Deconstructing a Natural Experiment: CANS Outcomes in Co-occurring Psychiatric Residential Treatment

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Barbara Dunn, LCSW, ACSW, Director, Program Innovation and Outcomes

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Bio - Barbara Dunn

As Director of Program Innovation and Outcomes for Magellan Health Services, Barbara Dunn is responsible for coordinating and evaluating innovative programs across the public sector. Barbara also facilitates the implementation of Magellan's public sector outcomes assessment initiatives, which help service-recipients and their parents, caregivers and providers track their health, recovery and resiliency.

Barbara began her career working with homeless children and their families through an innovative Headstart program. She also held positions in community mental health, and worked for 10 years in child welfare. She later headed up a foster care program, where she administered a successful pilot program for reunification that was expanded and funded by the Philadelphia Department of Human Services.

As a Magellan-credentialed psychotherapist, Barbara joined Magellan's staff in 2000 as a care manager, then became clinical supervisor for the Children's Outpatient/Behavioral Health Rehabilitative Services (BHRS) Department, helping to improve the quality of home and community services. She has championed outcomes-based programs and the use of evidence-based practices to reduce residential treatment and keep children with families.

Barbara also managed the first data-driven, outcomes-based, collaborative BHRS management program in Pennsylvania, which earned a Public Sector Innovative Practices Award in 2006.

A licensed clinical social worker, Barbara holds a master's degree in Social Service Administration from the University of Chicago and a bachelor's degree in psychology from Binghamton University.

Learning Objectives

As a result of this training, participants will be able to:

- Differentiate system change and environmental variables which create a natural experiment
- Plan an analysis to deconstruct a natural experiment
- Interpret the finding of that analysis
- Create a plan to use findings to improve outcomes

Deconstructing the Natural Experiment

- The natural experiment during Nebraska system change to psychiatric residential treatment facilities
- Differential and controversial CANS outcomes in mental health, substance use, and dual diagnosis PRTFs
- Accounting for outcomes differences: population or provider characteristics?
- Challenging our understanding of mental health, substance using, and co-occurring diagnosis youth
- Implications for system conversion to a PRTF model
- Next steps

Magellan's Work For Nebraska System Change

- Magellan White Paper: *Perspectives on Residential and Community-Based Treatment for Youth and Families* (2008)
- Focus Groups on alternative services to residential treatment (2009)
  - Many parents of youth in residential had themselves been in residential
- *Increased Community Based Treatment for Youth* project (2009)
  - Multisystemic Therapy (MST)
  - Functional Family Therapy (FFT)
  - Assertive Community Treatment (ACT)
  - Community Base Alternative to Residential (CBAR)

Nebraska System Change

- August 2010 – State announces intent to move to Psychiatric Residential Treatment model
- October 2010 – Statewide CANS training
  - ✓ CANS introduced as outcomes tool to support Joint Commission and COA accreditation requirements
  - ✓ CANS begun 12/1/2010
- July 2011 – 2012 PRTF Transitional Year
- July 2012 – 2013 First year of PRTF outcomes
  - ✓ Analysis of Disaggregated Outcomes

The Natural Experiment Environment

- Fewer referrals
- Fewer residential programs
- Increase in community-based alternatives to residential
- Dropping primary treatment diagnosis conduct disorder
- Change in medical necessity
- Higher acuity youth

Change in Medical Necessity

- PRTF MH: Severe and persistent symptoms and functional impairments consistent with a DSM diagnosis which require 24-hour residential psychiatric treatment, under the direction of a physician.
  - Symptoms should include at least one of the following:

    i. Suicidal or homicidal ideation,

    ii. Persistent or medically significant self injury behaviors,

    iii. A pattern of physical and verbal aggression,

    iv. Significant eating disorder symptoms,

    v. Severe mood instability, or

    vi. Psychotic symptoms.
- PRTF SA: ASAM III.7R. Medically-Monitored Intensive Inpatient Treatment
- PRTF Dual: ASAM Level III.7 or Level III.5 Clinically-Managed, Medium/High Intensity Residential Treatment AND MH criteria

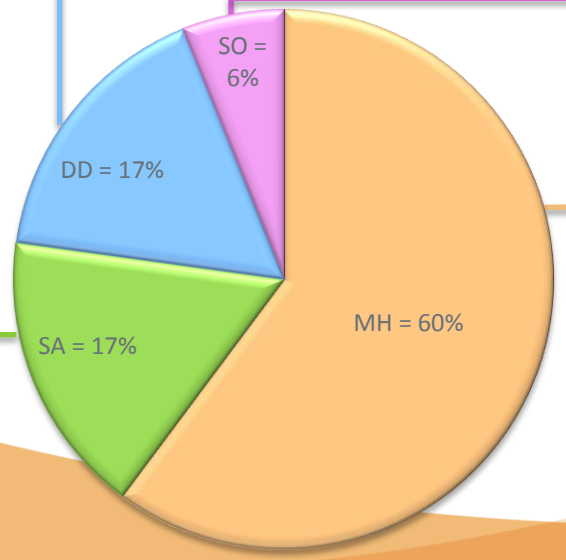
Team Evaluation and a Certificate of Need from a physician REQUIRED

Complexity and Severity: High Prevalence Items by PRTF Type

SA
Substance Abuse
Oppositional Behavior
Crime/Delinquency
Resiliency
Wellbeing
Interpersonal
Vocational
Resourcefulness
Inclusion
Antisocial Behavior
School Achievement
School Attendance
Spiritual/Religious
Education
Optimism
School Behavior
Family Functioning
Family

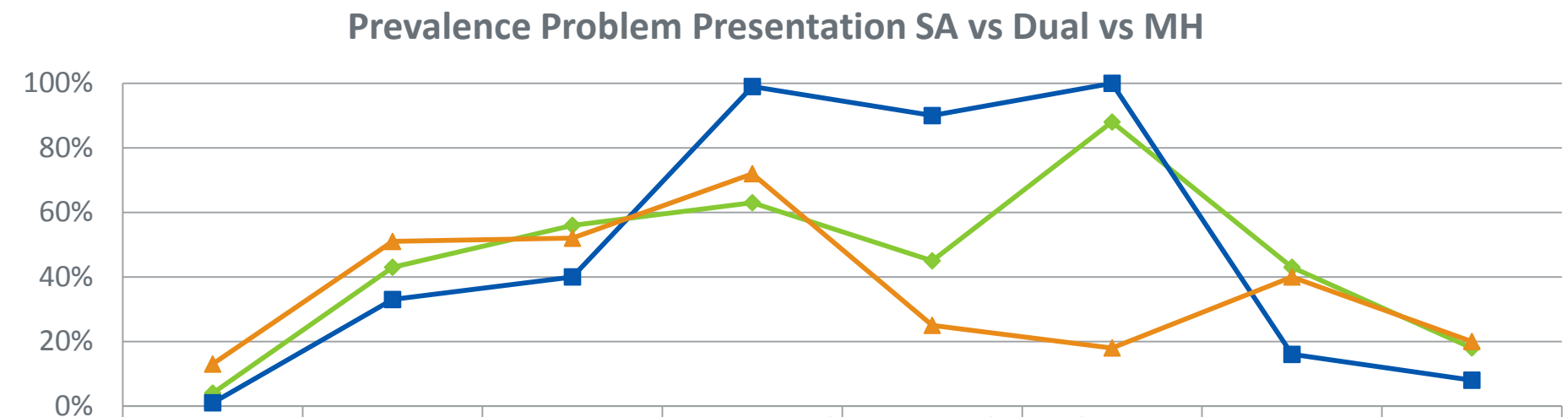
Dual
Substance Abuse
Well-Being
Inclusion
Resiliency
Resourcefulness
Spiritual/Religious
Social Behavior
Other Self Harm

SO
Abusive Behavior
Resiliency
Resourcefulness
Talents
Interests
Interpersonal



MH
Inclusion
Oppositional Behavior

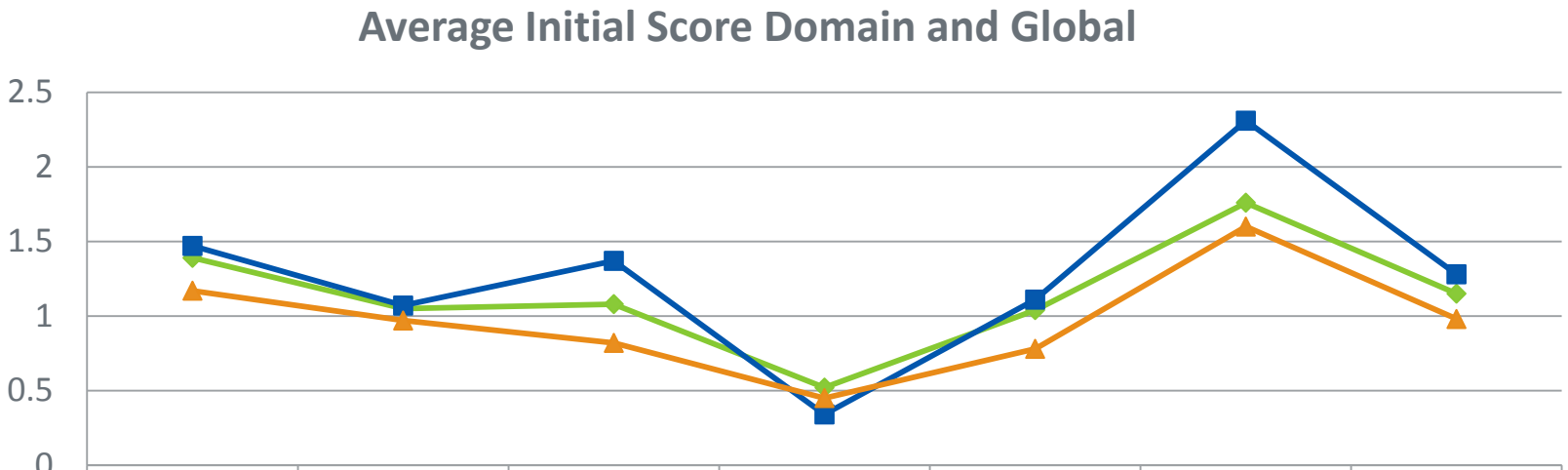
PRTF SA-Dual-MH Populations: Prevalence Initial Problem Presentation



	Psychosis	Attention Deficit	Depression	Oppositional Behavior	Antisocial Behavior	Substance Abuse	Trauma	Attachment
Dual	4%	43%	56%	63%	45%	88%	43%	18%
SA	1%	33%	40%	99%	90%	100%	16%	8%
MH	13%	51%	52%	72%	25%	18%	40%	20%

Nebraska 2013Q1 Reports

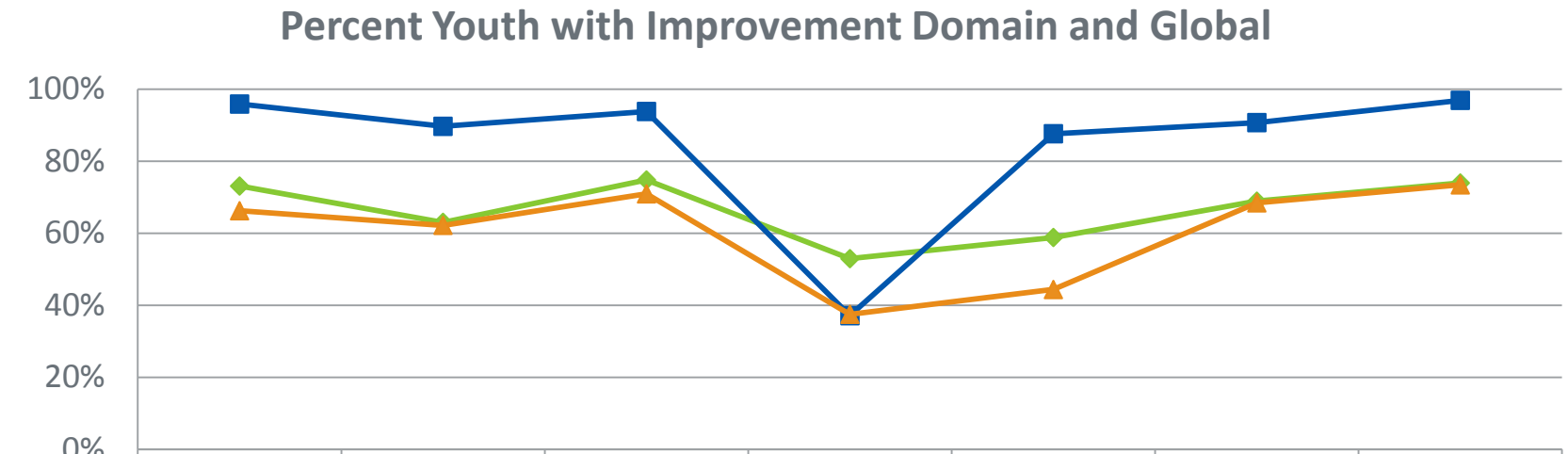
PRTF SA-Dual-MH Populations: Average Initial Score



	Problem Presentation	Risk Behaviors	Functioning	Child Safety	Caregiver Needs	Strengths	Global
Dual	1.39	1.05	1.08	0.52	1.04	1.76	1.15
SA	1.47	1.07	1.37	0.34	1.11	2.31	1.28
MH	1.17	0.97	0.82	0.45	0.78	1.6	0.98

Nebraska 2013Q1 Reports

PRTF SA-Dual-MH Outcomes



	Problem Presentation	Risk Behaviors	Functioning	Child Safety	Caregiver Needs	Strengths	Global
Dual	73%	63%	75%	53%	59%	69%	74%
SA	96%	90%	94%	37%	88%	91%	97%
MH	66%	62%	71%	38%	44%	68%	73%

Nebraska 2013Q1 Reports

Questioning the Disaggregated Reports

The SA PRTFs seem to have much better outcomes. How much is program effect and how much is population variables?

Program Variables	Population Variables
Licensure (MH, SA, co-occurring, JJ, CW)	**Substance use severity**
Treatment variables	**State ward**
Referral Source	**Juvenile justice**
Other system involvement	**Crime severity**
	Trauma
	Diagnosis
	Gender
	Other?

Challenging Our Understanding: Analysis Questions

- Do youths matched for endorsement of substance use across MH, SA, and Dual PRTF look the same by CANS profiles and outcomes?
- Does being a state ward influence outcomes?
- Does criminal justice involvement influence outcomes?
- How does the experience of trauma influence outcomes?

Matched Substance Use Youth: PRTF SA vs Dual vs MH

SUBSTANCE USE (SU) ITEM FIRST CANS					
Provider Type	SUBSTANCE USE SCORE				Total
	0	1	2	3	
PRTF MH	43	18	11	2	74
PRTF SA	0	0	3	46	49
PRTF Dual	0	2	17	24	43
PRTF Total	43	20	31	72	166

Significance Testing the Differences SA-MH-Dual

	Initial p < 0.05				Discharge p < 0.05			
	Strength	Fx	Risk	CG	Strength	Fx	Risk	CG
MH v SA	14 v 19	6 v 11	7 v 8	4 v 7	11 v 14	2 v 6	5 v 3	4 v 5
MH v Dual	14 v 19	6 v 9	7 v 9	4 v 9	11 v 15	2 v 6	5 v 8	4 v 7
SA v Dual	19 v 19	11 v 9	8 v 9	7 v 9	14 v 15	6 v 6	3 v 8	5 v 7

$p < 0.05$

Notes: Comparison is Median score.
Items on health and spiritual/religious removed from domain scores.

Adjustment to Trauma: Population by Provider Type

Experienced Trauma	All	Substance Use
PRTF MH	28%	26%
PRTF SA (All)	22%	22%
PRTF Dual	60%	63%

State Ward Population:
By Child Welfare or Juvenile Justice

PRTF Type and percent Ward of State	CANS Crime and Delinquency Item Score with Anchor Definition		
	0 = No evidence	1 or 2 = Status offenses or moderate criminal or delinquent activity in past 30 days (e.g., vandalism and shoplifting)	3 = Serious level of criminal or delinquent activity in the past 30 days, such as car theft, residential burglary, gang involvement, etc.
PRTF MH 62%	46%	41%	2%
PRTF SA 88%	0%	28%	72%
PRTF Dual 72%	0%	74%	26%

PRTF Type, Substance Use, and Juvenile Justice State Ward: Outcomes

Provider	Strengths	Risk	Functioning	Caregiver
PRTF MH	68%	77%	78%	43%
PRTF SA	94%	73%	87%	60%
PRTF SA Crime	94%	97%	94%	94%
PRTF Dual	60%	51%	70%	63%

Paired Outcomes

PRTF Type, Substance Use, and Juvenile Justice State Ward: Outcomes

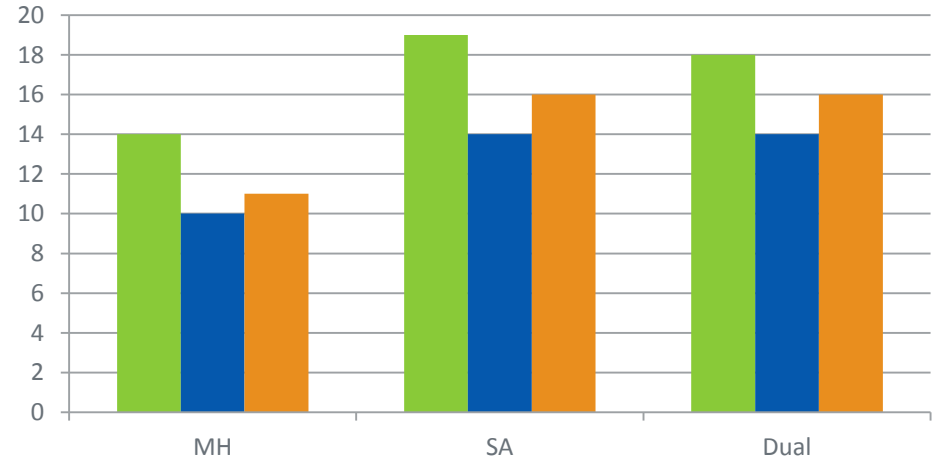
Provider	Strengths	Risk	Functioning	Caregiver
PRTF MH	68%	77%	78%	43%
PRTF SA	94%	73%	87%	60%
PRTF SA Crime	94%	97%	94%	94%
PRTF Dual	60%	51%	70%	63%

Paired Outcomes

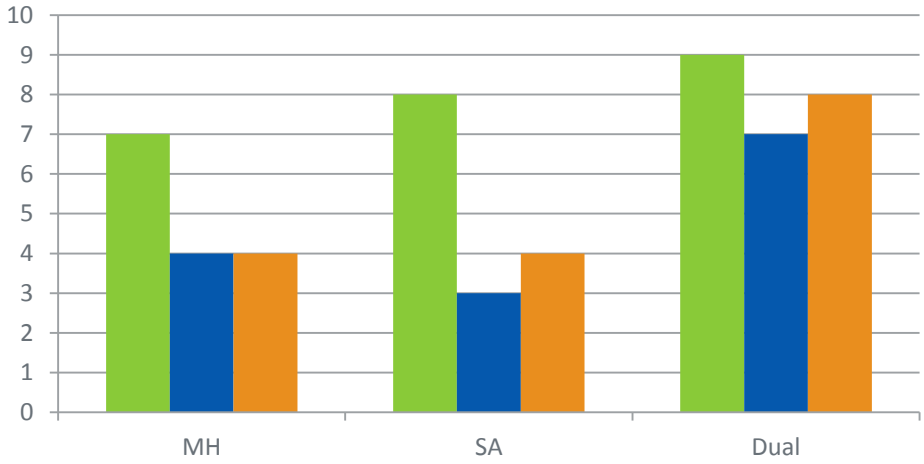
Adjustment to Trauma: Impact on Treatment

Initial CANS Outcome No Trauma Outcomes with Trauma

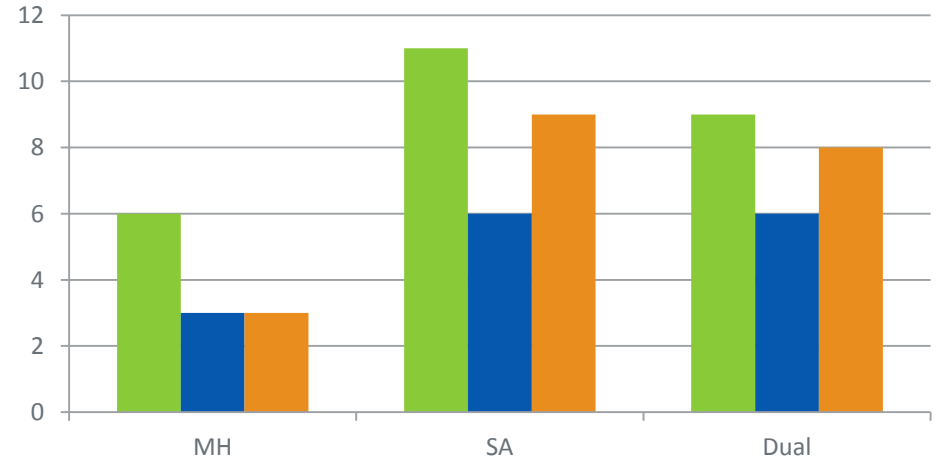
Strengths



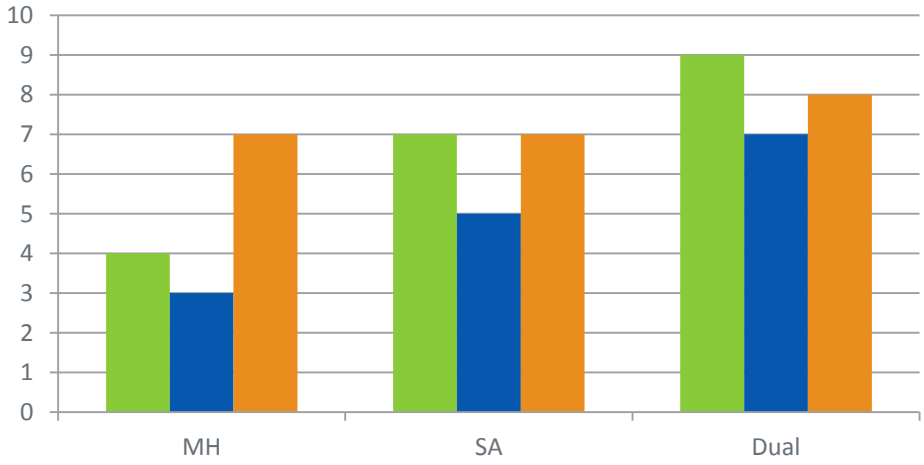
Risk



Functioning



Caregiver Needs and Strengths

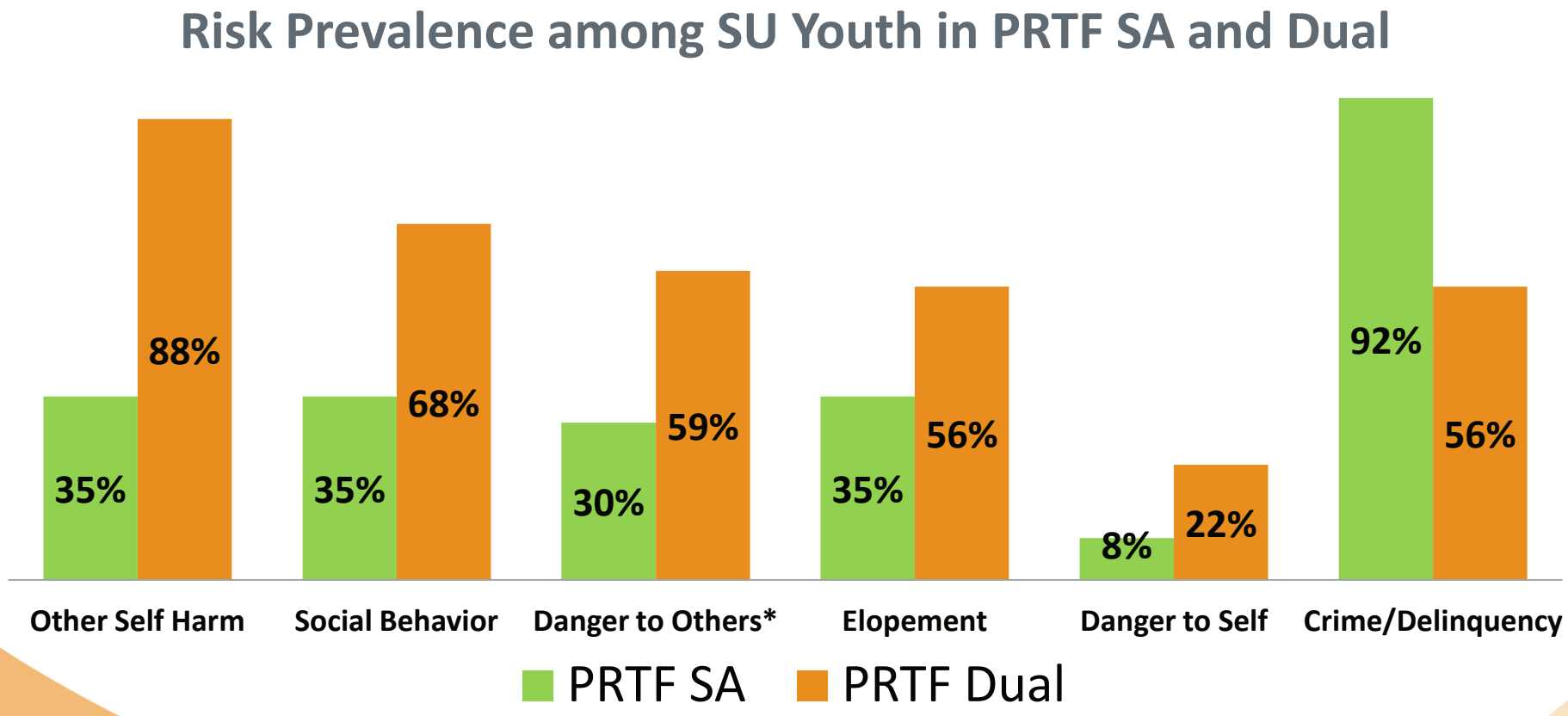


PRTF SA and PRTF Dual:
Substance Use Population Comparison of Medians

Median p > 0.05	OTHER SELF HARM	SOCIAL BEHAVIOR	DANGER TO OTHERS	DANGER TO SELF	SOCIAL BEHAVIOR	CRIME DELINQUENCY
SA	1	1	1	0	1	3
Dual	2	2	2	1	2	2

On every Risk item except Crime and Delinquency, the PRTF-Dual median is one level higher than the PRTF-SA median

PRTF SA and PRTF Dual:
Substance Use Population Comparison Prevalence



Deconstructing the Natural Experiment

- Natural experiments are excellent study opportunities
- Analysis of matched populations explains controversial CANS outcomes in standard reports
- Accounting for outcomes differences requires letting the data tell us the population and provider characteristics
- Challenging our understanding of mental health, substance using, and co-occurring diagnosis youth should never stop
- Implications for system conversion to a PRTF model support the importance of measurement before, during, and after system conversion

Challenging Our Understanding: Analysis Results

- There are distinct populations of substance using youth in residential with different outcome trajectories
- Trauma is associated with:
  - Dual diagnosis of Mental Health and Substance Use
  - Child Welfare custody
  - Multiple risk factors of: Other Self Harm, Social Behavior, Danger to Others, Danger to Self, and Elopement
  - Poorer outcomes across all domains

Implications and Next Steps

- Matched populations
- Trauma informed care model
- Upstream measurement and interventions for trauma, child welfare, juvenile justice, and substance use
- Use of PracticeWise for data on interventions and match with outcomes by youth and program
- Coordination with Child Welfare use of the CANS
- Pharmacy practices and outcomes

Question and Answer

Contact us at:

Barbara Dunn, LCSW, ACSW, Director, Program Innovation and Outcomes

BADunn@MagellanHealth.com

Twitter: @MagellanCares

Linkedin: www.linkedin.com/company/5438

Facebook (MyLife program): www.Facebook.com/**MYLIFEyouth**

www.MagellanHealth.com

Contributor – Carl Chrisman

Carl Chrisman has been with Magellan for 17 years in clinical and quality improvement roles. He became interested in the CANS as he worked to improve treatment outcomes for youth in Nebraska and attended the 1st Annual CANS Conference in 2004. Five years later, in his role as the Nebraska CANS Project Lead, the Nebraska program implemented the CANS-MH as a required assessment for all youth in Medicaid funded residential treatment. Carl co-presented on prevalence and outcome data at the 8th CANS conference in 2012. The CANS initiative gave the Nebraska system of care, for the first time, a universal way to communicate treatment needs and outcomes across residential programs.

Carl began his career as a therapist working with a varied population including youth and families, those with developmental delays, serious mental illness, and sexual offenders. He developed and oversaw a ground up implementation of a youth residential program in Nebraska and worked in a state forensics hospital for ten years. Carl holds a bachelor's degree in psychology and a master's degree in counseling psychology.

Contributor – Leah Polcar

As a Senior Health Analytics Scientist at Magellan Health Services, Leah Polcar is responsible for clinical outcomes analytics and program evaluation with an emphasis on identification of trends, actionable interventions, and operationalization of data models.

Prior to coming to Magellan, Leah held positions in academia, industry, and consulting. Most notably, these positions included an Associate Professorship at the University of Amsterdam, Netherlands, teaching and overseeing research teams, and as a Senior Operations Analyst for Arbitron Inc. where she conducted strategic analyses and developed procedures to improve efficiency.

Leah holds a Doctor of Philosophy in Communication Science/Cognitive Science with a focus on applied statistics and research methods from the University of Arizona, a Master of Arts in Communication Science from the University of Arizona, and a Bachelor of Arts in English from Loyola University of Chicago. She is fluent in Dutch.