IICAPS Evaluation
Value Options – Connecticut Behavioral Health Partnership

Results Based Accountability (RBA) Analysis Utilizing Data from Medicaid Claims, DCF, and Yale

VALUEOPTIONS®

Acknowledgements

- DCF – Karen Andersson, Jeff Howard
- DSS – Bill Halsey
- Yale – Katie Balestracci
- Consultant – Lisa Dierker
- Value Options – Laurie Vanderheide, Sarah Brdar, Michael Barron

Basic Methodology

- Data – Medicaid Claims, DCF, & IICAPS Service Data

- Used Descriptive Statistics, Bivariate and Multiple Regression Analyses

Methodology Continued

- Sample = All Husky A & B discharged from IICAPS during CY 2011
  - D05 pulled out
  - Episodes of Care defined by Yale Data
    - VS defined by "uninterrupted" claims in IICAPS
  - Those with 2 or more IICAPS episodes (N=36) used the latter episode

Results Based Accountability (RBA)

- RBA framework
- How much did we do?
  - Utilization
  - Population
  - Etc.
- How well did we do it?
  - Fidelity
  - Consistency of Practice
  - Process Measures
- Is anybody better off?
  - Outcomes

- RBA Across America

Results-Based Accountability™

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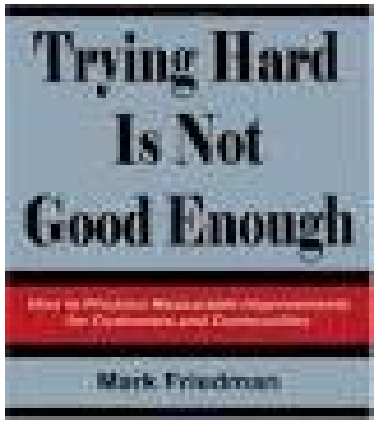

Using Results Based Accountability in United Ways
(and other community grant making organizations)

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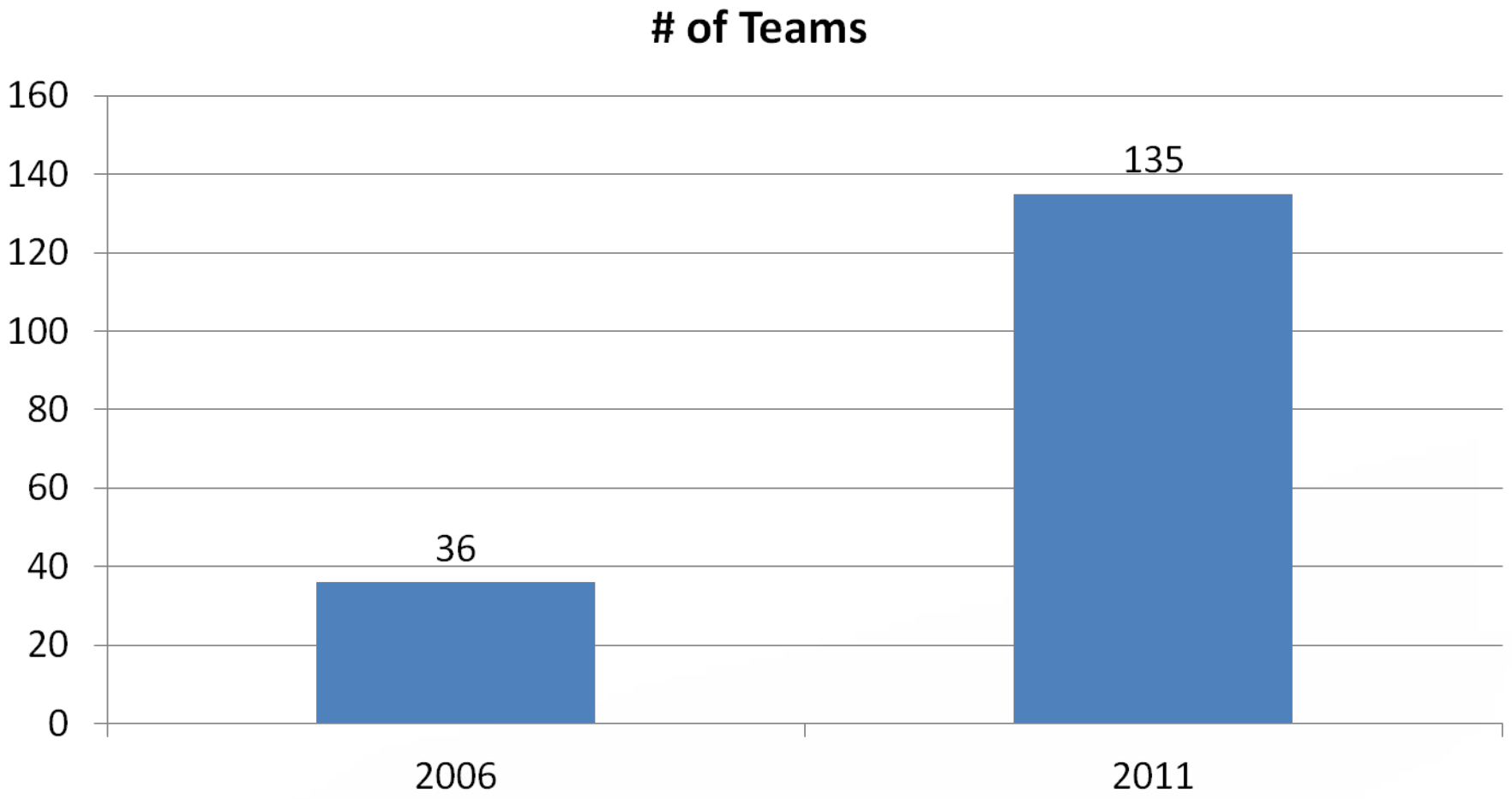
RBA – How Much Did We Do?

- Growth in utilization
- Characteristics of IICAPS users
- Service utilization post IICAPS

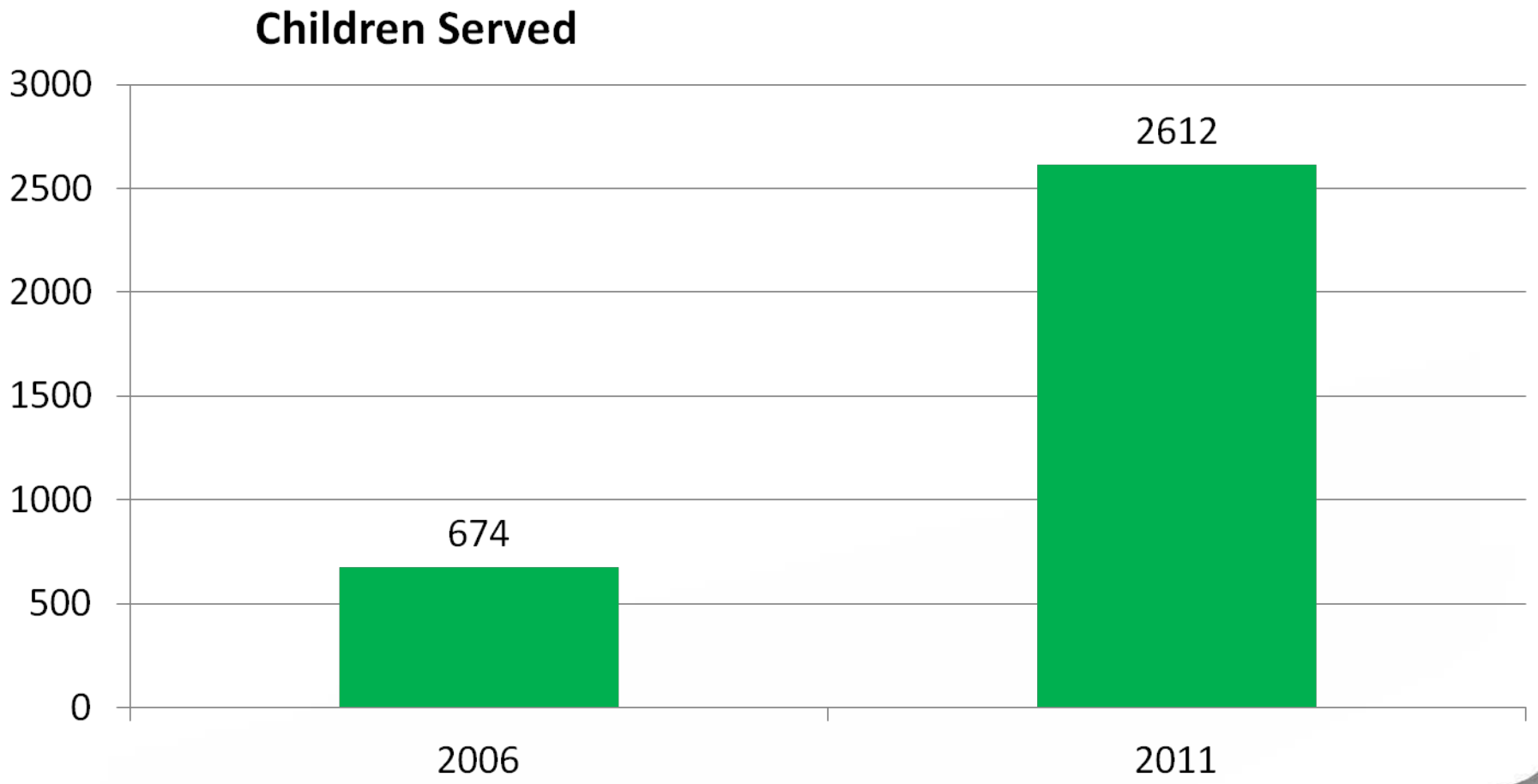
IICAPS Growth

- **Occurred primarily between 2006-2011**
  - **Changes in funding (grant to fee-for-service)**
  - **Ability to grow to meet demand**

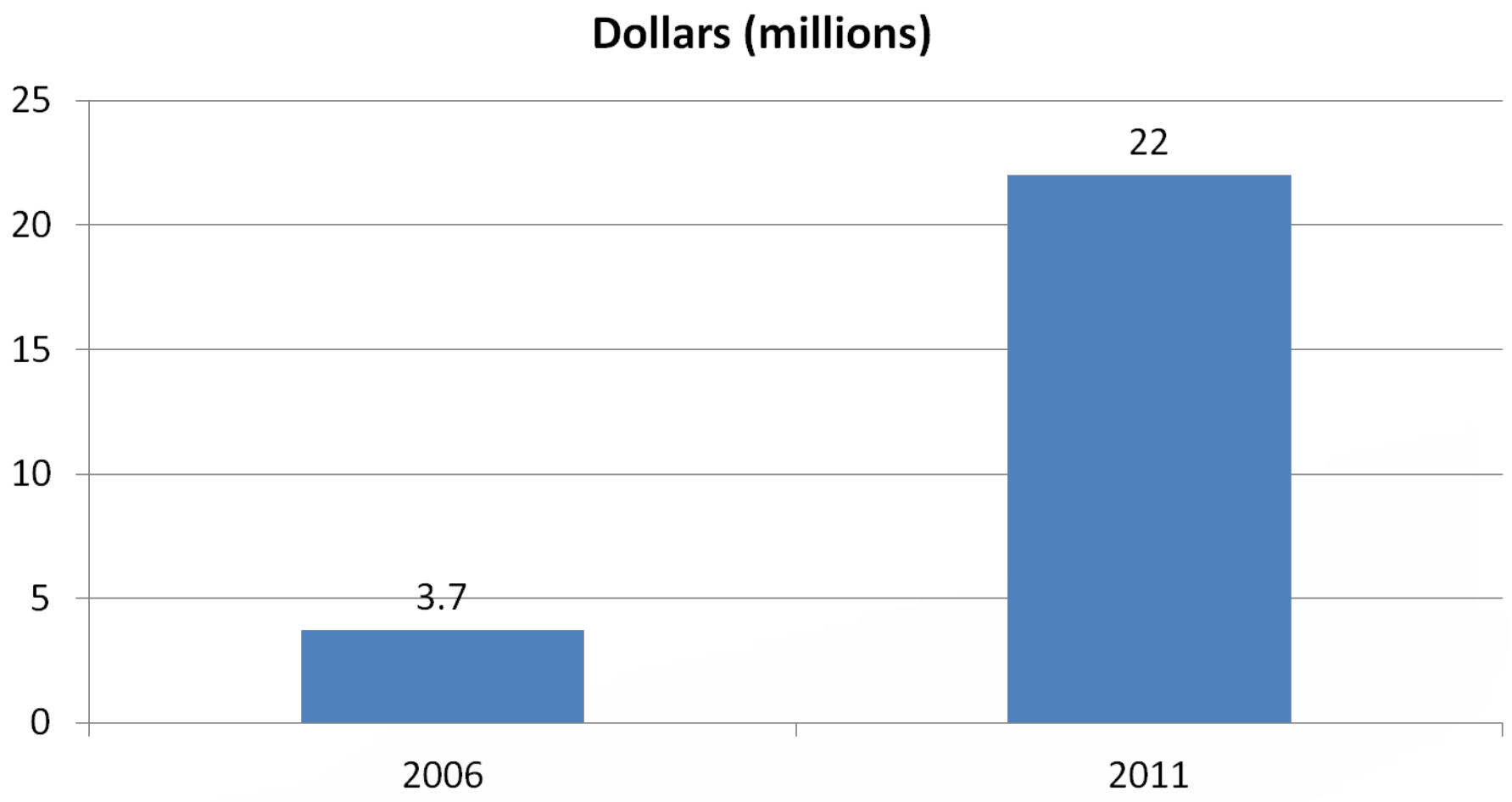
IICAPS Growth - Teams



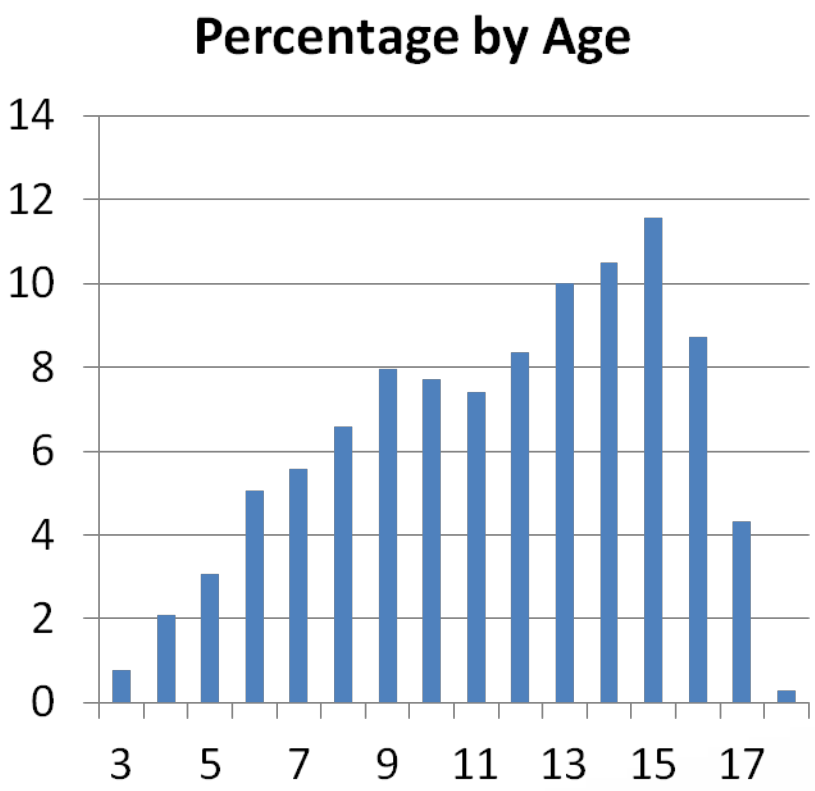
IICAPS Growth - Children/Families Served

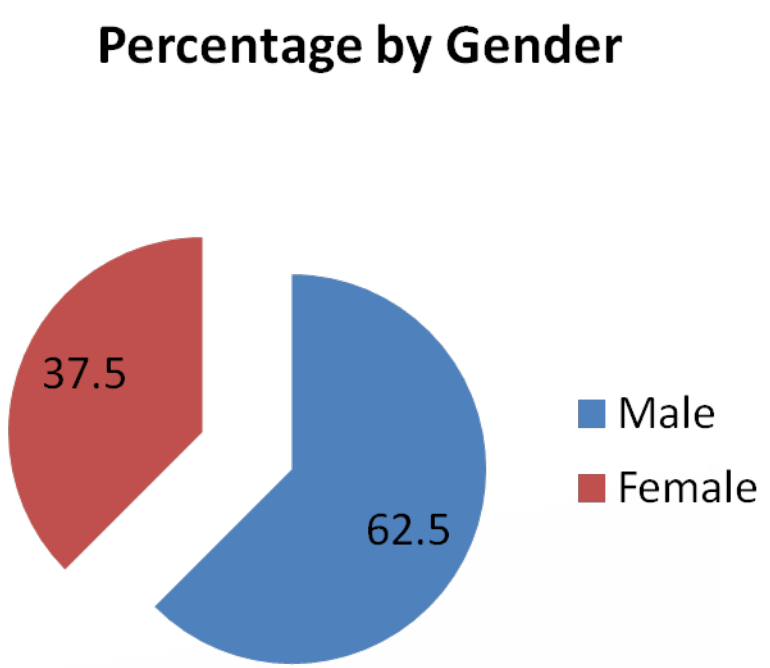


IICAPS Growth - Expenditures



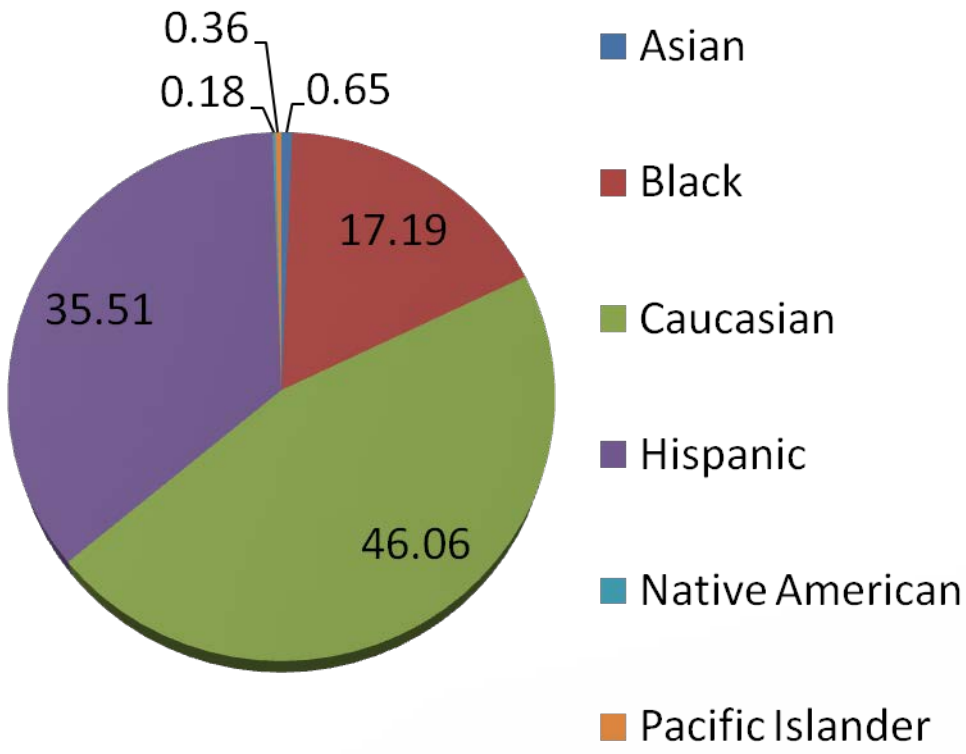
Characteristics of IICAPS Users





Characteristics of IICAPS Users

Race & Ethnicity

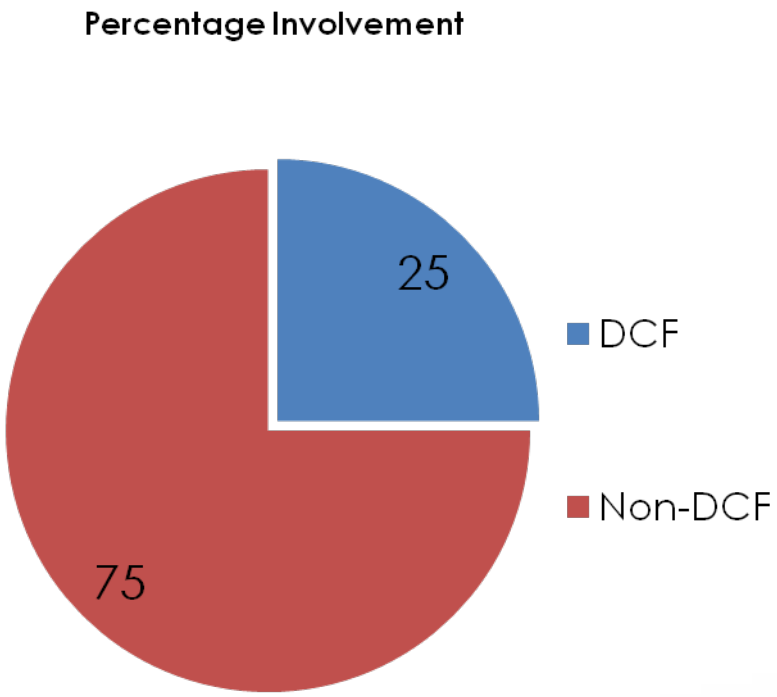


Comparisons to Medicaid Population

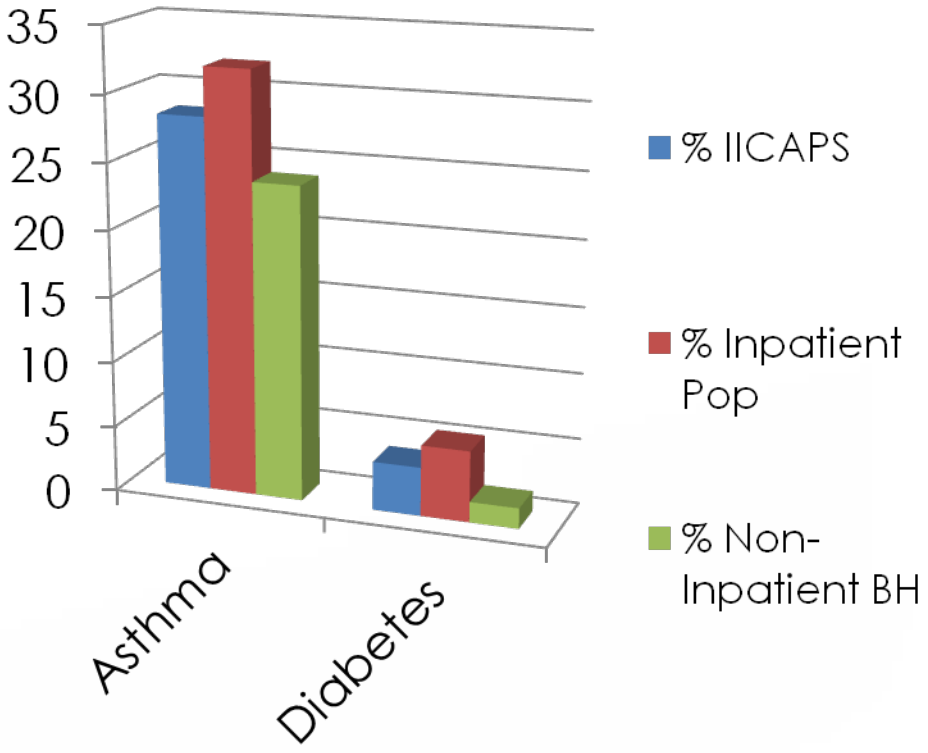
- **Caucasians are over-represented in IICAPS**
- **Blacks and Asians are under-represented in IICAPS**
- **Hispanics participate in IICAPS at the same rate as their participation in Medicaid**

Characteristics of IICAPS Users

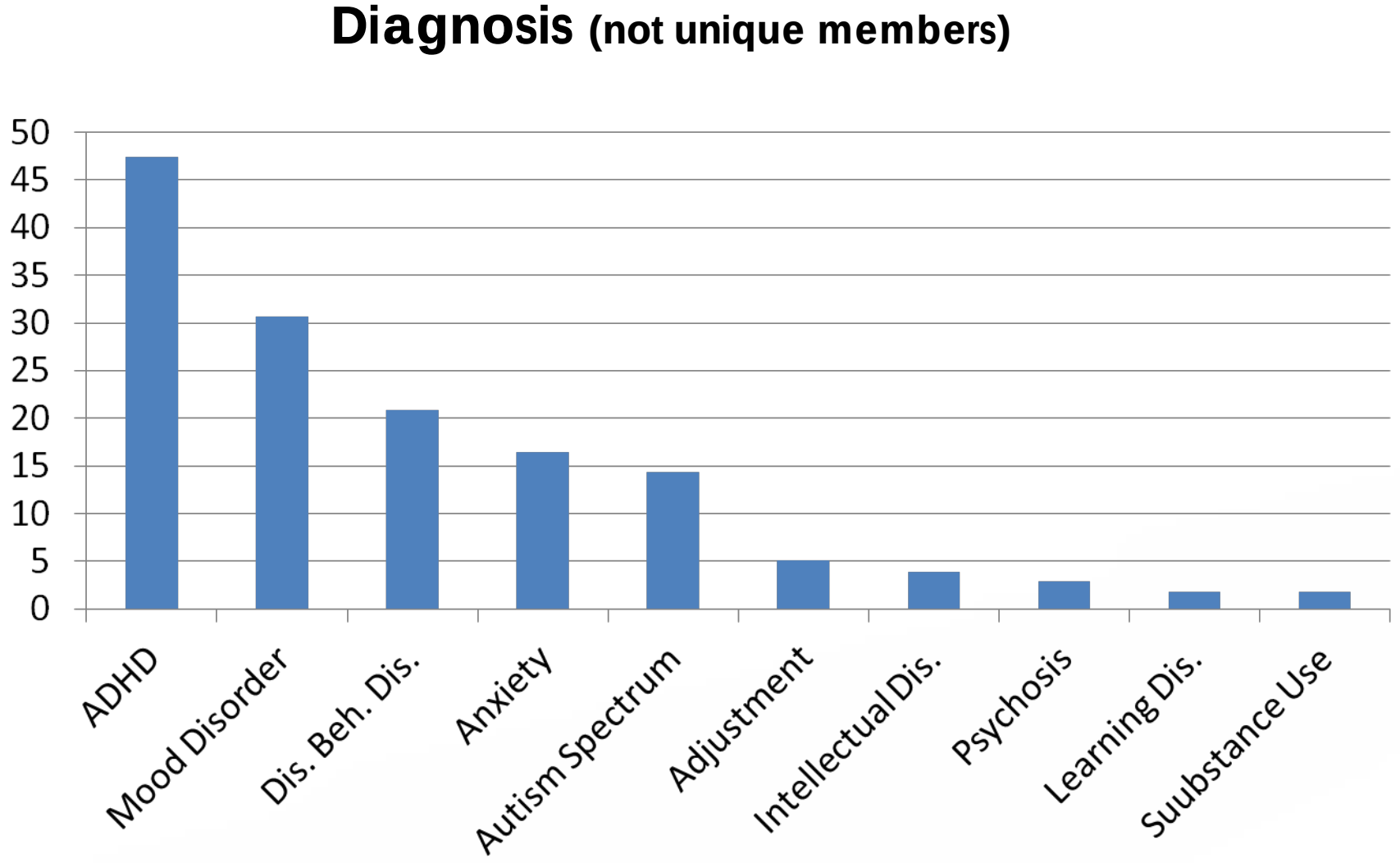
DCF Involvement



Medical Co-Morbidity



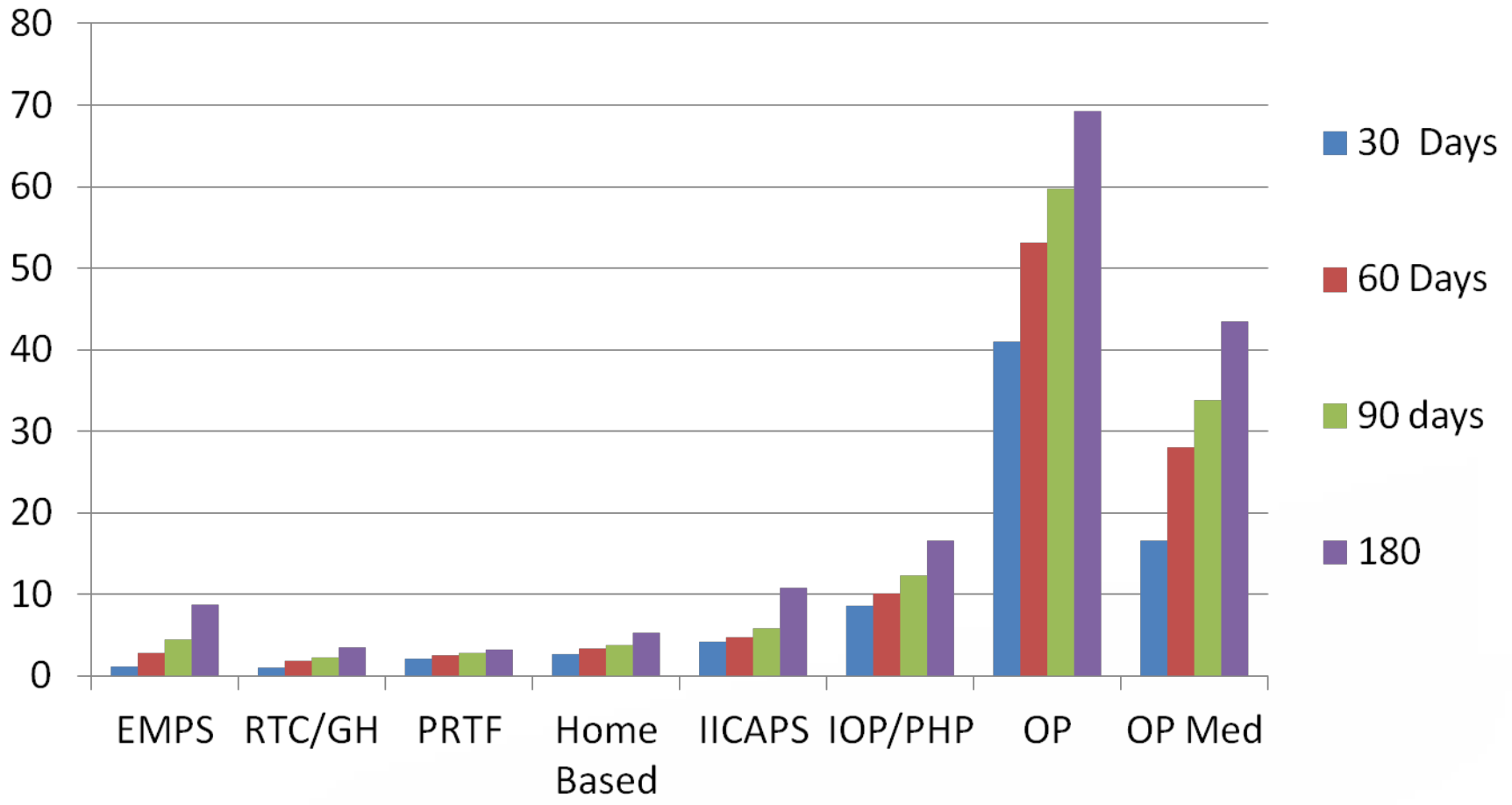
Characteristics of IICAPS Users



Characteristics of IICAPS Users

Diagnosis	Percentage of Youth	Comparison: Inpatient Users	Comparison: Non-Inpatient Utilizers of BH
ADHD	47.4%	Not available	Not available
Mood Disorder	30.7%	93.6%	24.2%
Disruptive Behavior	20.9%	Not available	Not available
Anxiety Disorder	16.5%	66.6%	24.6%
Autism Spectrum Disorder	14.4%	15.9%	6.1%
Adjustment Disorder	5.1%	40.3%	32.7%
Intellectual Disability	3.9%	5.3%	1.5%
Psychosis	2.9%	59.7%	3.2%
Learning Disability	1.8%	Not available	Not available
Substance Use	1.8%	37.3%	7.4%

Service Utilization Post IICAPS

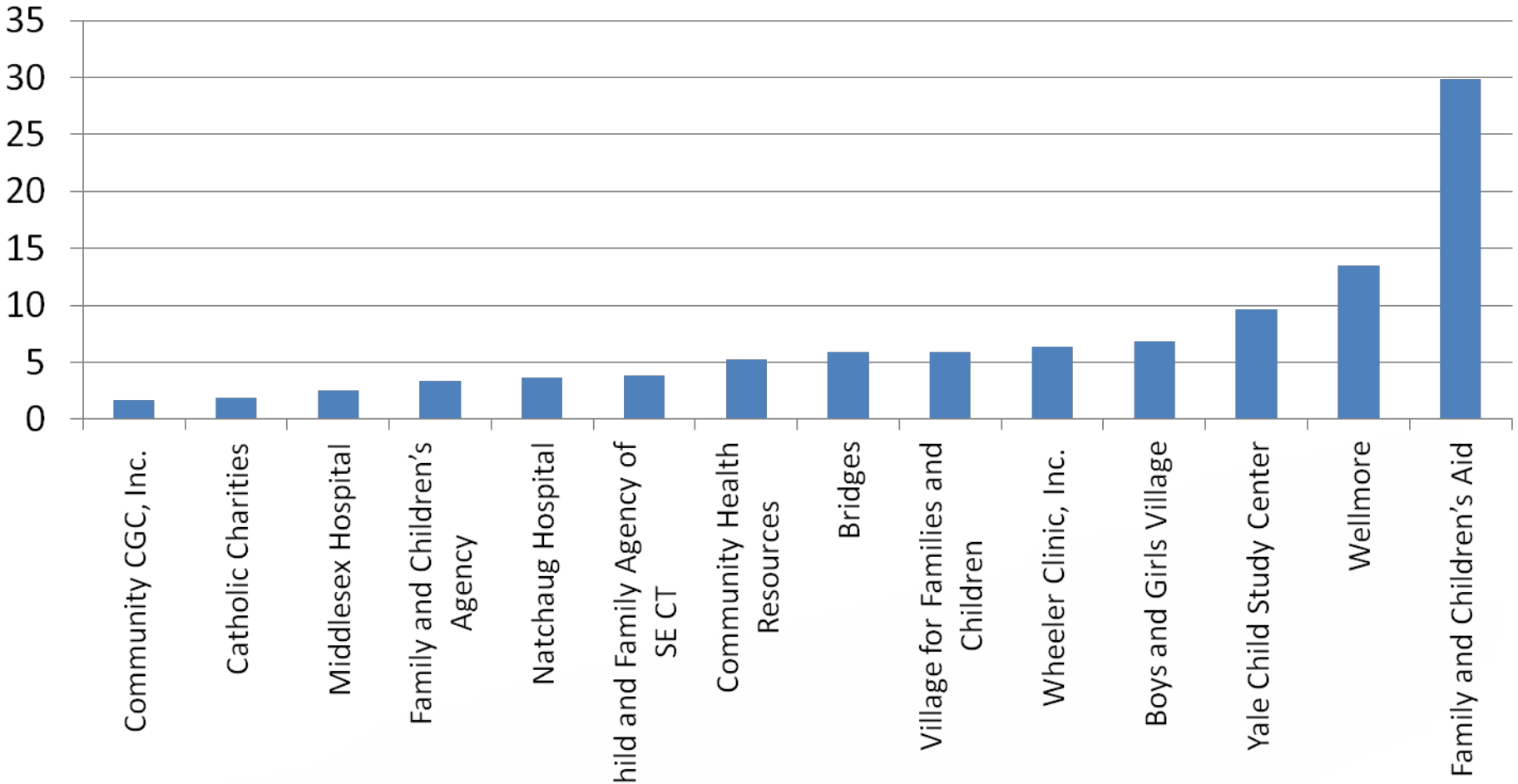


RBA – How Well Did We Do It?

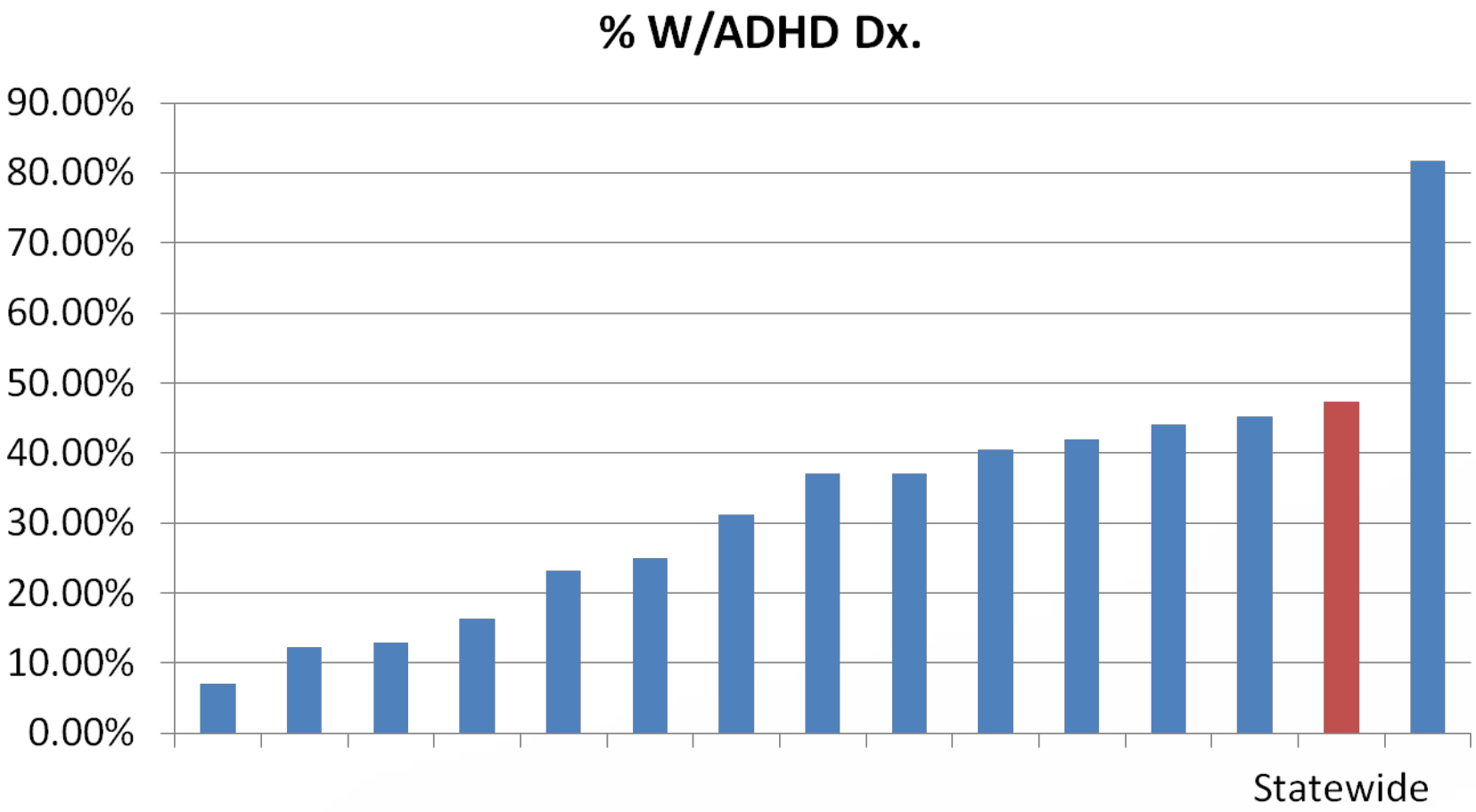
Consistency of Practice

- Diagnosis
- Duration of Care
- Services Billed/Paid
- Case Management/Clinical
- Service Intensity
- Gaps in Care

Percentage of IICAPS Users by Provider



ADHD Diagnosis by Provider



Episode Duration by Provider

(Means with the same letter/shading are not significantly different)

Episode duration: Mean # days	a	b	c	d	e
129.75 de					
135.30 de					
138.54 cde					
144.23 bcde					
146.94 bcde					
147.11 bcde					
150.43 bcde					
153.05 bcd					
153.61 bcd					
154.88 bcd					
158.58 bc					
162.20 b					
164.13 ab					
183.31 a					

Payments (Clinical & Case Management)

(Differences between IICAPS agencies in mean amount paid/case)

Total Amount Paid					
Mean	Std Dev	a	b	c	d
$9,094.61 **d**	$5,825.75				
$9,307.20 **cd**	$5,252.83				
$9,463.44 **cd**	$4,474.26				
$9,564.03 **bcd**	$3,632.41				
$9,593.50 **bcd**	$5,121.53				
$9,646.49 **bcd**	$5,005.26				
$9,657.86 **bcd**	$5,307.68				
$11,135.52 **abcd**	$6,079.77				
$11,352.97 **abc**	$5,799.80				
$11,667.35 **ab**	$5,353.74				
$11,759.03 **a**	$6,018.10				
$12,228.48 **a**	$4,913.85				
$12,394.02 **a**	$5,388.77				
$13,214.78 **a**	$6,347.11				

Payments – Case Management

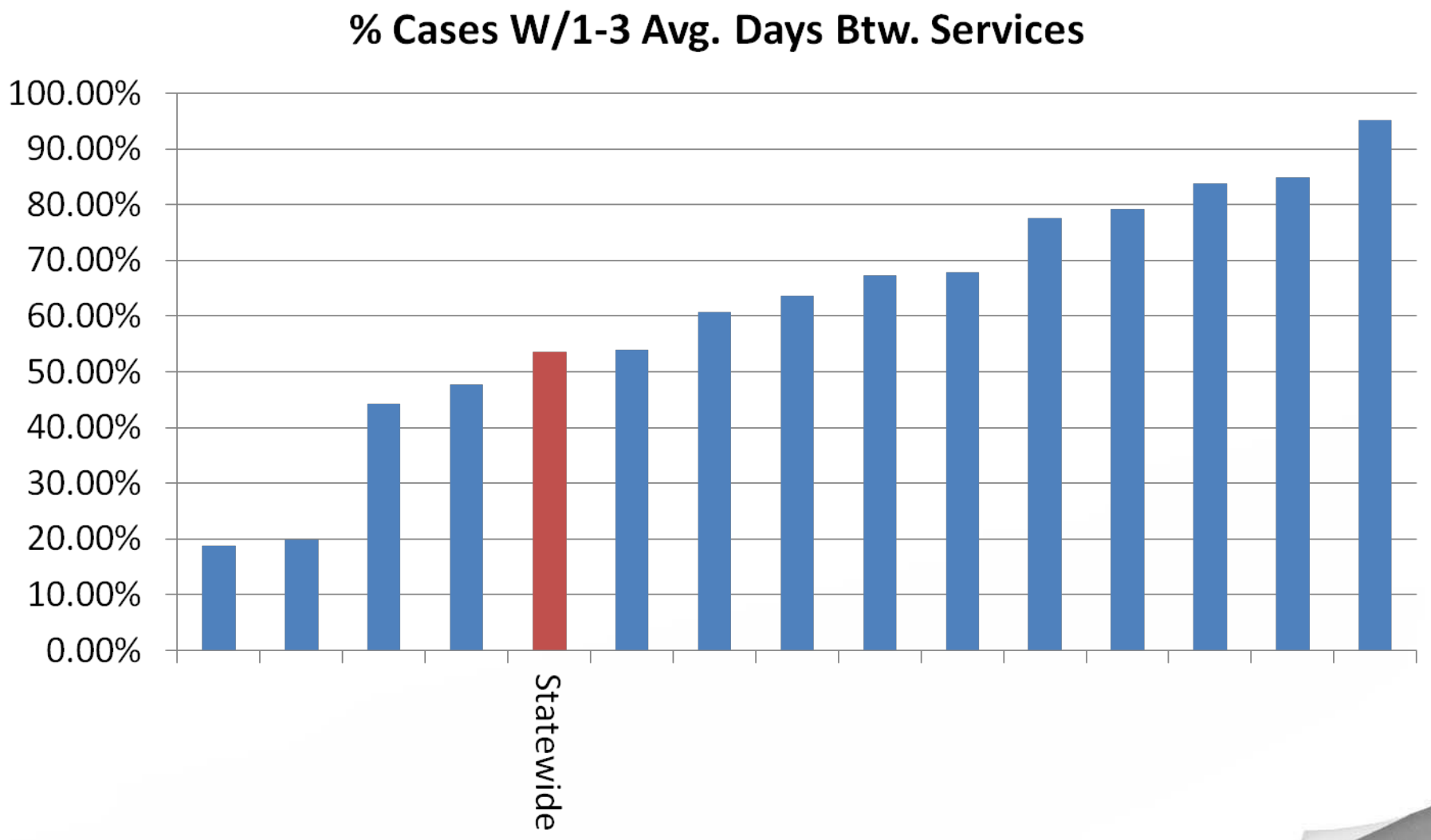
(Differences between IICAPS agencies in mean amount paid/case)

Case management (T1017) Amount Paid						
Mean	Std Dev	a	b	c	d	e
$1,120.39 **e**	$935.41					
$1,200.01 **de**	$893.64					
$1,429.21 **de**	$1,080.91					
$1,705.71 **de**	$1,351.04					
$1,715.79 **de**	$1,535.34					
$1,808.65 **d**	$1,394.54					
$1,828.37 **d**	$1,292.67					
$2,471.43 **c**	$1,443.55					
$2,499.66 **c**	$1,880.51					
$3,124.14 **b**	$1,944.98					
$3,205.35 **b**	$2,436.41					
$3,550.49 **b**	$2,213.87					
$3,590.15 **b**	$1,997.85					
$4,760.25 **a**	$1,966.67					

Payments – Clinical Service

Clinical (H2019) Amount Paid						
Mean	Std Dev	a	b	c	d	e
$4,803.77 **e**	$1,873.95					
$6,388.14 **d**	$3,770.75					
$7,635.07 **cd**	$3,910.86					
$7,802.47 **cd**	$4,108.64					
$7,894.59 **cd**	$5,183.75					
$7,940.77 **cd**	$4,064.38					
$8,186.81 **bc**	$4,749.35					
$8,228.64 **bc**	$4,730.80					
$8,638.33 **abc**	$3,987.53					
$9,259.37 **abc**	$4,891.66					
$9,419.73 **abc**	$5,049.28					
$9,858.70 **ab**	$4,694.25					
$9,922.59 **ab**	$4,411.63					
$10,090.64 **a**	$5,473.06					

Frequency of Service by Provider



Differences Between Providers in Average Days Between Services

Average # days between services								
Mean	Std Dev	a	b	c	d	e	f	g
2.51 **g**	0.55							
2.92 **fg**	0.62							
3.07 **ef**	0.76							
3.077 **ef**	0.51							
3.20 **def**	1.12							
3.38 **cdef**	1.19							
3.39 **cdef**	1.27							
3.44 **cde**	1.02							
3.67 **bcd**	1.20							
3.69 **bc**	1.77							
3.78 **bc**	0.94							
3.83 **bc**	2.32							
4.08 **b**	1.07							
4.97 **a**	2.01							

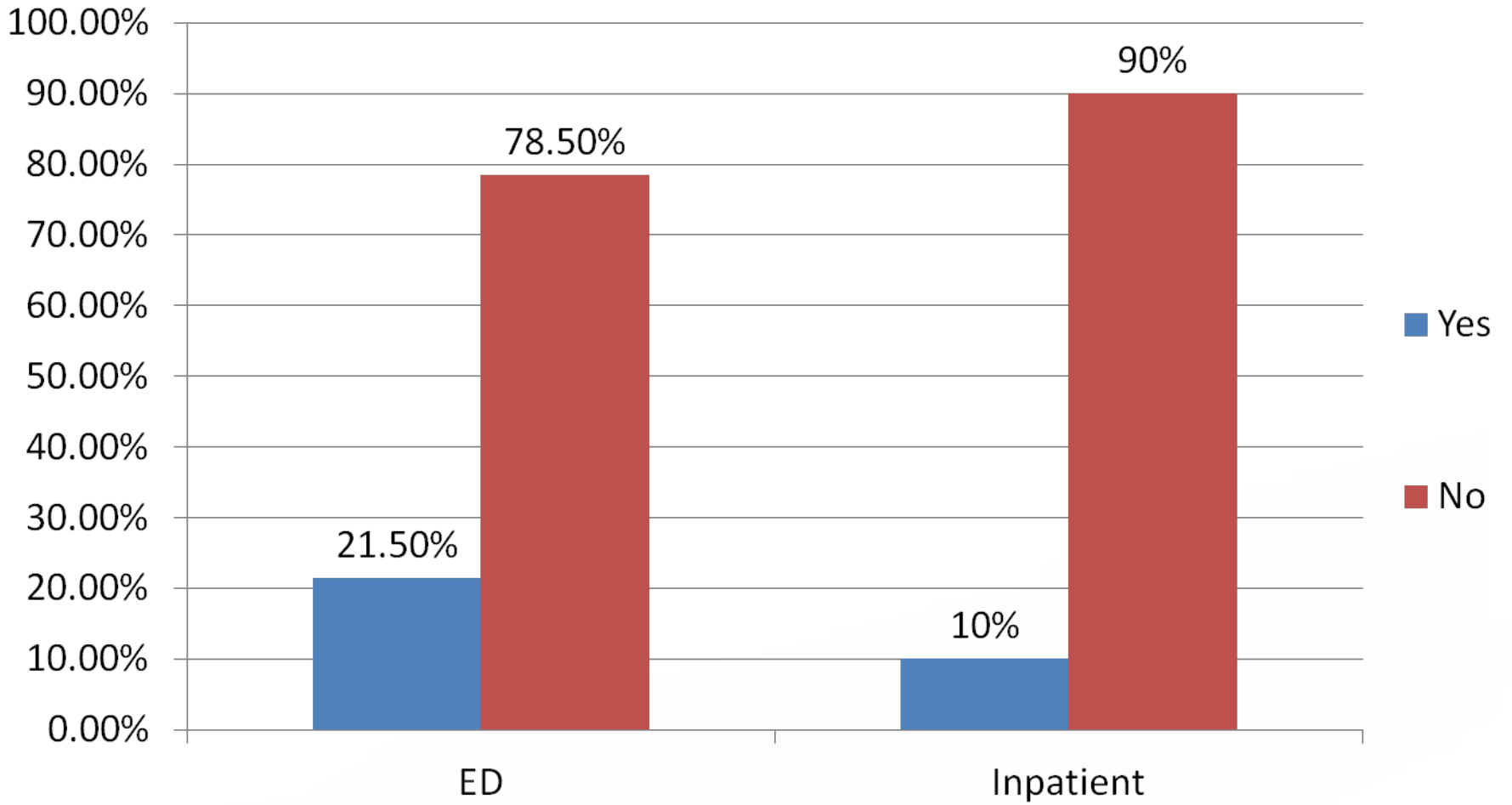
Percentage of Cases with a >21 Day Gap in Services

Provider	# of cases	# cases with 21 day gap	Percent
		13	11.30%
		1	1.01%
		9	28.13%
		1	1.54%
		1	3.57%
		5	5.68%
		3	5.36%
		27	5.41%
		1	2.33%
		3	4.92%
		5	5.00%
		10	4.41%
		5	4.72%
		22	13.58%

RBA - Are IICAPS Users Better Off?

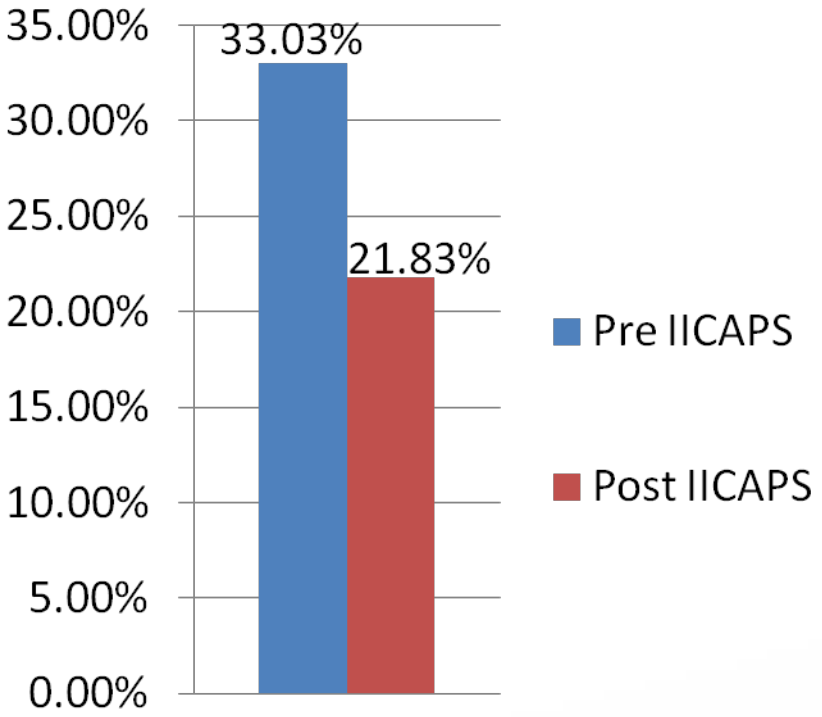
- ED utilization
- Inpatient admissions and days
- Spending

% of Users of ED & Inpatient 180 Days Post IICAPS

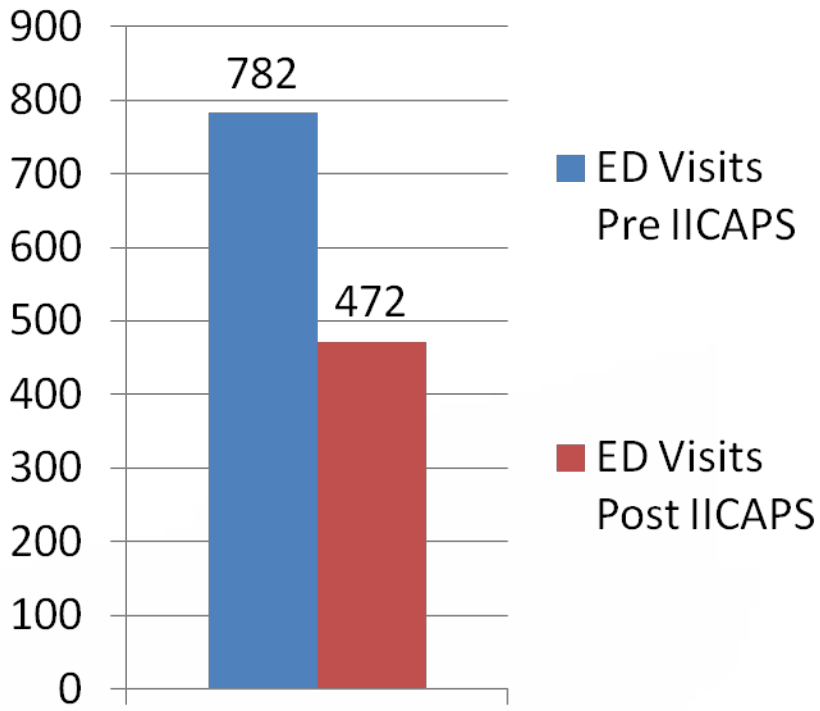


ED Utilization Pre-Post IICAPS

Pre – Post Percentage of Youth with ED Visits



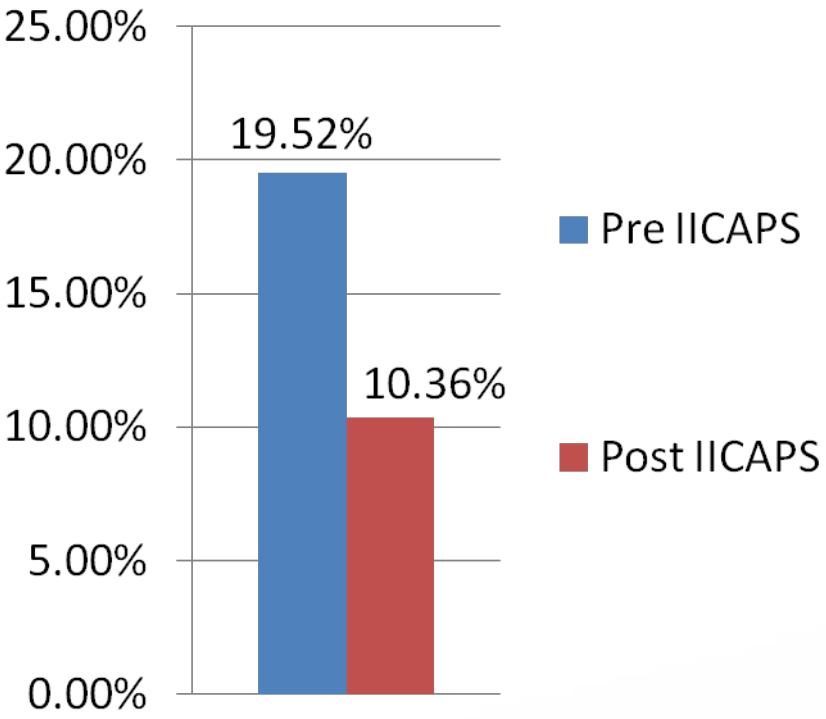
Pre-Post Number of ED Visits



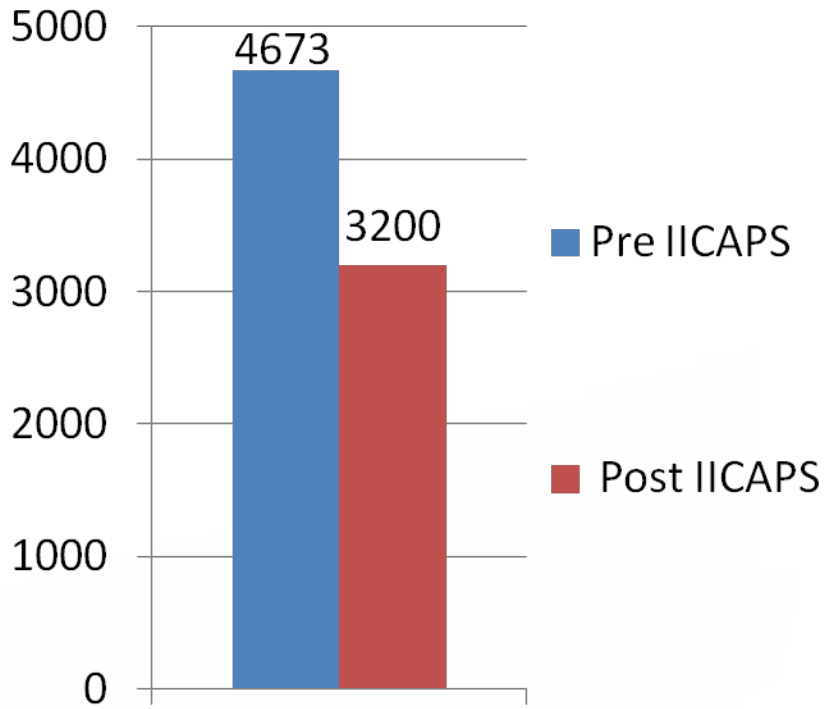
37 % decrease from Pre to Post IICAPS in utilization of ED

Inpatient Utilization Pre-Post IICAPS

Pre – Post Percentage of Youth with Inpatient Stays



Pre-Post Number of Inpatient Days



47.7% decrease in members admitted inpatient and 31% decrease in inpatient days

What Predicts an ED Visit at 180, 90, 60, and 30 Days Post IICAPS?

Days/Factors	180	90	60	30
2 or more IICAPS episodes	X			
Asthma	X	X	X	
Older member age	X		X	
Amount of BH $ 180 days before IICAPS episode	X	X		
Amount of BH $ 180 days after IICAPS episode	X	X	X	X
Female gender		X		
Intellectual Disability		X	X	X

MEANING?

- Many variables appear to be **a proxy for severity** (2 or more episodes, $ spent)or as a factor **that exacerbates a BH condition** (Asthma or Intellectual Disability)
- Female gender only during the post 90 day period is puzzling

What Predicts an Inpatient Stay at 180, 90, 60, and 30 Days Post IICAPS?

Days/Factors	180	90	60	30
Lack of a Solnit stay*	X	X	X	
Diagnosis of Intellectual Disability	X	X	X	
Larger average number of days between services	X			
More BH $ during IICAPS episode	X	X		
More BH $ 180 days after IICAPS episode	X	X		
Autism Spectrum diagnosis**	X			
Higher number of case management units billed			X	
More BH $ 180 days before IICAPS episode			X	

* "Solnit Stay" measure included stays before and after IICAPS episode and skewed the results since youth in Solnit after IICAPS would not be going to another inpatient unit

** The significant finding for Autism Spectrum diagnosis only occurred when the variable "provider" was controlled for

Return On Investment (ROI) – Does IICAPS Reduce Future Expenditures?

Considerations

- Full Analysis of ROI should look at all potential costs and savings including incarceration, child welfare intervention, educational attainment, as well as healthcare costs
- Consider the methodology of Steve Aos and colleagues
- IICAPS impact on Medicaid expenditures remains a valid question

Findings

Variable	N	Mean
Pre IICAPS BH $	1429	$7552.42
During IICAPS BH $	1429	$3901.31
Post IICAPS BH $	1429	$7411.24

- Average of $141.18 in savings
- Small "return" considering cost of service
- Difficult to monetize the subjective impact on avoidance of hospitalization and ED visits

What Factors Predict More Money Spent Post IICAPS?

Did not Predict

- Provider
- Low DRG
- Gender
- Age
- Ethnicity
- DCF involvement
- Sibling status
- Length of episode
- Clinical and case management units billed during IICAPS
- Total money spent on IICAPS
- Average number of days between IICAPS services
- Most of the mental and physical health diagnoses
- Flexible fund units

Bivariate Predictions

- **Autism Spectrum Diagnosis** (Chi^2 =.0034)
- **Disruptive Behavior Disorder** (Chi^2 = .047)

Multiple Regression Predictions from DX.

- Autism Spectrum Disorder
- Disruptive Behavior Disorder
- ADHD

Results Based Accountability (RBA)

RBA Framework

- How much did we do?
  - Utilization
  - Population
  - Etc.
- How well did we do it?
  - Fidelity
  - Consistency of practice
  - Process measures
- Is anybody better off?
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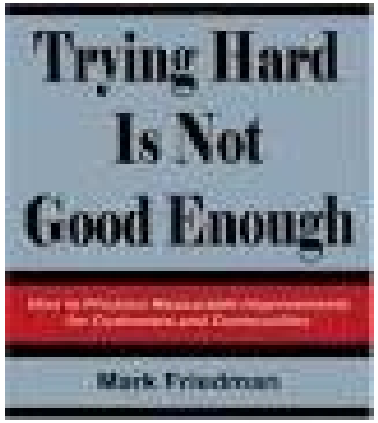

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RBA Summary – The Story Behind the Numbers

- IICAPS growth has slowed and utilization has stabilized around 2000 cases per year.

- **How much IICAPS capacity is needed?**

RBA Summary – The Story Behind the Numbers

- IICAPS users are more likely white boys, 11 and over.

- **How do we reach more black youth and families?**

RBA Summary – The Story Behind the Numbers

- IICAPS users are more likely to suffer with Asthma and Diabetes.

- **Should there be a formal IICAPS protocol for coordination with primary care?**

RBA Summary – The Story Behind the Numbers

- The most frequently utilized service post IICAPS is outpatient therapy and medication management

- **There appears to be room for improvement in how quickly members are connected to care**

RBA Summary – The Story Behind the Numbers

- Dx within IICAPS appears to be highly variable and at times at odds with what might be predicted based on inpatient and non-inpatient behavioral health populations

- **Should IICAPS provide more training and/or focus in rounds on diagnosis?**

RBA Summary – The Story Behind the Numbers

- In general, there is some degree of consistency of practice regarding diagnosis, duration, intensity, gaps in care, and billing and service delivery practices
- However there is some variation and there are outliers
- **Each of the outlier findings should be further explored and where it is believed to be impacting practice, it should be addressed**

RBA Summary – The Story Behind the Numbers

- Intellectual Disability and Asthma may complicate the adjustment of IICAPS users resulting in greater likelihood of ED visits post IICAPS
- **Regarding Intellectual Disability (3% of IICAPS cases), this suggests either enhanced protocols for serving this population or finding alternative treatment interventions**
- **The Asthma finding supports the previous recommendation regarding coordination with primary care**

RBA Summary – The Story Behind the Numbers

- An inpatient stay following IICAPS is predicted by a diagnosis of Autism Spectrum Disorder
- Autism was also predictive of more vs. less healthcare expenditure after IICAPS
- **This requires further study, perhaps using other data collected by Yale (OHIO Scales, Main Problem Ratings, Tx. Completion, etc.)**
- **There should also be consideration of either developing an in-home alternative service for autism, and/or identifying other treatment interventions**

RBA Summary – The Story Behind the Numbers

- Based on Yale data approximately 70% of IICAPS users are completers of treatment and the remaining 30% are “non-completers”
- It is recommended that an analysis be completed examining
  - The effect of treatment completion on outcome
  - The characteristics of each group
  - Differences across providers

RBA Summary – The Story Behind the Numbers

- IICAPS appears to be effective at reducing subsequent utilization of the ED and hospital inpatient admissions and days post IICAPS treatment
- **This is further evidence of the effectiveness of the model regarding the primary goal of keeping kids in the community and out of higher levels of care**

RBA Summary – The Story Behind the Numbers

- IICAPS produces a modest return on investment (ROI) when the analysis is limited to Medicaid expenditures
- In conducting a full ROI analysis;
  - **It would be wise to approximate the methodology of Aos (2011) and colleagues and examine other potential costs/savings including:**
    - **JJ, CW, educational , social services, and other systems**

Questions