

# Exploring Children's Intensive In-Home Services in Maine: A Pre – Post Study of Service and Cost Outcomes

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# Study Purpose



- **Develop a descriptive profile of child and youth users of these services.**
- **Explore Medicaid mental health service use and expenditure trends for children and youth enrolled in two Children's In-Home Treatment Programs:**
  1. **Assertive Community Treatment (ACT)**
  2. **Home and Community-Based Treatment Services (HCT)**
- **Compare changes in mental health service use and costs pre- and post-enrollment in service between ACT and HCT.**

# Study Design

- Study data was derived from: MaineCare Paid Claims Data.
- Study population: All child/youth new entries into Child ACT or HCT Service between July 1, 2007 and September 30, 2008. A new entry into service was defined as any child who received ACT/HCT during target time period and who did not receive ACT or HCT services for at least six months before the current entry into service.
- Pre-Post Study Design: MaineCare Paid Service Claims pulled for a six-month period Pre-Entry into ACT/HCT Service and 12-months Post-Entry into services. The Post-Entry period is split into Post 1 (1<sup>st</sup> 6 months after service entry) and Post 2 (2<sup>nd</sup> 6 months after service entry).
- The MaineCare Paid Service Claims extract is based on data of service and paid claims status of 71. The extract includes all primary health and behavioral health care claims. No adjustments made to the data.

# Study Design (continued)

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- **Mental Health Service claims identified by specific MaineCare Procedure Codes and with specific services a mental health related diagnosis on the claim (ICD-9 Code: 291 through 314.99 and 316. Excludes mental retardation (315 – 315.99).**
- **Two-Stage Cluster Analysis was performed using age, gender, primary diagnosis and pre-treatment service use as predictors in an attempt to identify different in-home service user groups.**

# In-Home Study Services

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## ➤ In-Home Treatment Services

- Home and Community-Based Treatment (HCT)
- Assertive Community Treatment Teams (ACT)

## ➤ Emergency/Crisis Resolution Services

- Crisis Intervention and Resolution Services
- Crisis Residential

# In-Home Study Services (continued)

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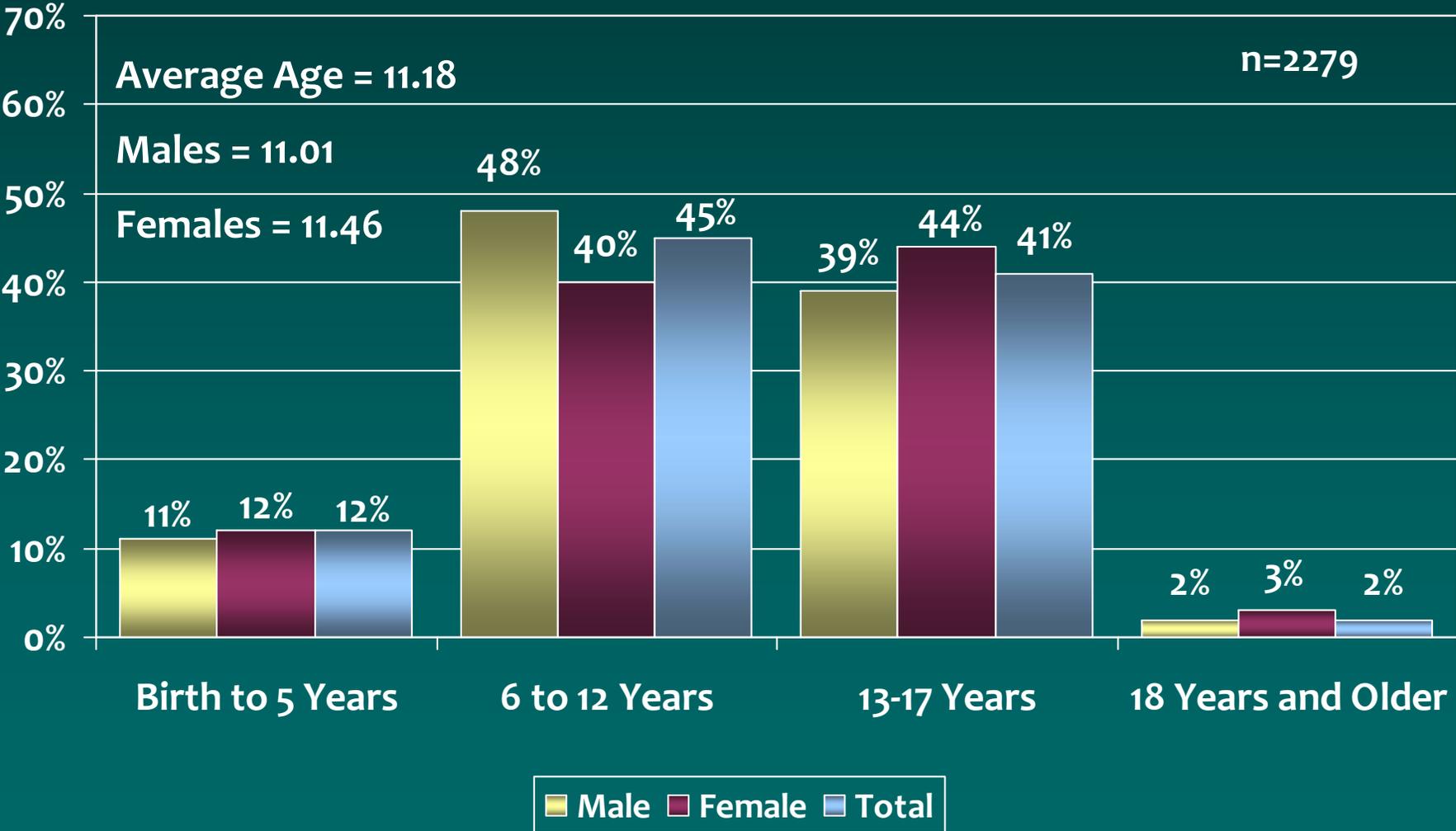
- Outpatient Services
  - Outpatient Medication Assessment and Treatment
- Out of Home Residential Treatment Services
  - PNMI
- Inpatient Psychiatric Hospital Treatment
  - Hospital Inpatient Treatment
    - Community Hospital Psychiatric Units
    - Psychiatric Inpatient Hospitals
- Hospital Emergency Room Services for MH Reason

# Child and Youth Descriptive Characteristics

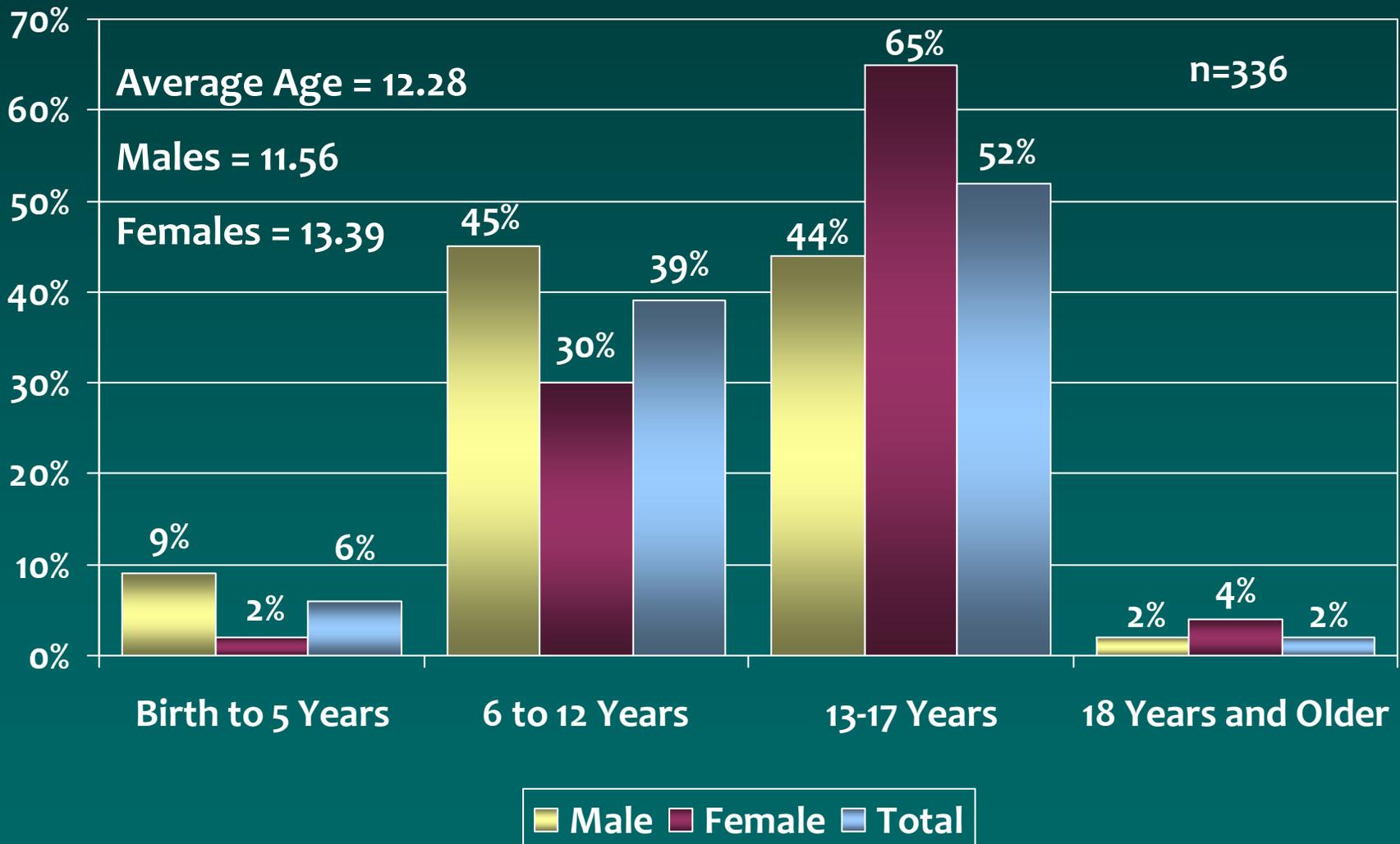


## Highlights

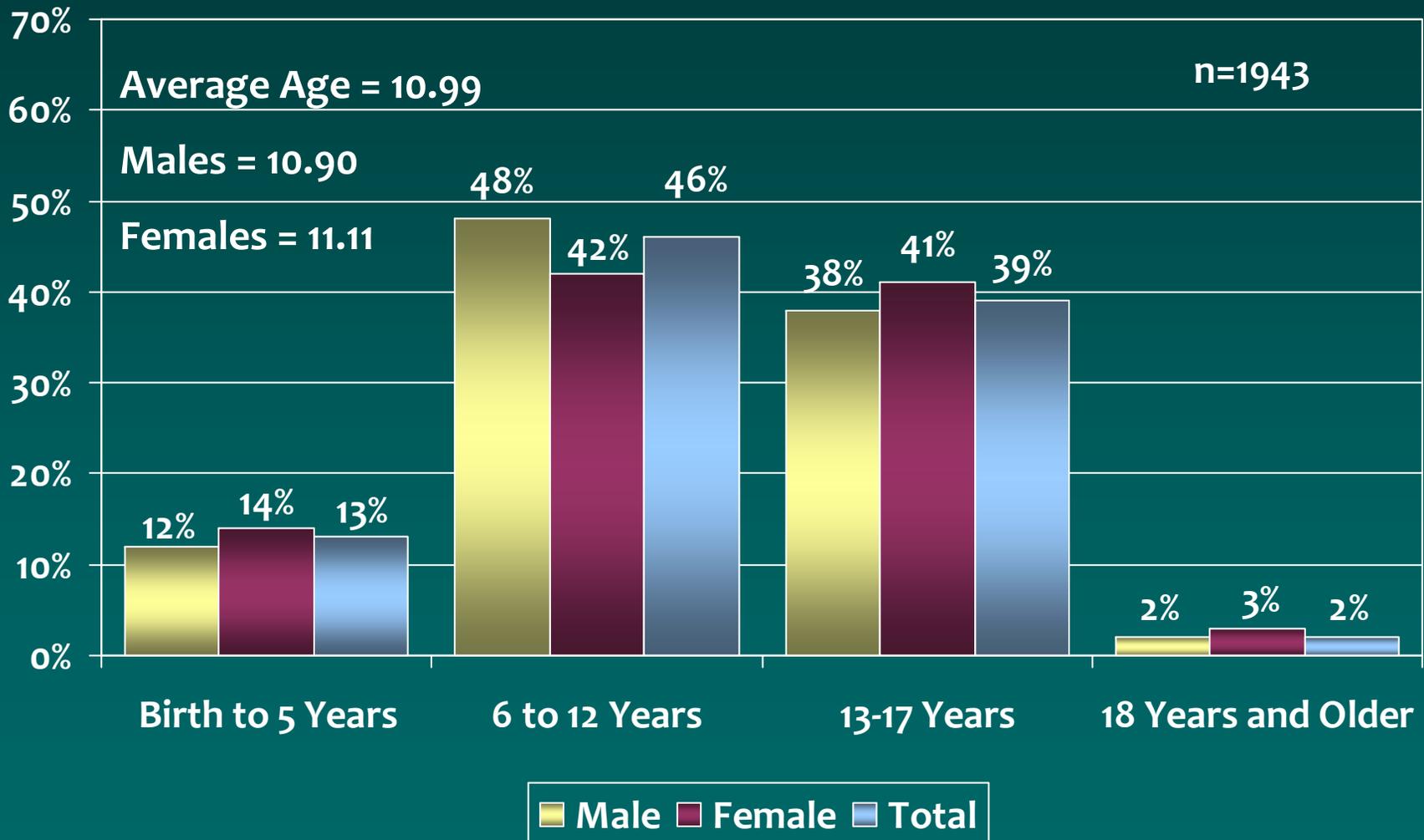
# Age and Gender: In-Home Treatment Services



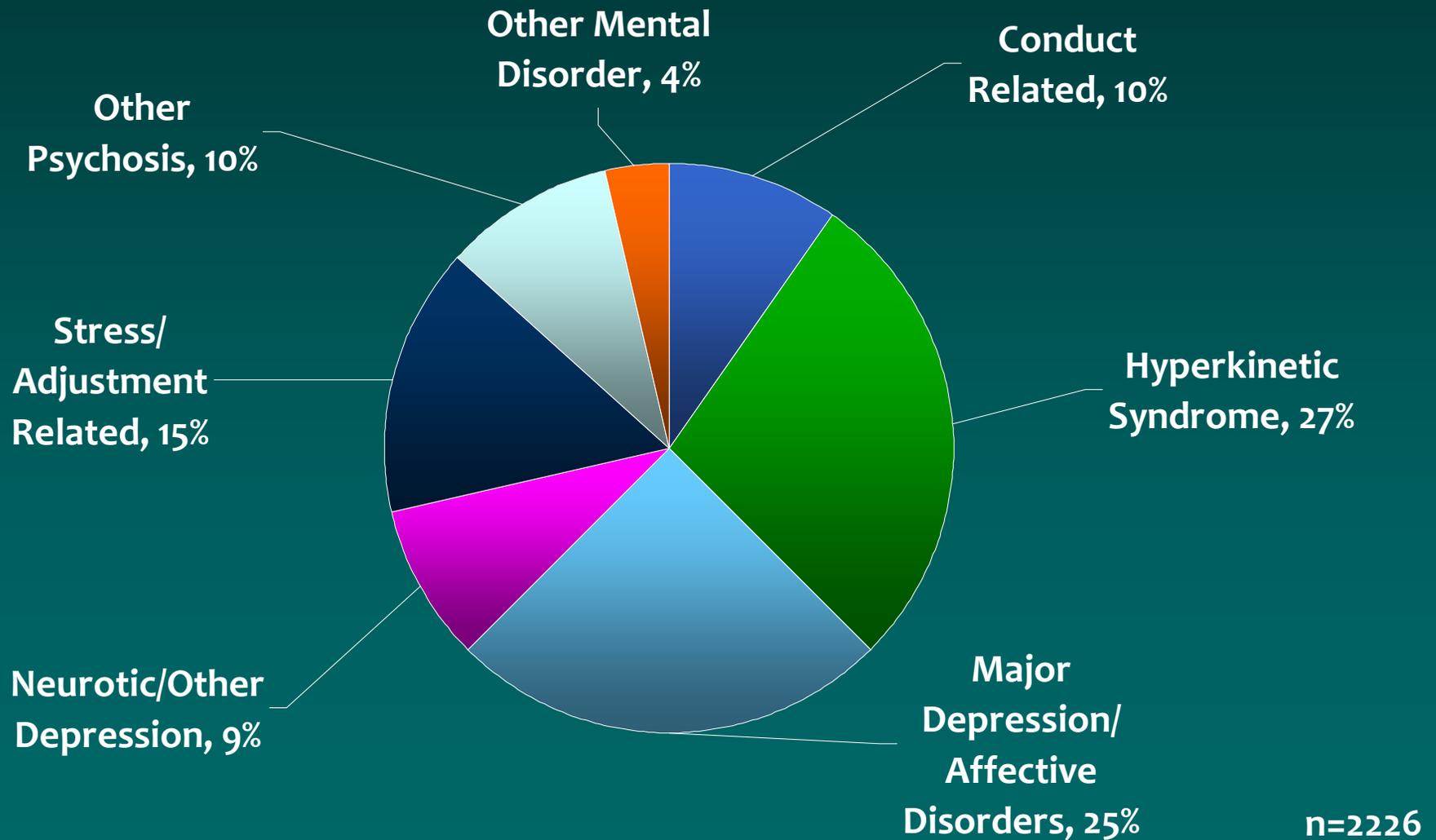
# Age and Gender: Child ACT Group



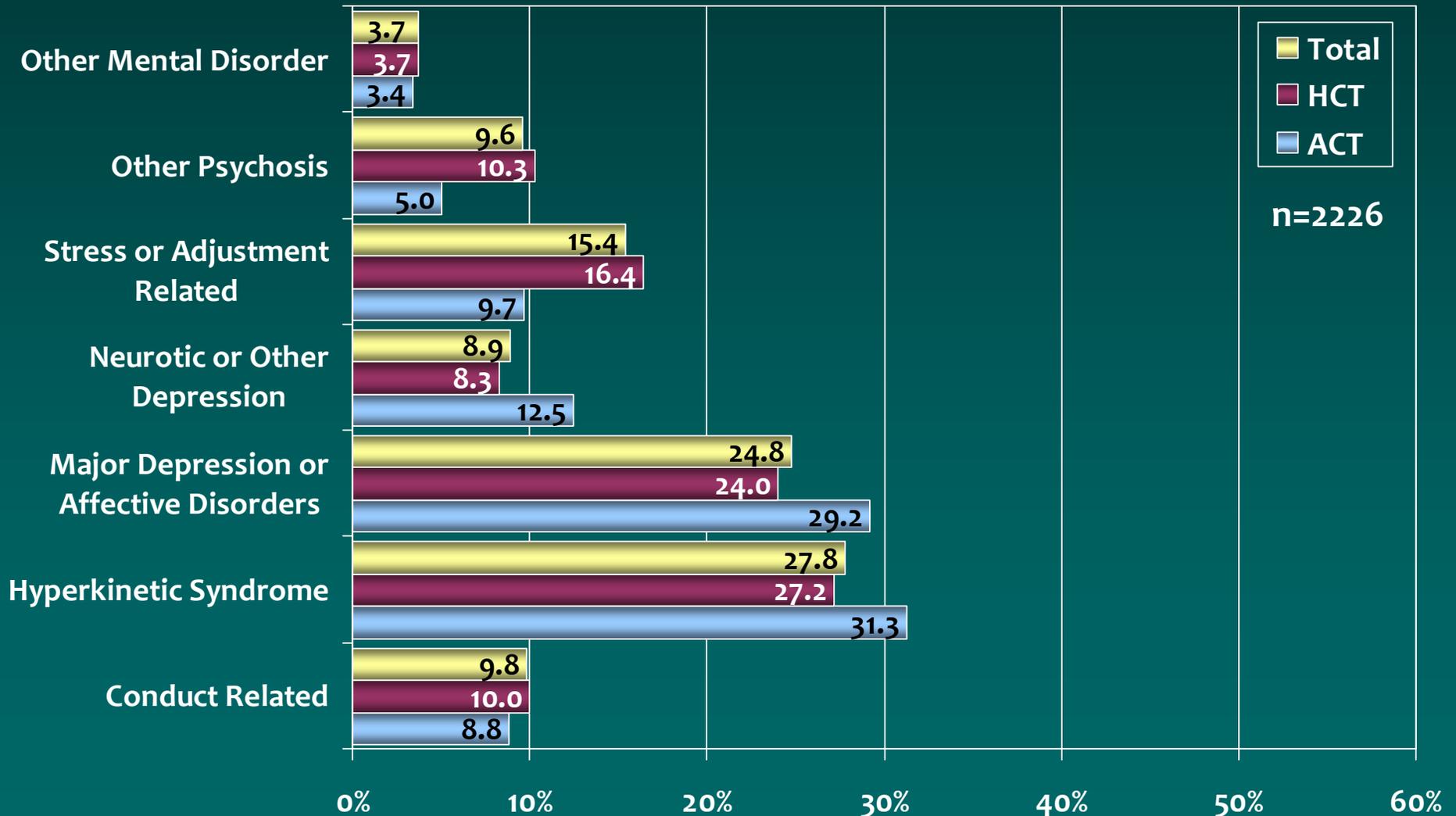
# Age and Gender: HCT Group



# Primary Diagnoses: In-Home Treatment Services



# Primary Diagnosis: ACT and HCT Compared



# The Findings

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## Child Characteristics:

- ACT users were significantly older than HCT users. Average age: 12.28 years (ACT) vs. 10.99 years (HCT).
- Gender distribution differed between ACT and HCT groups with proportionally more female represented among ACT users. Females in ACT are older with most between the ages of 13 and 17 years.

# The Findings (continued)

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## Child Characteristics – Primary Diagnosis:

- More than one-half (52%) of children in ACT/HCT are diagnosed with Major Mood Disorder (25%) or ADHD Related Disorders (27%).
- ACT recipients were more likely to receive Major Depression and Neurotic/Other Depression Diagnoses.
- HCT recipients were more likely to receive Other Psychotic Disorder and Stress/Adjustment Disorder Diagnoses.

# A Closer Look: Two Stage Cluster Results

Cluster Name	Cluster 1:	Cluster 2:	Cluster 3:	Cluster 4:	Cluster 5
	Major Mood Disorder	ADHD/ Out of Home	ADHD/ Community	Conduct Related/Mixed Disorders	Adjustment Related/Mixed Disorders
Number of Children	552	212	533	629	300
Average Age (Years)	13.28	12.72	10.6	10.5	8.98
Gender (PCT Male)	53%	65%	73%	66%	53%
<b>PRIMARY DIAGNOSIS</b>					
Conduct Disorder	0	0	0	35%	0
Major Depression & Affective Disorders	100%	0	0	0	0
Other Psychotic Disorders	0	16%	0	29%	0
Hyperkinetic Syndrome	0	41%	100%	0	0
Neurotic/Other Depression	0	16%	0	26%	0
Stress/Adjustment Disorder	0	20%	0	0	100%
Other Mental Disorder	0	7%	0	11%	0
<b>PRE-TREATMENT SERVICE USE (PCT Yes)</b>					
Crisis Services	40%	49%	12%	15%	7%
Residential Treatment	19%	59%	0	3%	0
Psychiatric Inpatient	31%	49%	0	3%	0
Emergency Room	33%	46%	9%	11%	5%
Medication Management	38%	33%	35%	18%	13%
Mean Mental Health Expenditures Per Month Pre-Treatment Per Child	\$3,899	\$7,857	\$646	\$1,101	\$449
ACT Enrollment (PCT Yes)	29%	14%	26%	24%	7%
HCT Enrollment (PCT Yes)	24%	9%	24%	29%	15%

# ACT/HCT High Cost User Study Group

## Total High Cost Study Group

- 605 Children in Study Group
- All children were members of clusters 1 and 2
- Only children who had 3 or more months of service use in months 7 to 12 post-treatment were included to allow for appropriate pre-post comparisons of service use and costs
- Average length of treatment – 5.6 months
- Average age – 12.85
- Gender: Percent Males – 58%

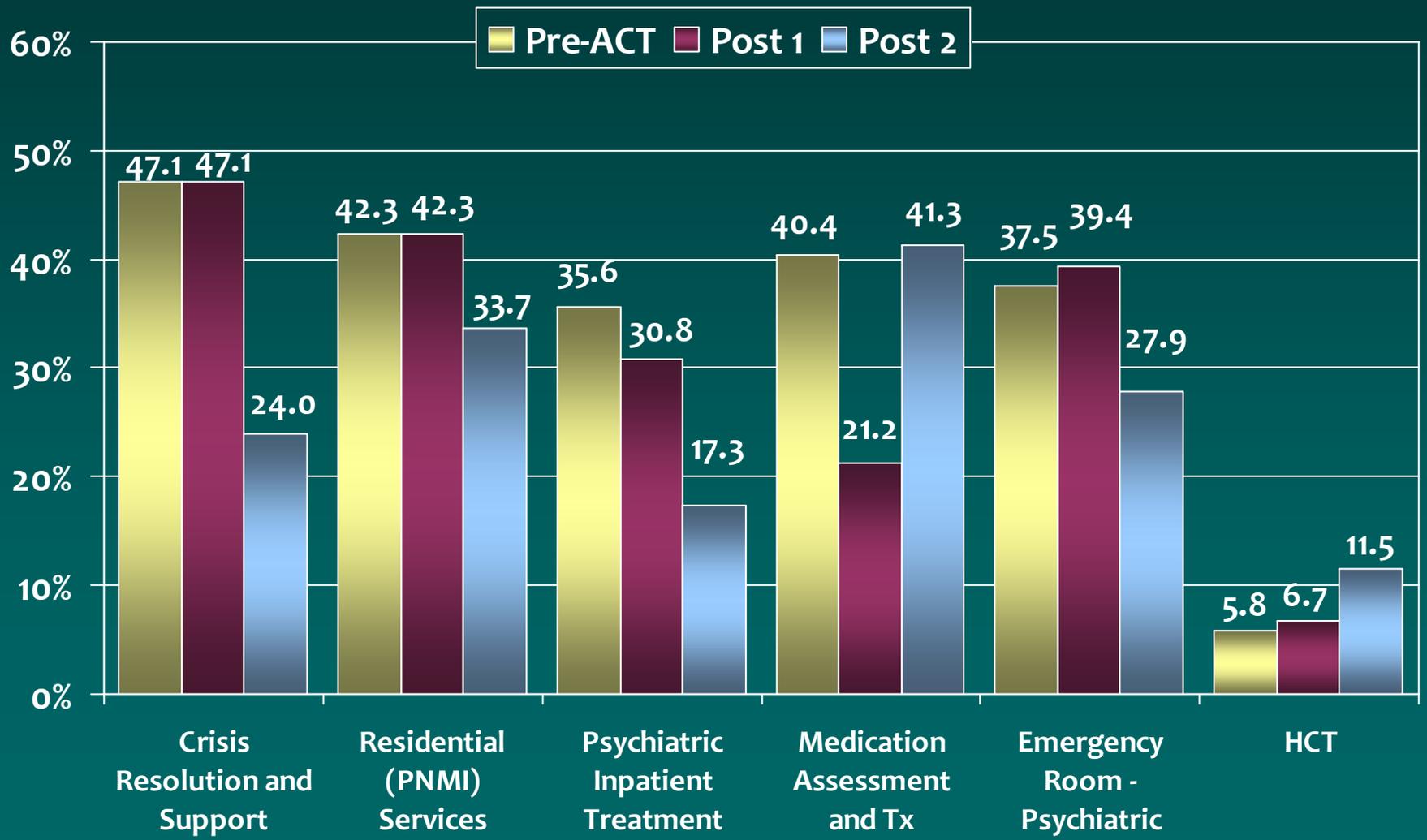
## ACT Services

- 104 children received treatment during the study period
- Average length of treatment – 5.4 months
- Average age – 13.66
- Gender: Percent Males – 47%

## HCT Services

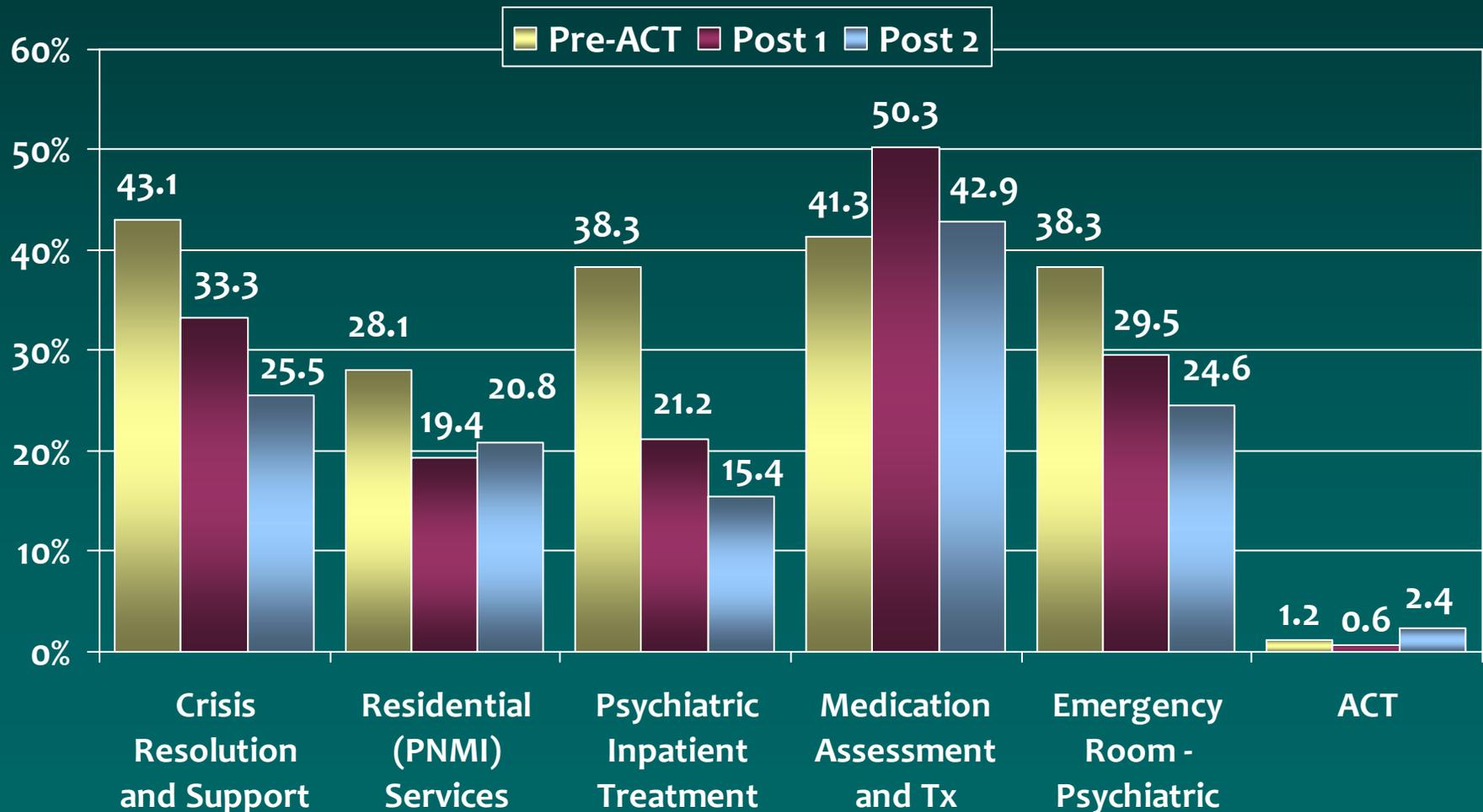
- 501 children received treatment during the study period
- Average length of treatment – 5.8 months
- Average age – 12.68
- Gender: Percent Males – 60.1%

# High Cost Users: Pre-Post Service Use for Selected Mental Health Services – Child ACT



n=104

# Pre-Post Service Use for Selected Mental Health Services – HCT Services



n=501

# Pre-Post Average Per User Per Month Costs for ACT/HCT High Cost Study Users

Services	Average HCT Study User Cost for 12-month Post Treatment Period = \$7,415 Average ACT Study User Cost for 12-month Post Treatment Period = \$11,745							
	Child ACT (n=104)				Child HCT (n=501)			
	6 mo. Pre-Entry	1 to 6 mo. Post Tx Entry	7 to 12 mo. Post Tx Entry	% Change	6 mo. Pre-Entry	1 to 6 mo. Post Tx Entry	7 to 12 mo. Post Tx Entry	% Change
ACT Services	\$0	\$2,219	\$767	---	\$53	\$13	\$49	7% ↑
HCT Services	\$80	\$46	\$111	38% ↑	\$0	\$1,043	\$626	---
Crisis Resolution and Support	\$503	\$436	\$174	65% ↓	\$396	\$275	\$245	38% ↓
Residential (PNMI) Services	\$3,122	\$2,581	\$2,451	21% ↓	\$2,135	\$1,503	\$1,804	15% ↓
Inpatient Psychiatric	\$7,479	\$5,393	\$3,651	51% ↓	\$7,161	\$4,094	\$3,151	56% ↓
Emergency Room - Psychiatric	\$111	\$106	\$64	42% ↓	\$97	\$71	\$58	40% ↓
Medication Assessment and Tx	\$73	\$31	\$75	3% ↑	\$98	\$99	\$71	27% ↓
All Mental Health Services	\$5,734	\$5,376	\$4,009	30% ↓	\$5,145	\$3,780	\$3,508	32% ↓

# High Cost User Pre-Post Comparison of Service Use

## ACT Pre-Post Service Use

- Among ACT participants, use of:
  - Crisis Resolution and Support Services,
  - Psychiatric Inpatient Treatment Services,
  - Residential Treatment Services, and
  - Emergency Room Use

Decreased significantly between pre- and post-study periods with the most change occurring 7 to 12 months post-treatment.

- Use of Medication Assessment and Treatment Services decreased between pre-treatment and the first post-treatment period, but then rebounded in the 2<sup>nd</sup> post-treatment period. This change can be explained by the fact that medication assessment and treatment is provided as a part of ACT services.

# High Cost User Pre-Post Comparison of Service Use

## HCT Pre-Post Service Use:

- Among HCT participants, similar to ACT recipients, the use of:
  - Crisis Resolution and Support Services,
  - Psychiatric Inpatient Treatment Services,
  - Residential Treatment Services, and
  - Emergency Room Use

Decreased between pre- and post-study periods.

- Use of Medication Assessment and Treatment Services increased upon initiation of HCT services from 41% (Pre-Entry) to 50% (Post 1), and then declined in the 7- to 12-month post-treatment period to 42%.

# Summary of ACT/HCT Study Group Cost Findings Post Treatment Implementation

- ACT study group (n=104) for the 12-month post treatment (PT) period was \$1,221,510 with an average per child cost of \$11,745.
- Overall mental health service costs (including ACT) for ACT Study Group Users over the 12-month PT period was \$5,501,000 with a per user cost of \$52,894.
- HCT study group (n=501) service costs for the 12-month PT period was \$3,715,100 with an average per child cost of \$7,415.
- Overall mental health service costs (including HCT) for HCT Study Group Users over 12-month PT period was \$20,705,800 with an average per child cost of \$41,329.

# Summary of Pre-Post ACT/HCT Per User Per Month Expenditures

- 30% reduction in the overall mental health service expenditures pre-post for both ACT and HCT recipients.
- 50% reduction in inpatient psychiatric expenditures pre-post for both ACT and HCT Users.
- 40% reduction in Emergency room expenditures pre-post for both ACT and HCT Users.
- Residential treatment expenditures were reduced by 21% for ACT Users and by 15% for HCT Users.
- Crisis service expenditures decreased by 65% pre-post for ACT Users and by 38% for HCT Users. This difference can be explained by the fact that crisis services are provided by ACT teams.

# Conclusions

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- Both ACT and HCT were effective in reducing the use of high-cost treatment alternatives (i.e., inpatient hospital and residential treatment) and resulted in significantly reduced mental health costs over the study period.
- Pre-post changes in service use and costs were not found to differ reliably between the two In-Home Treatment approaches even though ACT is a more intensive and costly alternative.
- Further study is needed to determine whether these service use changes are sustained over longer periods of time.

# ACT/HCT Study: For Further Study

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- Using the same ACT/HCT study group examine service use and cost outcomes over an additional 12 months post ACT/HCT treatment to assess if reductions in service use are sustained.
- Focused Study of HCT services that examines service use, cost and functional outcomes over time.
- Study of factors that predict positive treatment outcomes.

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**Dina Blanchard**



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