executive experience in health care organizations, including serving as President and CEO of Pacific Medical Center in Seattle, Washington; CEO of Aspen Medical Group in St. Paul, Minnesota; Senior Vice President at Blue Cross Blue Shield of Minnesota in St. Paul; and Senior Vice President of St. Paul-Ramsey Medical Center/Ramsey Clinic. Dr. Riley's research areas include quality improvement and patient safety, with several nationwide and international projects currently underway. He is the author of more than 60 articles related to quality management, patient safety and health care management, and has co-authored two books on performance improvement in health care. A past chair of the Public Health Accreditation Board, Dr. Riley serves on several boards, including the Fairview Physicians Associates (FPA), an affiliate of Fairview Health Systems.

Dr. Michael Shafer is a professor in the School of Social Work at Arizona State University's College of Public Service and Community Solutions where he also holds affiliate appointments in the Center for Health Information Research and the School of Criminology and Criminal Justice. Dr. Shafer is the founding director of the Center for Applied Behavioral Health Policy which has, for the past 25 years, conducted cutting edge research on the adoption and implementation of innovative practices in behavioral health care. Dr. Shafer has authored more than 40 peer-reviewed research articles and generated more than $45 million in grants and contracts that target capacity building and innovation in behavioral health services.

Dr. George Runger is Chair of the Department of Biomedical Informatics (BMI) and the International School of Biomedical Diagnostics and Professor in the School of Computing, Informatics, and Decision Systems Engineering at Arizona State University. He researches analytical methods for knowledge generation and data-driven improvements in systems. He focuses on machine learning for large, complex data, and real-time analysis, with applications to processes, surveillance, decision support, and population health. Previously, he was a senior engineer and technical leader for system improvements and analytics projects at IBM. He reviews for journals in the area of machine learning and statistics and he is currently the department editor for healthcare informatics for IIE Transactions on Healthcare Systems Engineering.