

# A New Method for Examining the Efficacy of SBIRT Protocols on Reducing Healthcare Utilization and Costs

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RTI, International

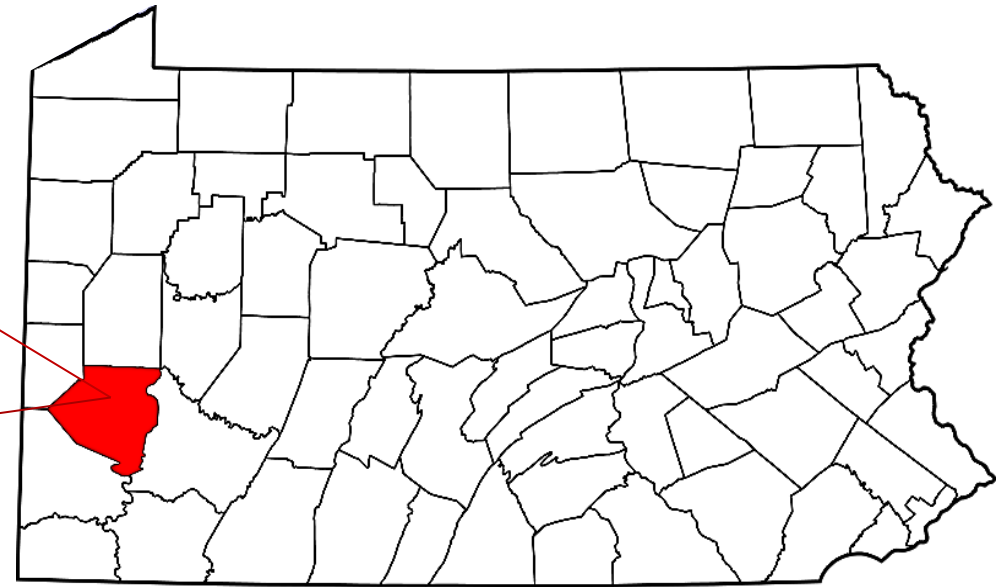
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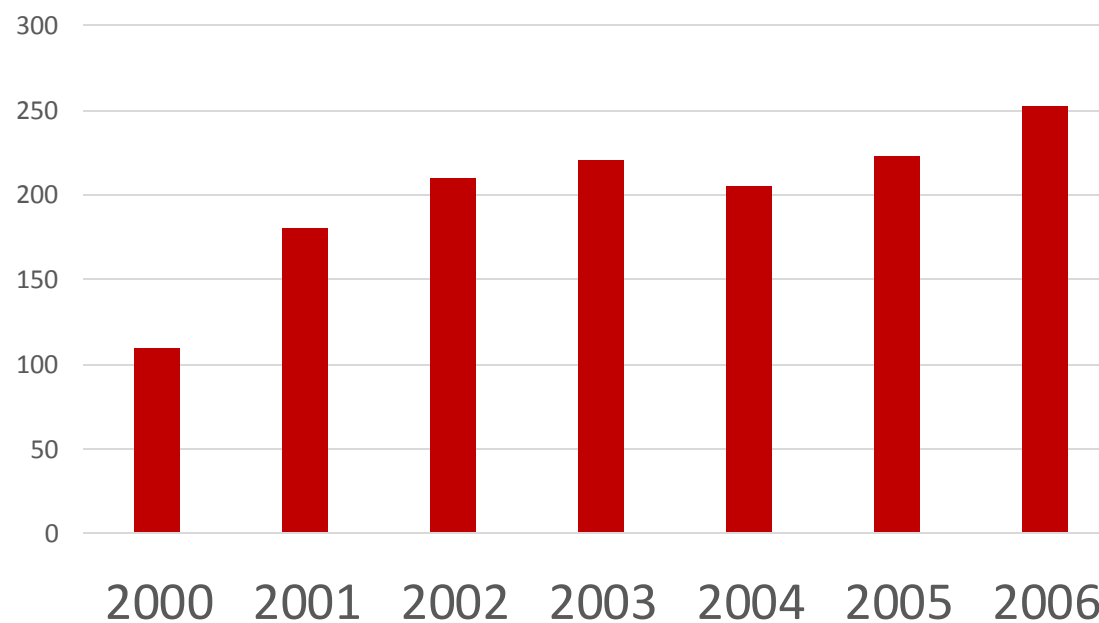


# The incidence of death from overdose increased approximately 400% between 1980 and 2006.<sup>1</sup>

252  
Reported  
Overdoses  
(2006)



Allegheny County Overdose Deaths



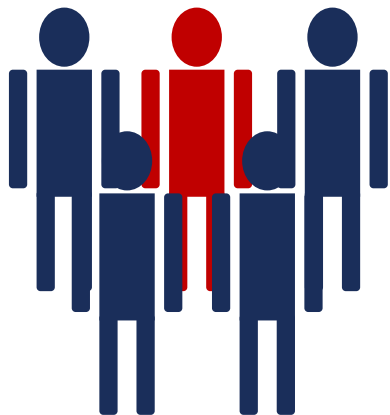
# Allegheny County Overdose Prevention Coalition (ACOPC) established *Safe Landing*.



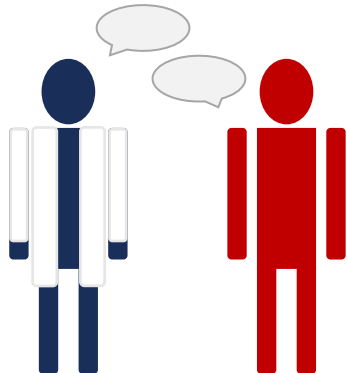
Emergency Department



Screening



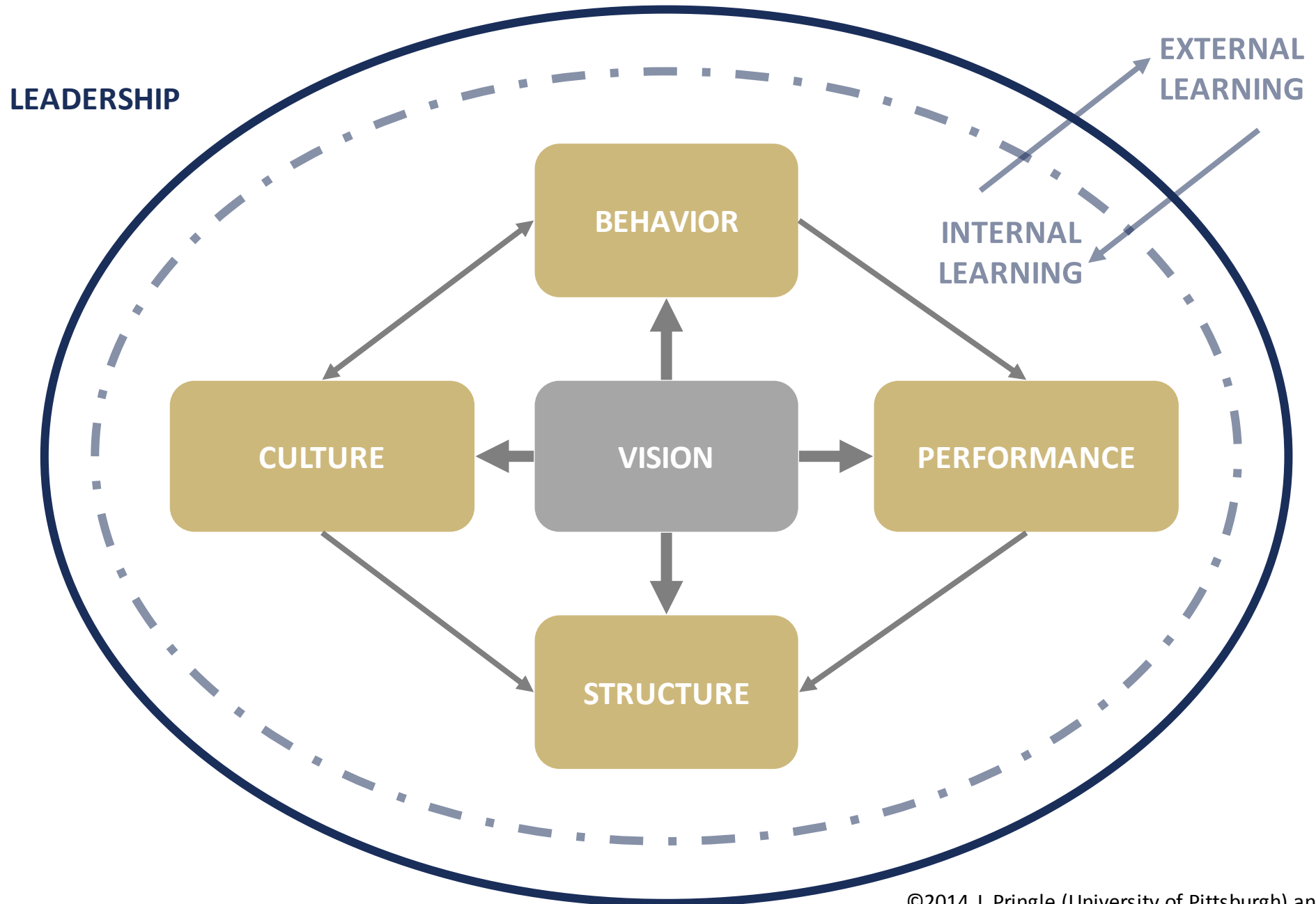
Brief Intervention



Referral to Treatment



# Innovation Model



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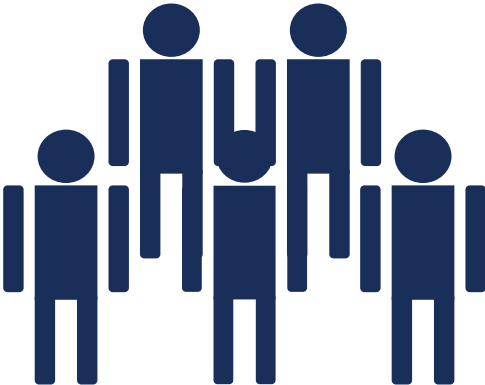
# The SBIRT Healthcare Common Procedure Coding System (HCPCS) Pilot Study

Are SBIRT initiatives cost-effective and cost beneficial?



# Study design involved one experimental group and three control groups.

Sample from Claims data provided by Gateway and UPMC Health Plans



Patients from two healthcare sites



ED Visit (Index Event) in two time periods



SBIRT applied for AGH 2012 Group



### Patient Characteristics

**Age**  
Late 20s – Early 30s

**Gender**  
59% - 63% Female

**Ethnicity**  
47% - 59% Black  
39% – 49% White

**Insurance**  
Medicaid 9 – 11 Months

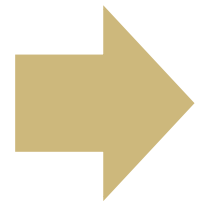
# Three outcomes were analyzed using a differences in differences in differences design.



**Total Health  
Care Costs**



**Prevalence of at least  
one Inpatient Visit**



**Outpatient Behavioral  
Health Claims**

# Health care costs were modeled using a multilevel generalized linear model (GLM).

$$Y_{it} = f(\beta_0 + \beta_1 \text{HOSP}_i + \beta_2 \text{POST}_{it} + \beta_3 \text{YEAR}_i + \beta_4 \text{HOSP}_i * \text{POST}_{it} + \beta_5 \text{HOSP}_i * \text{YEAR}_i + \beta_6 \text{POST}_{it} * \text{YEAR}_i + \beta_7 \text{HOSP}_i * \text{POST}_{it} * \text{YEAR}_i + \beta_8 X_{it} + \gamma G_i) + \epsilon_{it}$$



# Health care costs were modeled using a multilevel generalized linear model (GLM).

$$Y_{it} = f(\beta_0 + \beta_1 \text{HOSP}_i + \beta_2 \text{POST}_{it} + \beta_3 \text{YEAR}_i + \beta_4 \text{HOSP}_i * \text{POST}_{it} + \beta_5 \text{HOSP}_i * \text{YEAR}_i + \beta_6 \text{POST}_{it} * \text{YEAR}_i + \beta_7 \text{HOSP}_i * \text{POST}_{it} * \text{YEAR}_i + \beta_8 X_{it} + \gamma G_i) + \varepsilon_{it}$$

$\beta_7$

Captures the change in outcome for those receiving the index ED event at AGH and SBIRT was intended to have been delivered relative to the comparison group. This captures the association between an intention of SBIRT delivery and health care utilization and cost outcomes.

# Cost and Number of Claims Ranges Across Groups

Pre-Index Event Ranges

Post-Index Event Ranges



# SBIRT associated with 24% lower health care costs.



# SBIRT also associated with lower inpatient and outpatient claims.

Prevalence of At Least One Inpatient Visit

**5.3  
pps**

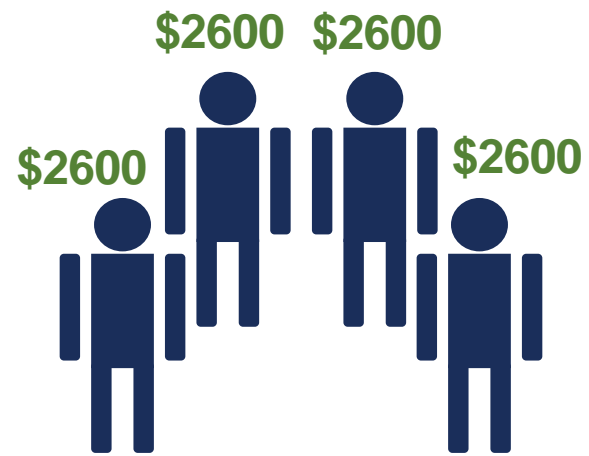


Outpatient Behavioral Health Claims

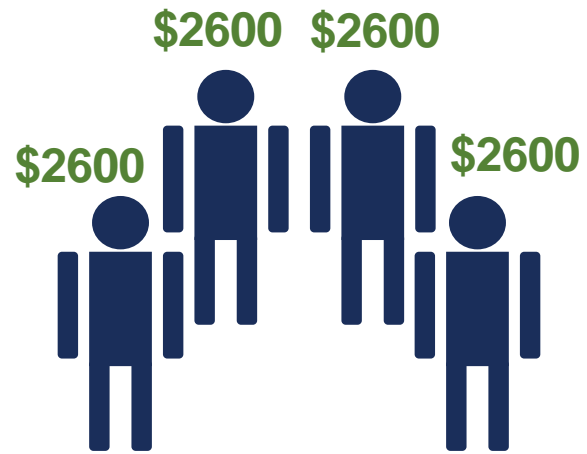
**2.5  
pps**



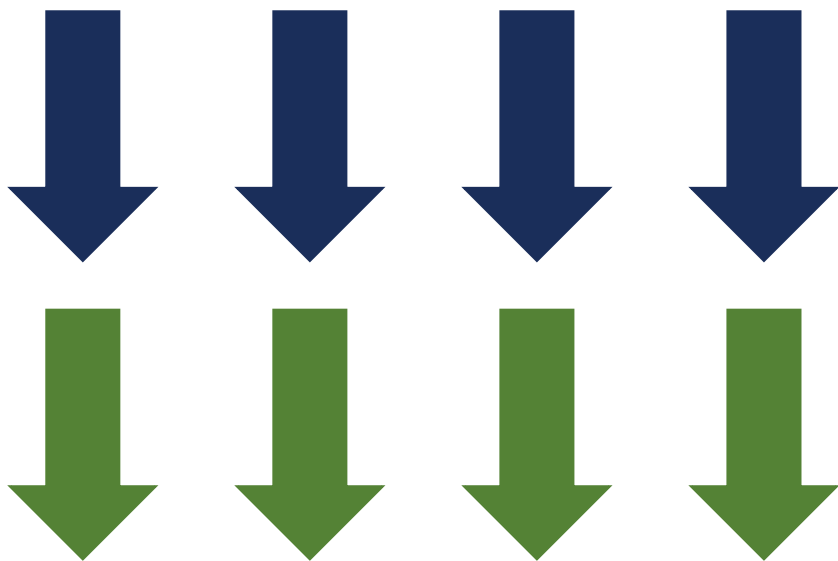
# 24% reduction translates to approximately \$2600 per patient per year.



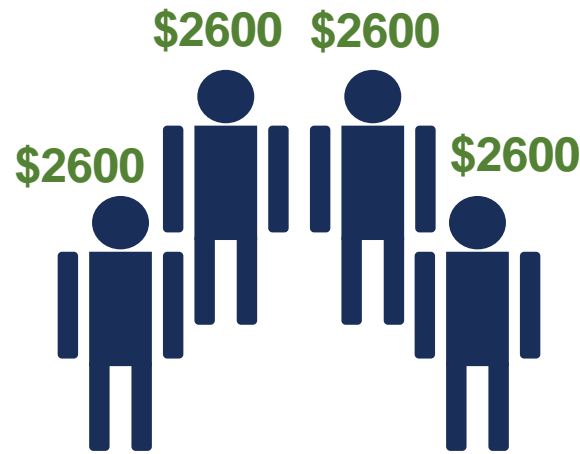
# 24% reduction translates to approximately \$2600 per patient per year.



Reduction driven mainly by decline of inpatient claims.

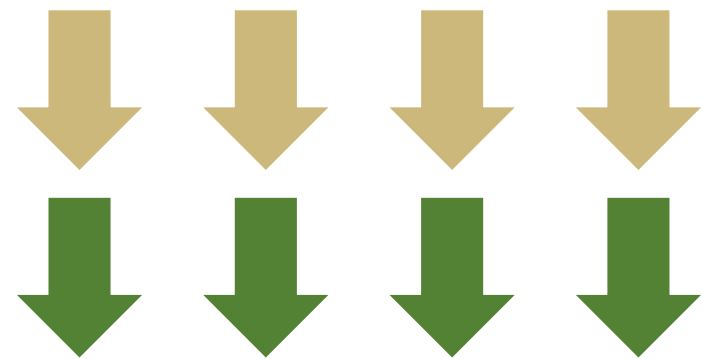
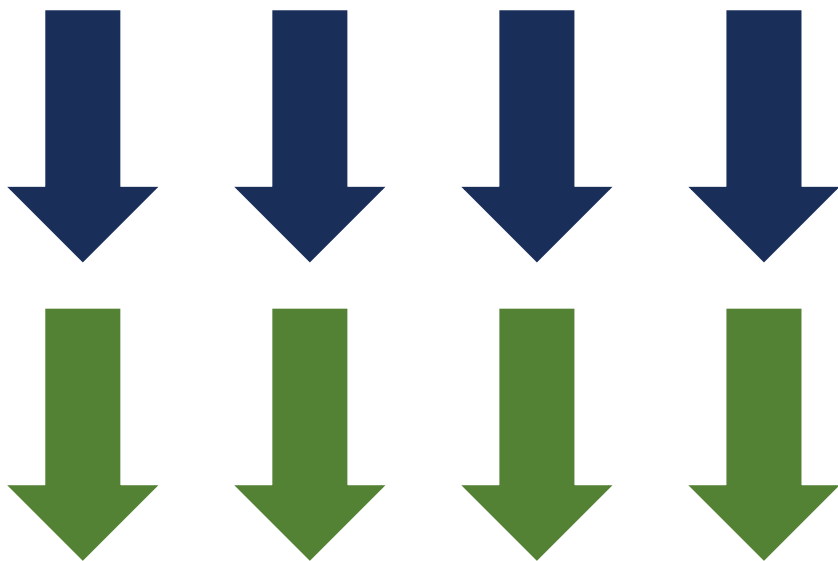


# 24% reduction translates to approximately \$2600 per patient per year.



Reduction driven **mainly** by decline of inpatient claims.

Reduction driven **moderately** by decline of outpatient behavioral claims.



# Future Analyses

## Larger Sample Size

Extract data on SBIRT patients who received services during 2013 and 2014.

## Propensity Score Matching

Construct more comparable non-SBIRT sample

Reduce data noise and yield more accurate results on how SBIRT effects healthcare costs

## 30-Day Readmissions Analysis

Use 30-Day all cause health care use in current study

Focus on 30-Day ED readmissions by examining Current Procedural Terminology codes (CPT) and others to identify ED Visits



# Acknowledgements

- **University of Pittsburgh, School of Pharmacy PERU**

**Janice Pringle, PhD**

Principle Investigator

**Shannon M. Kearney, DrPH, MPH, CPH,**

SBIRT HCPCS Data Analysis

**Sherry Rickard-Aasen, MBA**

*Safe Landing* Project Manager

- **RTI, International**

**Arnie Aldridge, PhD**

**William Dowd**

- **Jewish Healthcare Foundation**

**HCPCS Study Funding**

- **Compass Health Analytics, Inc.**

**James Highland, PhD**

Honest Broker

- **Community Care Behavioral Health Organization**

- **Gateway Health**

- **Pennsylvania Department of Human Services**

- **UPMC for You**

Thank You