Implementation of EBPs for Children in State Systems: Predictors of Adoption

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The National Context: Healthcare Restructuring and Integration of Mental Health and Primary Care

- **Important Federal Initiatives**
  - 2008: Mental Health Parity and Addiction Equity Act
  - 2010: The Patient Protection and Affordability Care Act (PPACA)

- **Impact on States**
  1. Medicaid Managed Care
  2. Concern with costly services, high end users, access
  3. Growing involvement of consumers
  4. Workforce shortages and task shifting
  5. Health homes and care coordination
  6. Data monitoring, EHRs
  7. Quality measurement
  8. Accountability and outcomes

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State Context:
Fiscal Crises for State Mental Health Systems*

- Budget cuts (mainly State General Funds and Medicaid): FY09-FY12 totaling $4.35 billion
- 76% of 47 state mental health agencies reported budget cuts in 2011;
- 73% of 47 state mental health agencies reported budget cuts in 2012
- State mental health agencies' response to budget cuts in 2011-12:
  - 24% reduced community mental health services
  - 27% reduced the number of clients served in the community
  - 39% reduced funds to community providers
  - 52% cut staff
  - 64% had hiring freezes
  - 82% reduced administrative expenses

*NASMHPD Research Institute (2012). The impact of the state fiscal crisis on state mental health systems: Winter 2011-2012 update. Available at: http://www.nri-inc.org/reports_pubs/pub_list.cfm?getby=State%20Systems

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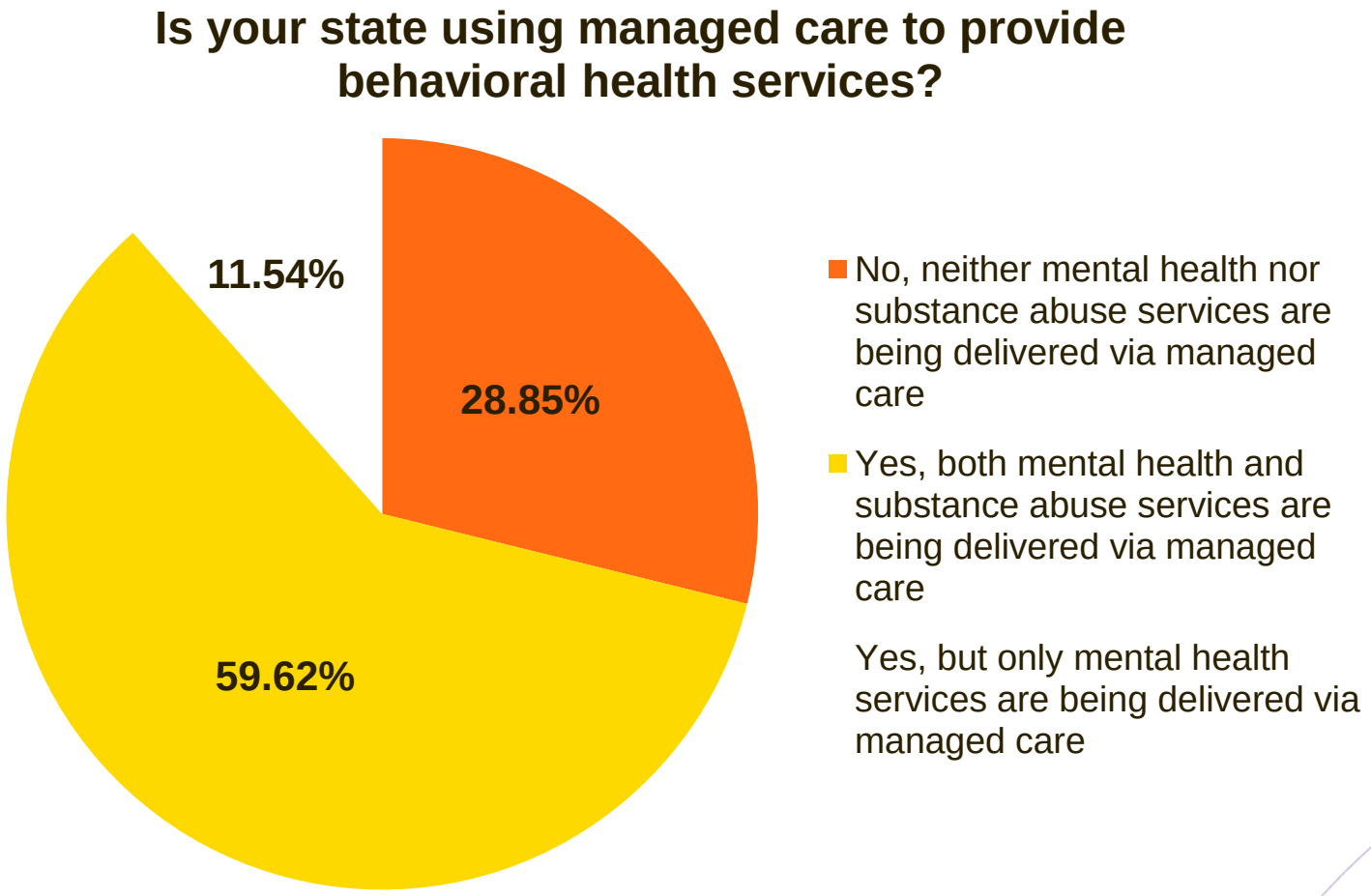
State Context: Mental Health Managed Care[2]



[2]NASMHPD Research Institute (2013). State mental health agency profiling system: 2013. Available at: http://www.nri-inc.org/projects/profiles/ProfilesDataReport.cfm?Field=M_1&Year=13&ReportSelect=M_1,%20M_2,%20M_3a,%20M_3b,%20M_3b1,%20M_3c,%20M_3c1,%20M_3d,%20M_3d1&Ptable=P13ManagedCare1

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The IDEAS-CTAC Partnership

IDEAS
Center for Implementation-Dissemination of Evidence-Based Practices Among States

Policy-relevant/ real world research

Improved services for children and families

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Community Technical Assistance Center (CTAC)

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Community Technical Assistance Center (CTAC)

(Hoagwood & McKay, Co-Directors)

Goals: Provide training, support, and quality improvement strategies to all NYSOMH licensed clinics (N=346) serving children and families by addressing both clinical and business needs.

Funding: New York State Office of Mental Health (2011-2016)

- **Type of Training**
  - Business improvement practices (Lloyd, 2012)
    - Open access
    - Centralized scheduling
    - Concurrent documentation
    - Volume and productivity
  - Evidence-informed clinical practices
    - Engagement training (McKay et al., 2012) addressing no show rates
    - Multi-family Groups for Disruptive Behavior Disorders (Gopalan et al 2014; Chacko et al 2014)
    - Managing and Adapting Practice (MAP)

- **Intensity of training**
  - Webinar *(1 hour)*
  - In-person training *(full-day)*
  - Learning collaborative (LC; *year-long*)

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IDEAS Research Studies: *CTAC and New York State Office of Mental Health Collaborative Studies
Adoption Study (Horwitz, Olin & Chor)
Collaborative Model Addressing Mental Health in the Perinatal Period (Horwitz)
Developing and Testing a Peer-Delivered Intervention for Maternal Depression (Acri)
Development of a Decision Analytic Model to Assist Child Welfare Directors In Adopting and Implementing EBPs (Horwitz)
Development of a Parent Experiences of Care Measure (Olin)
Development of Quality Measures for Adolescent Depression (Hoagwood, Horwitz & O'Connor)
Development of Psychotropic Prescribing Quality Measures (Finnerty, Hoagwood)
Implementation of Feedback Systems to Improve EBTs for Children (Hoagwood & Gleacher)
Improving Family-to Family (F2F) Services in Home & Community-based Waiver Programs (Hoagwood & Olin)
Improving Access to Psychiatric Services for Adolescent Depression: Mystery Shopper (Horwitz, O'Connor, Hoagwood)
Improving Implementation of Evidence-Based Trauma Care in Schools (Nadeem)
Longitudinal Assessment of Manic Symptoms (Horwitz)
Prevention of Postpartum Traumatic Stress in Mothers with Preterm Infants (Horwitz)
Project TEACH Evaluation (Kerker, Hoagwood, Horwitz & Chor)
Strengthening Quality in School Mental Health (Hoagwood)
Testing a Structured Learning Collaborative to Improve Implementation of MAP (Horwitz, Olin & Gleacher)

New York State Efforts to Improve Adoption

- **Achieving the Promise Initiative (2006)**
  - $62 million investment in children and family mental health services
  - To improve delivery of, and access to, quality services

- **Child and Family Clinic Plus (2007-2009)**
  - To target early detection of problems, linkage and access to services, and outreach
  - Volume and spread: 39,000 screenings, 26,000 referrals, and 6,600 youth receiving in-home treatment

- **Evidence-based Treatment Dissemination Center (EBTDC) (2006-Present)**
  - To provide clinical training and consultation to mental health professionals on using clinical EBPs
  - Volume and spread: 1,300 clinicians and 300 supervisors trained to adopt clinical EBPs

Adoption Study: Aims

- To expand knowledge about the adoption of innovations by characterizing adoption/uptake of CTAC offerings in New York State;
- To understand factors/characteristics (across multiple levels) that serve as facilitators and barriers to adoption; and
- To design interventions/approaches to improve the effectiveness and efficiency of state roll-outs of EBPs for children and families.

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Data Sources

Outcome

- CTAC Attendance Data: Signing up & Showing up

Predictors

1. U.S. DHHS Area Health Resources Files
   - County Demographic Data
2. NYSOMH Online Portal/CONCERTS
   - Up-to-date directory of licensed outpatient clinics
3. 2011 Consolidated Fiscal Report (CFR) system
   - Annual operational capacity and provider-level profiles
4. 2011 Patient Characteristics Survey (PCS)
   - Client profiles: % youth, % SED, % Medicaid

Study #1: Characterize Adoption Patterns*

- **Background:** Despite large-scale state efforts to roll out EBPs and QIs, measures of the adoption process are inconsistent and there are insufficient data to design future roll-outs
- **Aim:** Expand adoption definitions in existing literature beyond "yes/no" using NYS population of child mental health clinics
- **Approach:** Based on CTAC attendance data of the 346 clinics, adoption defined 4 ways:
  1. By **number** of trainings adopted
  2. By **intensity** of trainings adopted
  3. By **type** of trainings adopted
  4. By classifying clinics into **distinct adopter groups:**
     - ❖ **Low**: Webinar = Highest intensity adopted
     - ❖ **Medium:** In-person training = highest intensity adopted
     - ❖ **High:** 1 LC = Highest intensity adopted
     - ❖ **Super:** Both LCs = Highest intensity adopted

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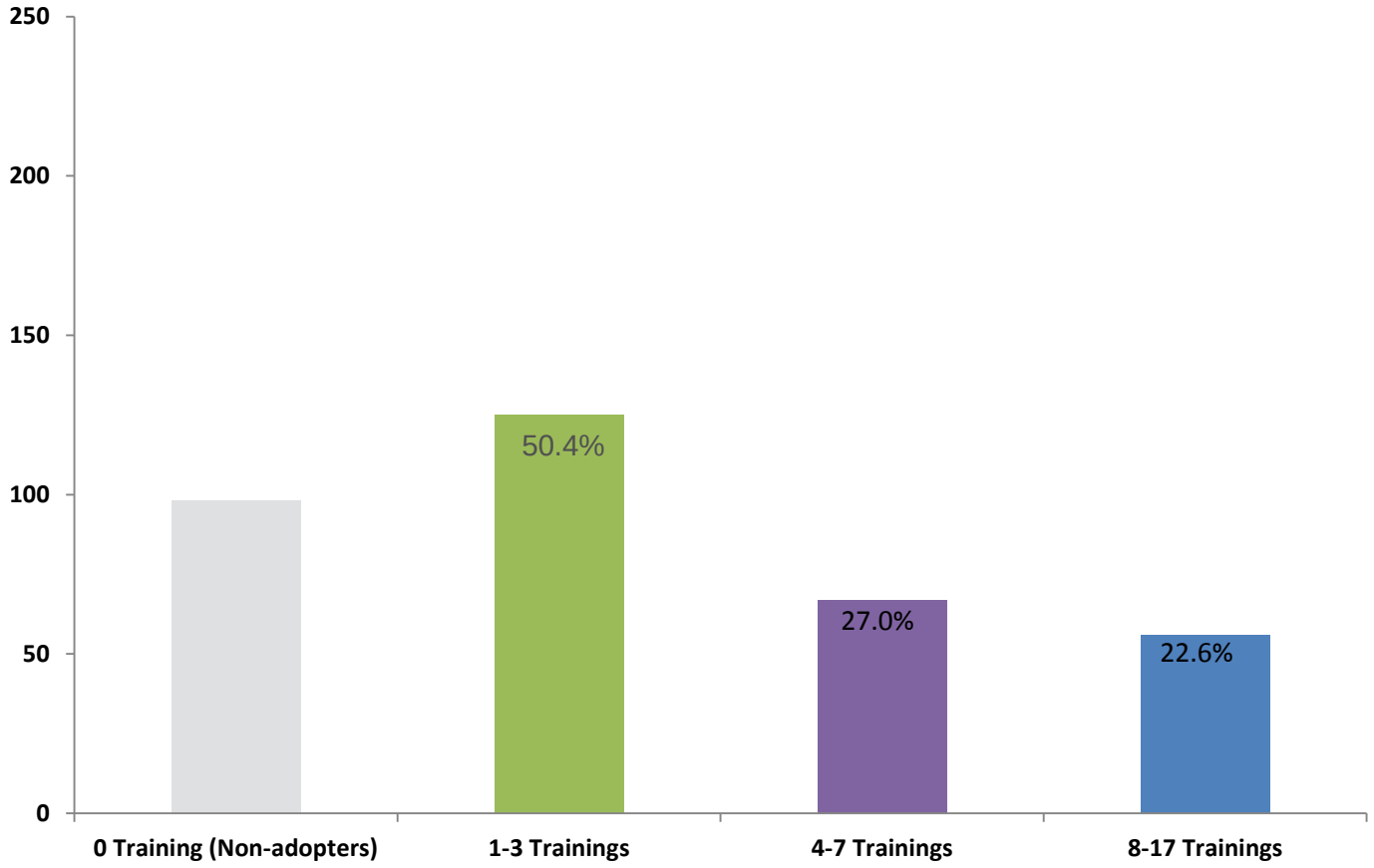
*Chor KH, Olin SS, Weaver J, Cleek AF, McKay MM, Hoagwood KE & Horwitz SM. Adoption of Clinical and Business Trainings by Child Mental Health Clinics in New York State. *Psychiatric Services, 65(12), 1439-1444.*

1. Number of Trainings Adopted

- 248 of 346 clinics adopted at least 1 training
- Mean = 4.8 trainings; median = 3 trainings



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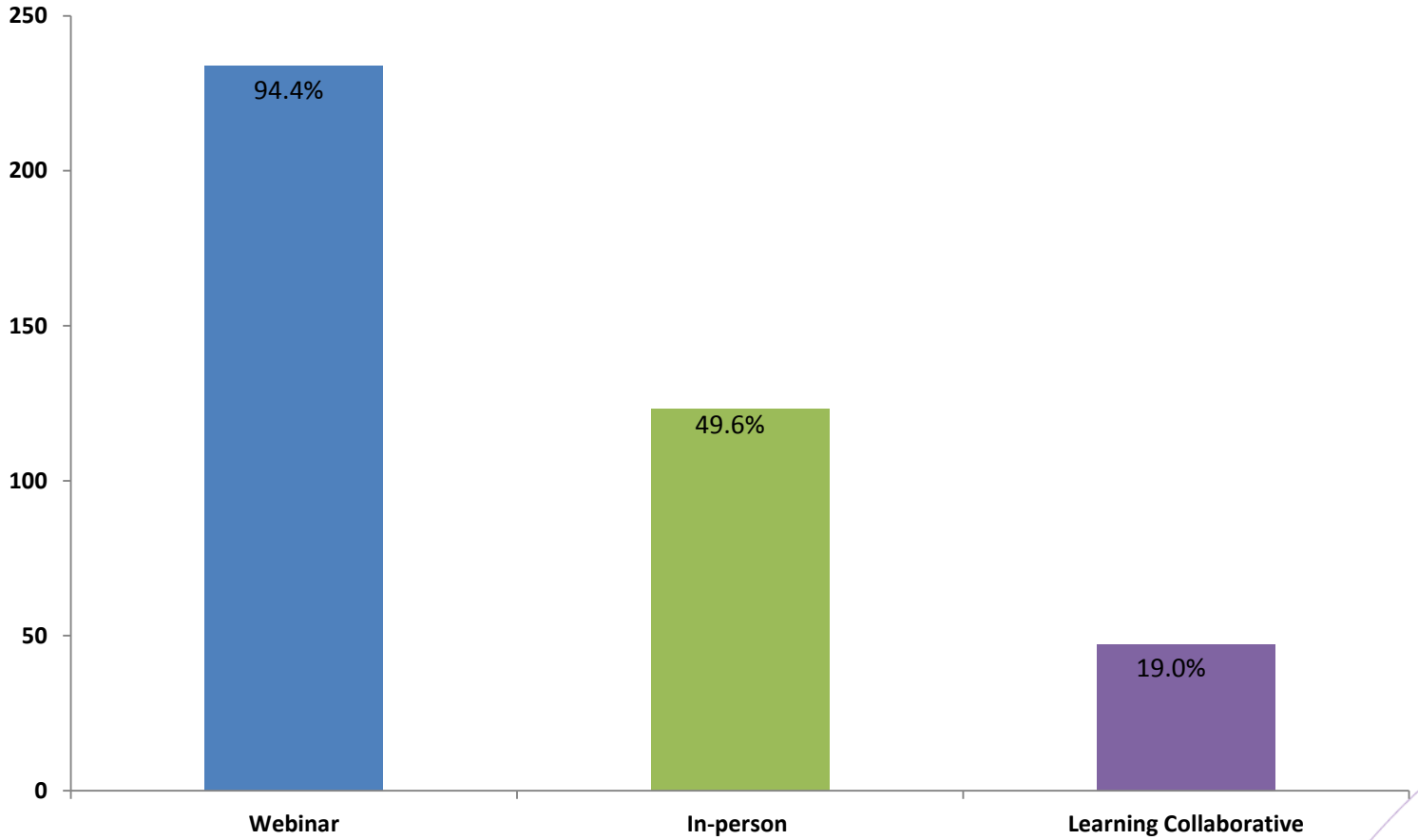
2. Intensity of Trainings Adopted Among Adopters



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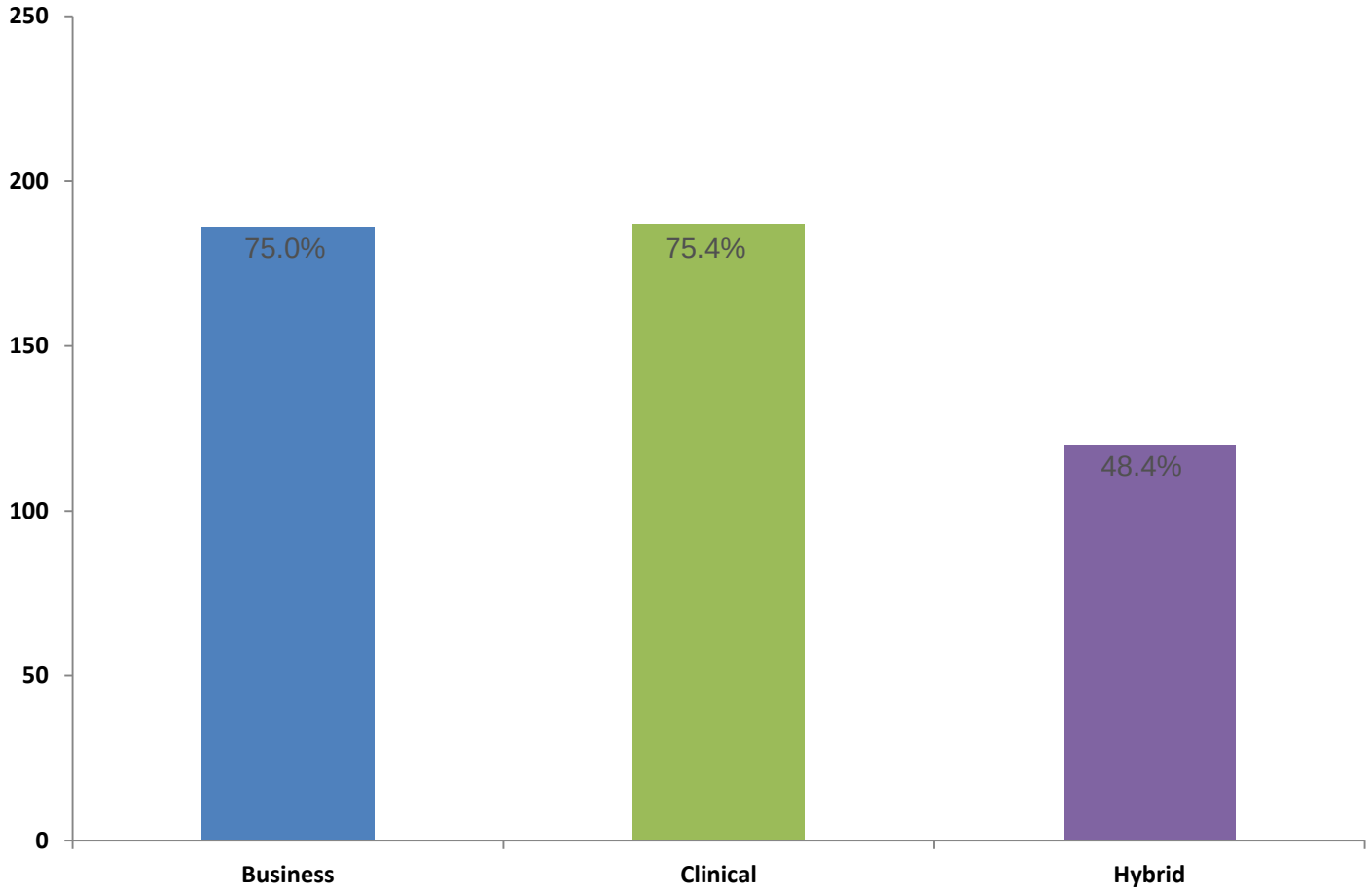
3. Type of Trainings Adopted Among Adopters



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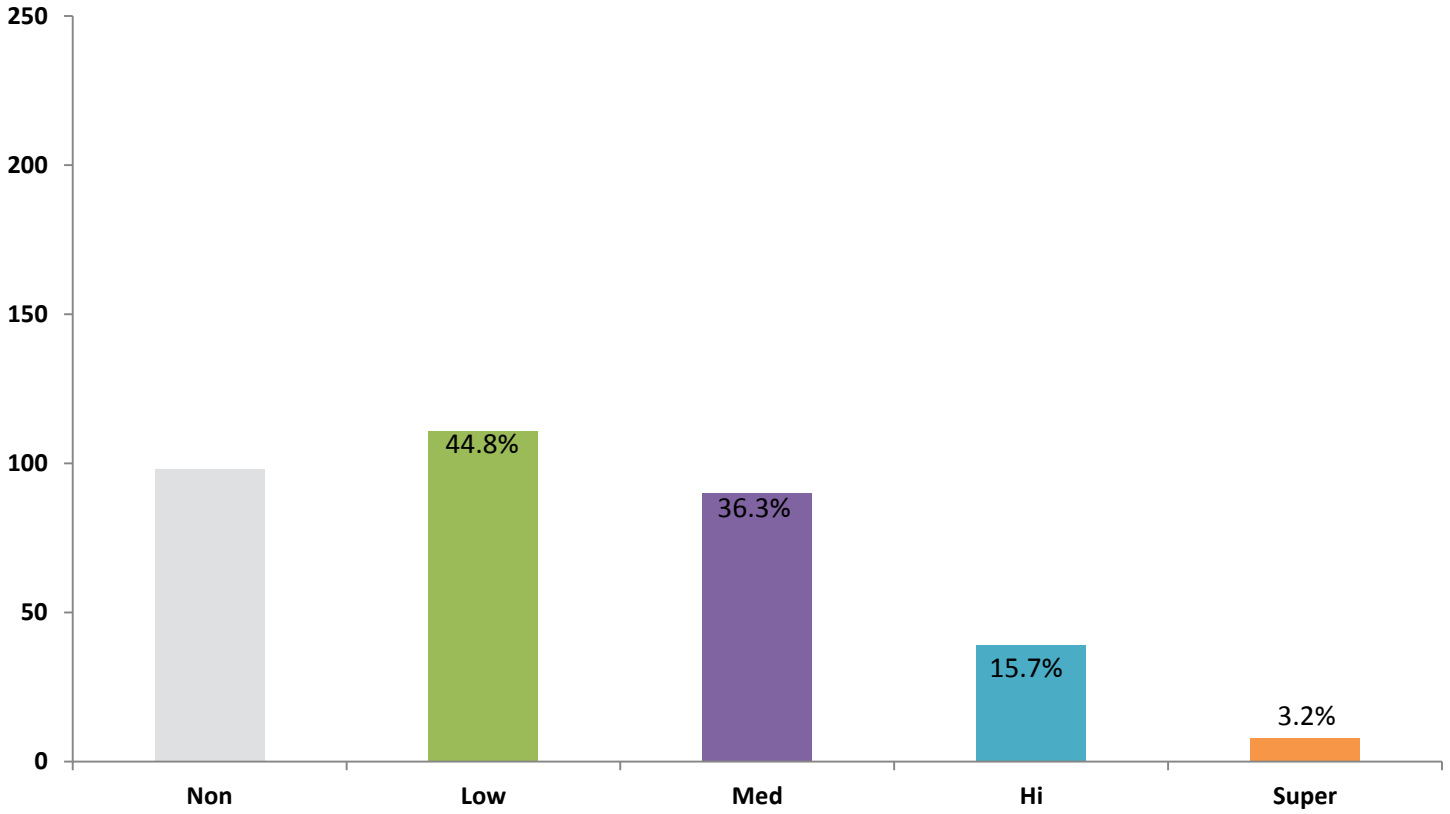
4. Adopter Groups



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Number of Trainings x Adopter Group

Number of Trainings Adopted	Adopter Group: Low n (%)	Medium n (%)	High n (%)	Super n (%)	Total	*p*
1-3	89 (80.2%)	33 (36.7%)	3 (7.7%)	0 (0.0%)	125 (50.4%)	<.001
4-7	20 (18.0%)	30 (33.3%)	16 (41.0%)	1 (12.5%)	67 (27.0%)	
8-17	2 (1.8%)	27 (30.0%)	20 (51.3%)	7 (87.5%)	56 (22.6%)	
Total	111 (100.0%)	90 (100.0%)	39 (100.0%)	8 (100.0%)	248 (100.0%)	

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Lessons Learned

1. **Increasing sheer number of trainings unlikely to improve adoption**
   - Median = 3 trainings

2. **Intensity and accessibility of trainings drive adoption preference**
   - Webinar uptake > In-person training uptake > Learning collaborative uptake
   - Trialability: Clinics that adopted an LC were likely to have sampled a webinar first

3. **Business and clinical trainings are equally important to clinics' needs and viability**
   - Business vs. Clinical: Identical rate of uptake (75%)
   - Address climate of accountability and quality

4. **Adopter groups communicate meaningful adopter profiles**
   - From low- to super-adopters, the continuum represents an increase in quantity and intensity of trainings adopted

5. **States can develop different strategies for different goals of TA roll-outs**

Conclusions:

- **Administrative data is useful in predicting who will participate, but less useful in predicting level of participation**
  - Administrative data are primarily structural
  - They lack more nuanced (e.g., provider attitudes) or local information (organizational culture/climate) that may influence clinic participation levels

- **Different levels of clinic characteristics were associated with Clinical vs. Business Practice Trainings**
  - *Business Practice* uptake associated with agency (affiliation, size, efficiency) and clinic provider profiles characteristics (outsourced clinical services)
  - *Clinical Trainings* uptake associated with clinic provider profile (clinical capacity) and client profile (% youth served)

- **Clinics make decisions based on relevant agency, provider and client factors (**i.e., strategic fit and innovation-fit values)

Study #2: Measures for Predictors of Innovation Adoption (Chor et al., 2014)

- **Background**
  - Adoption of innovation (e.g., EBP) precedes implementation and is an understudied, multi-faceted decision-making process
  - Measurement literature tends to focus on implementation process
  - State mental health systems, policy leaders, and service providers need decision-making guidance to selectively adopt sustainable, quality innovations and de-adopt ineffective practices.
- **Aims**
  - Build on a theoretical framework of predictors of innovation adoption (Wisdom et al. 2013) to **identify measures** associated with these predictors
  - Highlight challenges of measurement
  - Propose effective ways to integrate measures

Steps to Identifying Measures for Adoption Predictors

- Begin with same pool of unique journal articles (n=322) that were originally screened to form the theoretical framework by Wisdom et al. (2014)
  - Database searches in Ovid Medline, PsycINFO, and Web of Science using combinations of specific Medical Subject Heading (MeSH) terms
  - E.g., “Adoption,” “Innovation,” “Evidence-Base,” “Model,” etc.

- Focus on measures championed by the theoretical framework
- Include additional measures from remaining articles in the original pool
- Include additional measures form snowball search of references of references
- Match measures to 27 adoption predictors based on relevance and 100% agreement among authors
- Code availability of psychometric properties, empirical adoption data, and whether the measured predictor is modifiable

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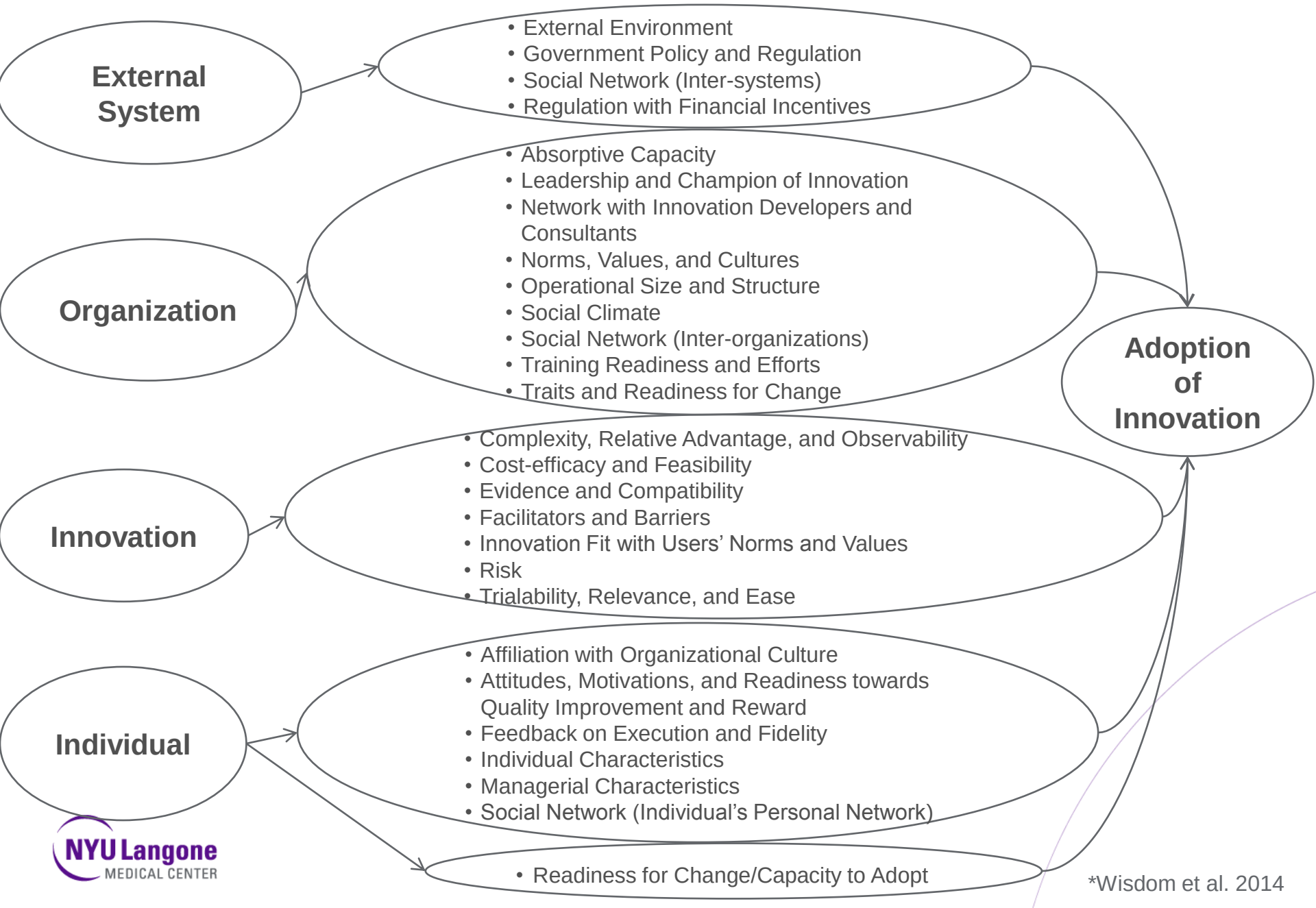
27 Multi-Level Predictors of Innovation Adoption*



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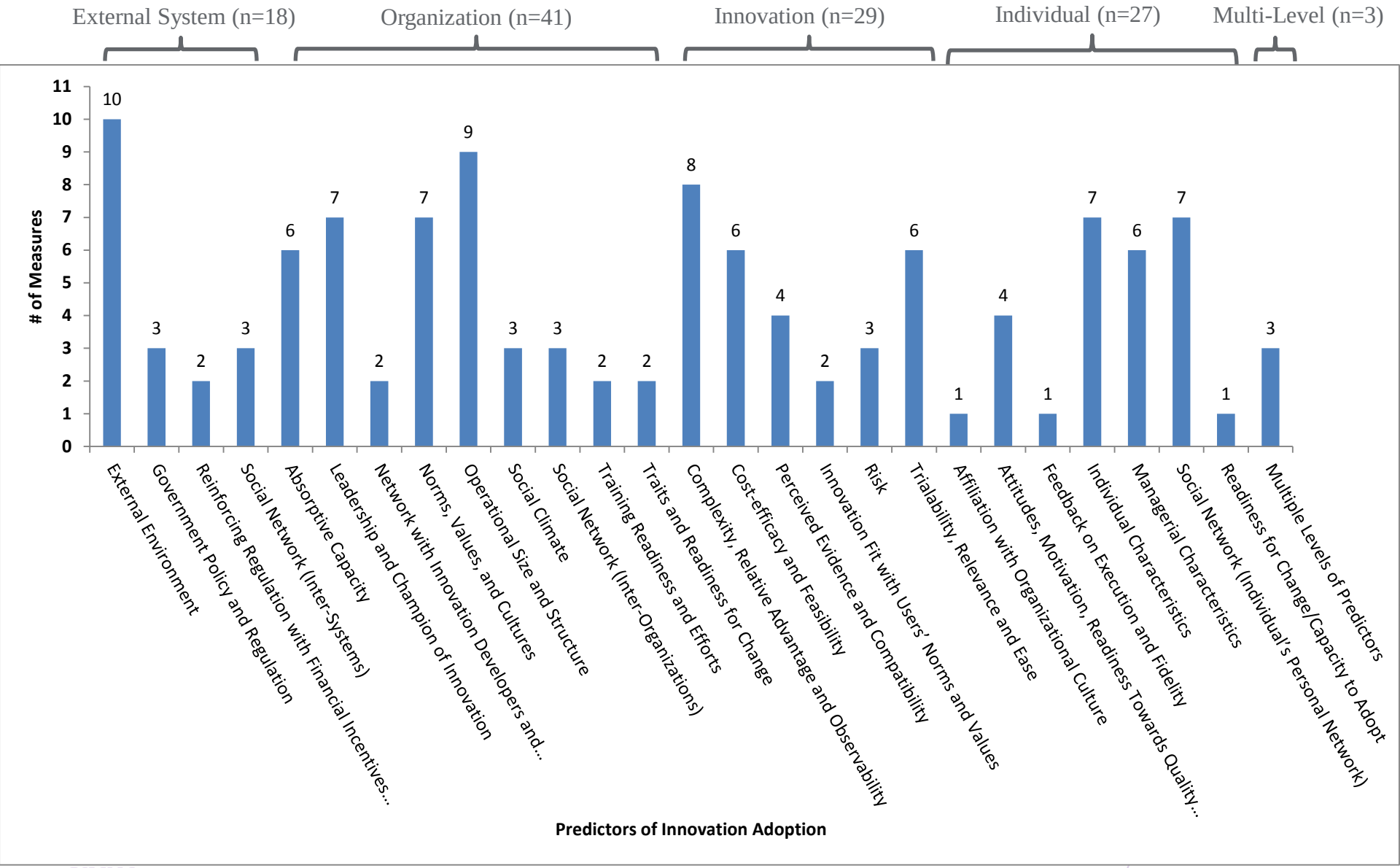
*Wisdom et al. 2014

Results: 118 Measures by Level of Adoption Predictor



Major Findings:

- Measures range from single/multi-item rating scales, multi-domain measures, to semi-structured or open-ended surveys.
- Measures applied in different fields: management, technology, public health, private sector, health, mental health, etc.
- Multi-dimensional organizational predictors (e.g., culture ,climate, readiness for change) require in-depth and diverse measures.
- Measures for same predictors (e.g., leadership) have rarely been compared to each other.
- Measures for related predictors (e.g., individual characteristics and perceived innovation characteristics) need to be considered to understand the related drivers of adoption.

Study #3: Predictors of Adoption*

Background: Factors that influence clinic responses to state-offered trainings have not been systematically examined**.**

Aim: Following a theoretical framework of adoption, we examined multilevel factors ranging from *organizational to client-level factors* that predict clinic responses to trainings.

Business practices vs. ***clinical trainings*** examined separately.

Approach: Based on clinic attendance data between September 2011-August 2013, adopter groups were created as follows:

- Adopter of any training (yes/no)
- Intensity of training participation among adopters (low/high)

Multiple logistic regression (adjusted odds ratios) were used to assess the independent effects of predictor variables on clinic training participation.

*****Olin SS, Chor KH, Weaver J, Duan N, Kerker B, Clark L, Cleek AF, Hoagwood KE, Horwitz SM (in press). Multilevel Predictors of Clinic Adoption of State-Supported Trainings in Children's Services. *Psychiatric Services*.

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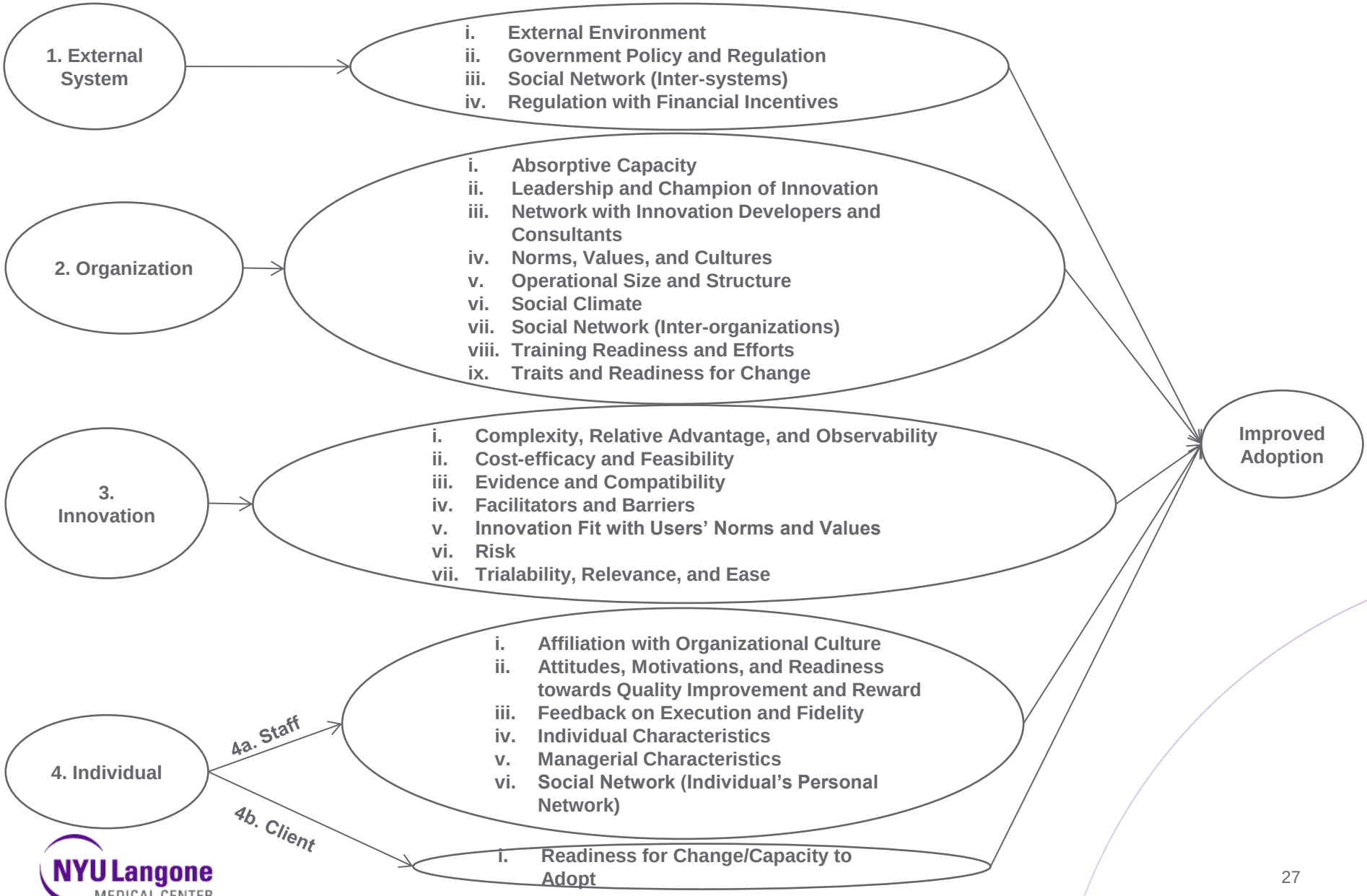
Innovation Adoption Framework: Theories & Constructs*



*Wisdom, Chor, Hoagwood & Horwitz, 2013

Characteristics of NYS Outpatient Mental Health Clinics that Serve Youth

	Total population (N=329)*	
	n	%
Extra-organizational Variable		
Region-urbanicity		
Downstate urban	194	59
Upstate urban	98	30
Upstate rural	37	11
Agency Level Variables		
Affiliation		
Community affiliated	269	82
Hospital affiliated	60	18
Total expenses, in millions (M±SD)	6.04 ± 6.91	
Gain or loss per service unit (M±SD)	-48.56 ± 91.70	
% Clinical staff (M±SD)	68.14 ± 16.02	
Clinic-Provider Profile Variables		
Total clinical full-time equivalents (M±SD)	12.75 ± 10.11	
% Clinical staff contracted out (M±SD)	8.26 ± 17.43	
Clinic-Client Profile Variables		
% Under age 18 clients (M±SD)	39.65 ± 33.35	
% Medicaid & Medicaid Managed Care, visits (M±SD)	49.78 ± 20.81	
% Serious emotional disorder, clients (M±SD)	35.00 ± 27.11	

*n=17 OMH facility-affiliated clinics were excluded due to disparate operational and financing structures

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Business Practice (BP) Uptake: Bivariate Associations

	Total population (N=329)				
	Bivariate association				
	No BP uptake (n=119, 36.2%)		Any BP uptake (n=210, 63.8%)		
	n	%	n	%	*p*
Extra-Organizational Variable					
Region-urbanicity					***
Downstate urban	87	73	107	51	
Upstate urban	26	22	72	34	
Upstate rural	6	5	31	15	
Agency-Level Variables					
Affiliation					ns
Community affiliated	92	77	177	84	
Hospital affiliated	27	23	33	16	
Total expenses, in millions (M±SE)	7.19±0.76		5.41 ± 0.44		*
Gain or loss per service unit (M±SE)	-45.1 ± 7.5		-50.5 ± 7.0		ns
% Clinical staff (M±SE)	65.9 ± 1.8		69.4 ± 1.0		ns
Clinic-Provider Profile Variables					
Total clinical full-time equivalent (M±SE)	10.6 ± 0.9		13.9 ± 0.7		**
% Clinical staff contracted out (M±SE)	12.5 ± 2.4		6.0 ± 0.9		**
Clinic-Client Profile Variables					
% Under age 18 clients (M±SE)	33.9 ± 3.2		42.9 ± 2.3		*
% Medicaid & Medicaid Managed Care, visits (M±SE)	49.3 ± 2.0		50.1 ± 1.4		ns
% SED, clients (M±SE)	30.0 ± 2.6		37.7 ± 2.0		*

*p<.05, **p<.01, ***p<.001

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Reduced Logistic Regression Model with AORs for Clinic Characteristic Effects on Business Practice (BP) Uptake

	N = 287		
	Any uptake vs. No uptake†		
	AOR	95% CI	*p*
Extra-Organizational Variable			
Region-urbanicity			
Downstate urban	-		
Upstate urban	-		
Upstate rural	-		
Agency-Level Variables			
Affiliation			
Community affiliated	ref.		
Hospital affiliated	0.50	0.18-1.36	ns
Total expenses, in millions (M±SE)	0.65	0.50-0.84	**
Gain or loss per service unit (M±SE)	0.62	0.41-0.94	*
% Clinical staff (M±SE)	-		
Clinic-Provider Profile Variables			
Total clinical full-time equivalent (M±SE)	1.33	0.94-1.88	ns
% Clinical staff contracted out (M±SE)	0.60	0.46-0.80	***
Clinic-Client Profile Variables			
% Under age 18 clients (M±SE)	-		
% Medicaid & MMC visits (M±SE)	-		
% SED clients (M±SE)	-		
Hospital affiliation X Total clinical FTEs	4.89	1.31-18.28	*

pseudo R^2=0.1213, LR chi^2=44.71, df=6, p<.001; *p<.05, **p<.01, ***p<.001; -Variable was not included in the final model because p≥.05

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Clinical Trainings (CT) Uptake: Bivariate Associations

	Total population (N=329)				
	Bivariate association				
	No CT uptake (n=115, 35.0%)		Any CT adoption (n=214, 65.0%)		
	n	%	n	%	*p*
Extra-organizational Variable					
Region-urbanicity					ns
Downstate urban	77	67	117	55	
Upstate urban	28	24	70	33	
Upstate rural	10	9	27	13	
Agency Level Variables					
Affiliation					ns
Community affiliated	89	77	180	84	
Hospital affiliated	26	23	34	16	
Total expenses, in millions (M±SE)	5.77±0.71		6.18±0.46		ns
Gain or loss per service unit (M±SE)	-44.2±8.1		-50.7±6.7		ns
% Clinical staff (M±SE)	65.6±1.7		69.5±1.0		*
Clinic-Provider Profile Variables					
Total clinical full-time equivalents (M±SE)	10.5±0.8		13.9±0.8		**
% clinical staff contracted out (M±SE)	9.7±1.9		7.5±1.2		ns
Clinic-Client Profile Variables					
% Under age 18 clients (M±SE)	27.3±2.8		46.1±2.4		***
% Medicaid & MMC visits (M±SE)	44.1±2.2		52.8±1.3		***
% SED clients (M±SE)	31.8±2.6		36.6±2.0		ns

*p<.05, **p<.01, ***p<.001

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Reduced Logistic Regression Model with AORs for Clinic Characteristic Effects on Clinical Trainings (CT) Uptake

	N = 294		
	Any uptake vs. No uptake†		
	AOR	95% CI	*p*
Extra-organizational Variable			
Region-urbanicity			
Downstate urban	-		
Upstate urban	-		
Upstate rural	-		
Agency Level Variables			
Affiliation			
Community affiliated	-		
Hospital affiliated	-		
Total expenses, in millions (M±SE)	-		
Gain or loss per service unit (M±SE)	-		
% Clinical staff (M±SE)	-		
Clinic-Provider Profile Variables			
Total clinical FTEs (M±SE)	1.52	1.11-2.08	**
% Clinical staff contracted out (M±SE)	-		
Clinic-Client Profile Variables			
% Under age 18 clients (M±SE)	1.90	1.42-2.55	***
% Medicaid & MMC visits (M±SE)	-		
% SED clients (M±SE)	-		

pseudo R^2=0.079, LR chi^2=29.74, df=2, p<.001*p<.05, **p<.01, ***p<.001; -Variable was not included in the final model because $p \geq .05$

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Implications for State Systems

- State efforts to incentivize or target training efforts should pay attention to specific clinic characteristics available through administrative data
- To move clinics beyond adoption to successful implementation, targeting trainings to address both clinic needs and their readiness to change is critical
- Healthcare reform and new accountability standards make it imperative for States to understand and leverage factors that influence clinic decisions to embrace, implement and sustain improvement efforts.
- Important meta-message:

  State agencies can and should undertake theory-guided efforts to mine meaning from massive administrative data sets they have access to or manage to guide policy and program decisions.

Adoption of Innovations: Publications to Date

- **THEORETICAL MODEL**
  - Wisdom JP, Chor KHB, Hoagwood K, Horwitz S (2014). Innovation Adoption: A Review of Theories and Constructs. *Administration and Policy in Mental Health and Mental Health Services Research*, 41, (4): 480-502.

- **MEASUREMENT OF CONSTRUCTS**
  - Chor KHB, Wisdom JP, Olin SS, Hoagwood KE, Horwitz SM (2014). Measures for Predictors of Innovation Adoption. *Administration and Policy in Mental Health and Mental Health Services Research*. Apr 17. Epub ahead of print.

- **ADOPTION BEHAVIOR**
  - Chor KHB, Olin S, Weaver J, Cleek A, Mckay M, Hoagwood K & Horwitz SM (2014). Characterizing clinic adoption of clinical and business trainings in child mental health in New York State. *Psychiatric Services, 65(12), 1439-1444.*

- **ADOPTION PREDICTORS (QUANTITATIVE)**
  - Olin SS, Chor KHB, Weaver J, Duan N, Kerker B, Clark L, Cleek AF, Hoagwood KE, Horwitz SM (in press). Multilevel Predictors of Clinic Adoption of State-Supported Trainings. *Psychiatric Services*.

- **ADOPTION PREDICTORS (QUALITATIVE)**
  - Clinic/Agency Director Interviews (N=60); State Policymaker Interviews (N=9). Palinkas et al. In preparation.

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