Putting More Evidence in Evidence-Based Practice: Designing Informed and Efficient Children's Mental Health Systems

June 17, 2014

IOM-NRC Forum on Promoting Children's Cognitive, Affective, and Behavioral Health

Bruce F. Chorpita, PhD

It’s about…

- Alleviating human suffering by increasing the public impact of science

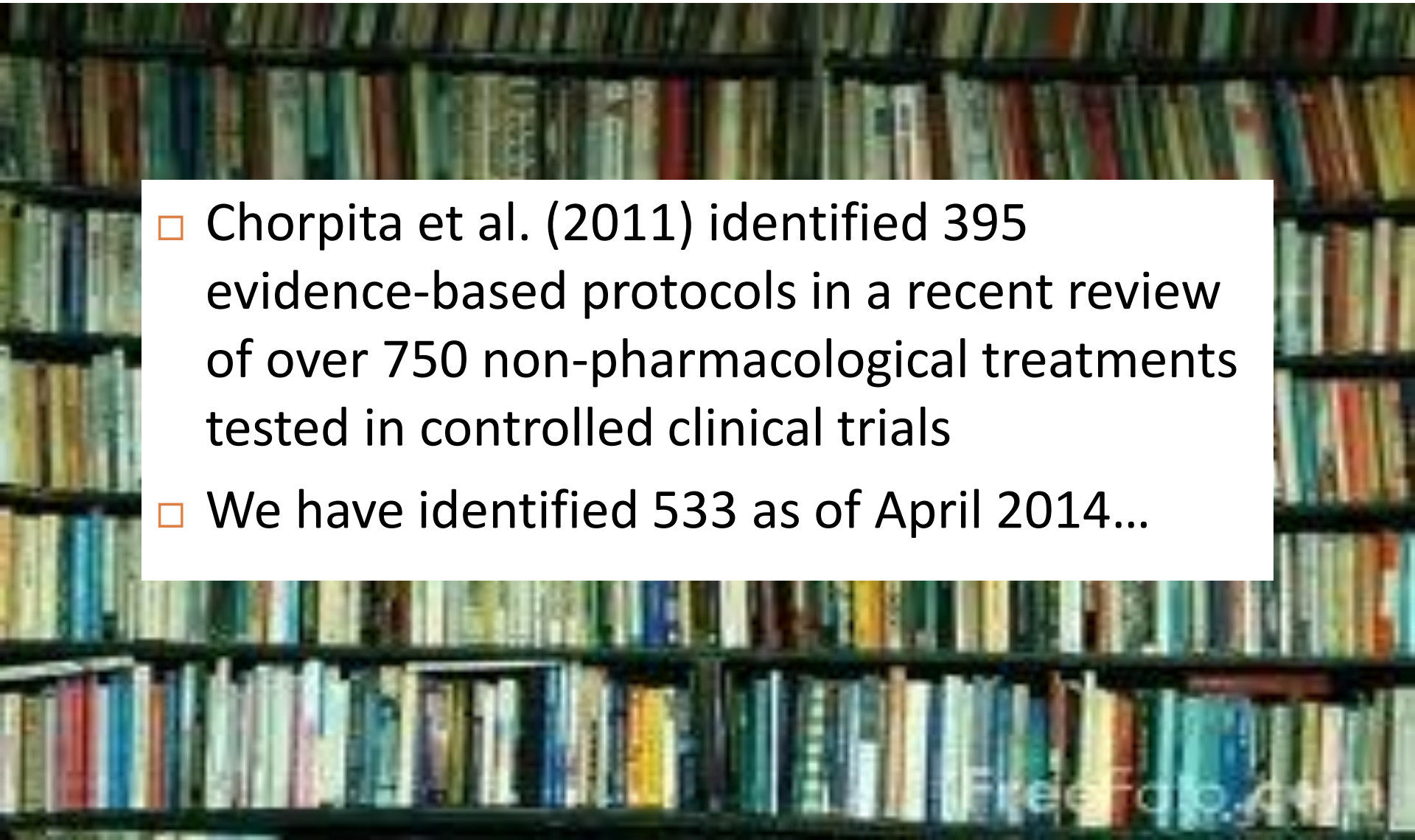
- Building healthier families, stronger communities, better lives

Where Evidence Comes In

- The debate is about *how* evidence should inform clinical practice, not whether it should.

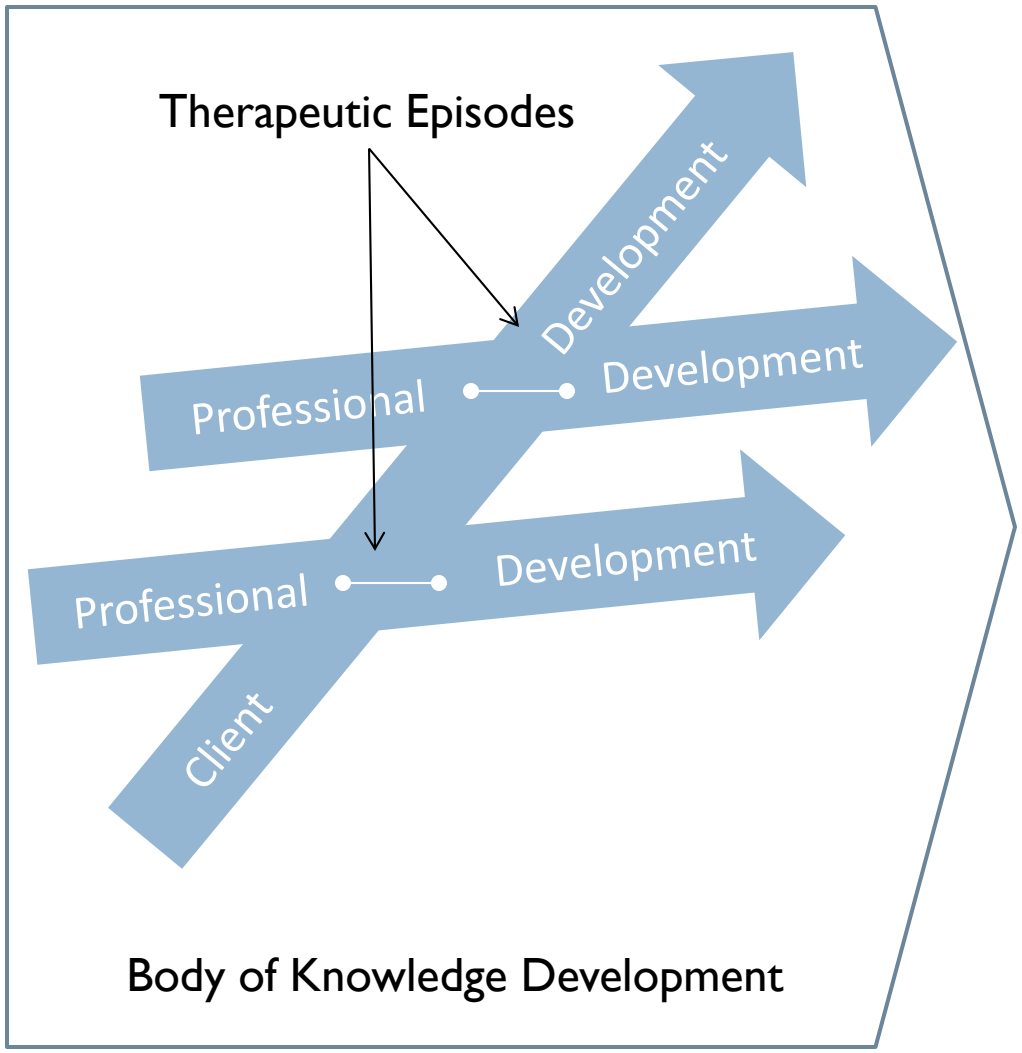
  Stuart & Lilienfeld (2007)

No Shortage of Evidence



- Chorpita et al. (2011) identified 395 evidence-based protocols in a recent review of over 750 non-pharmacological treatments tested in controlled clinical trials
- We have identified 533 as of April 2014…

Challenge: Putting Evidence to Work



Critical Aspects of System Design

#1 Be Developmental

Critical Aspects of System Design

#2 Be Dynamic

What Happens When We Don't Design for Developmental Differences and Exceptions?

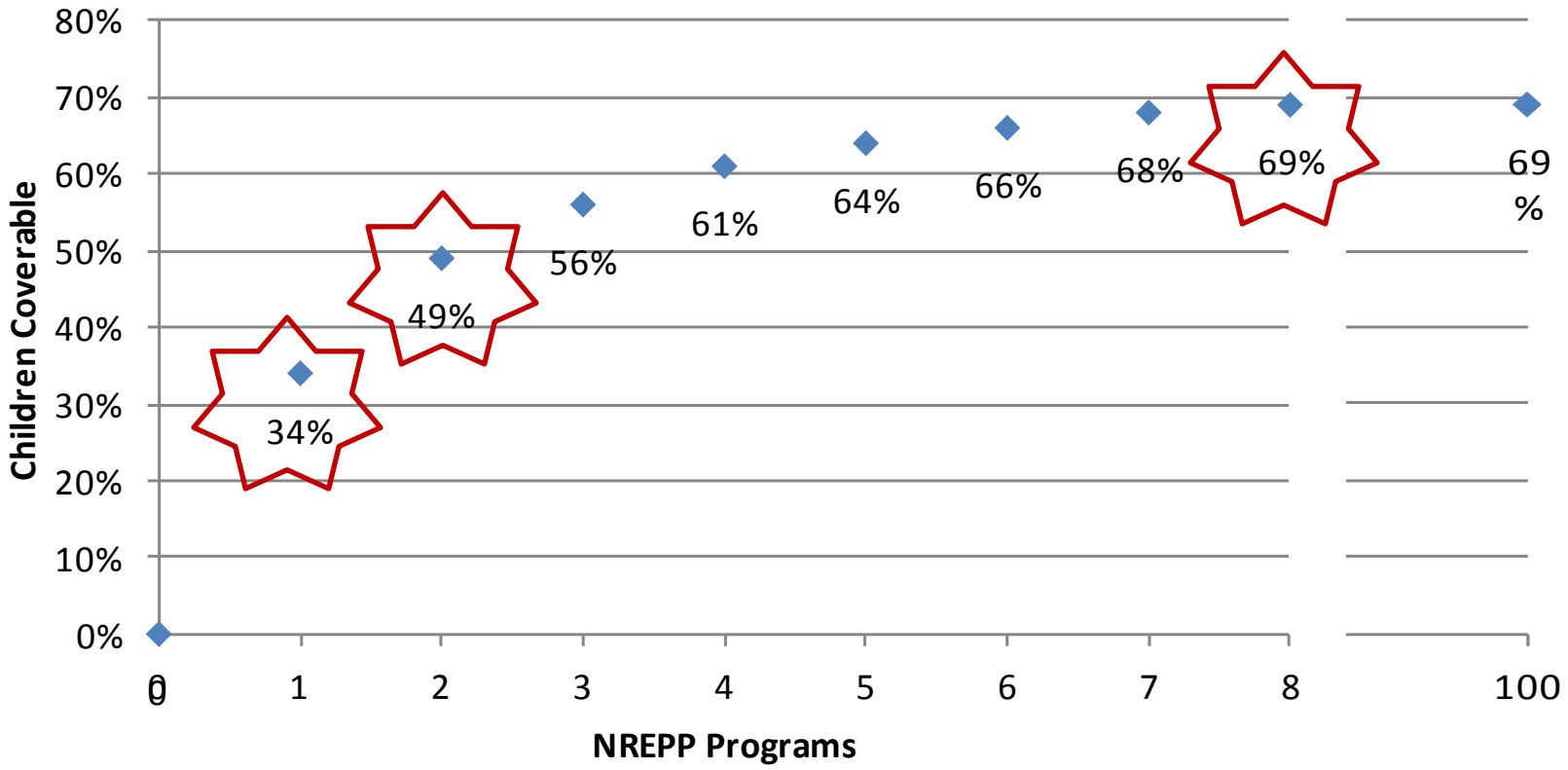
- Differences or exceptions are ignored
- We enter an "error state" of unstructured adaptation and spontaneous reactivity

How Does this Work at the System Level?

- "Relevance Mapping" determines how many EBTs are needed to serve a given population
- Shows which youth are coverable, which EBTs are needed, under a variety of scenarios…

Chorpita, B. F., Bernstein, A. D., & Daleiden, E. L. (2011). Empirically guided coordination of multiple evidence-based treatments: An illustration of relevance mapping in children's mental health services. *Journal of Consulting and Clinical Psychology, 79*, 470-480.

Matching Youth to Studies on Problem, Age, and Gender

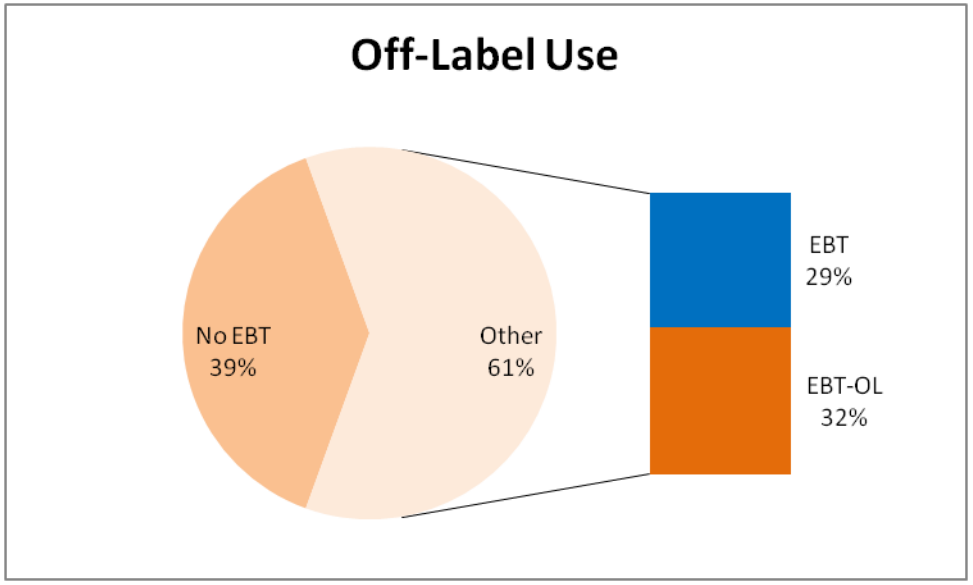


Implications

- Standard EBTs alone may not be sufficient to create high-performance service systems
  - Approximately one third of cases are “exceptions”
    - Ignored: Providers deliver off-label EBTs
    - Error state: Providers revert to Usual Care

“Off-Label” Use of EBTs

- Delivering an EBT that does not match the any of the youth’s top three problems and age range



  - Significantly associated with provider training history
- For youth receiving trauma-focused treatment, 94% of treatment was off-label

Implications

- These data underestimate problem, which is typically much worse
  - Small organizations
  - Remote communities
  - Non-responders to initial EBT, need a second one
- Ideal service systems may involve hybrid combinations of existing EBTs and new treatment architectures that allow for **real-time design**

Design at the Treatment Level

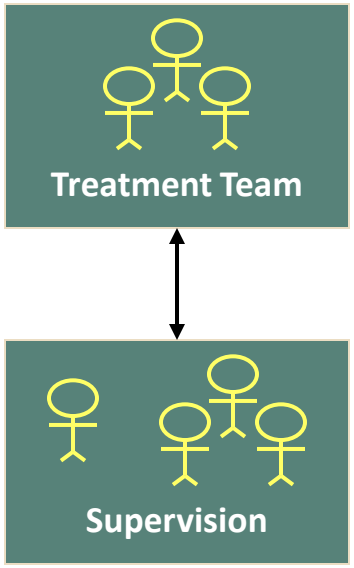
From paper maps to GPS…

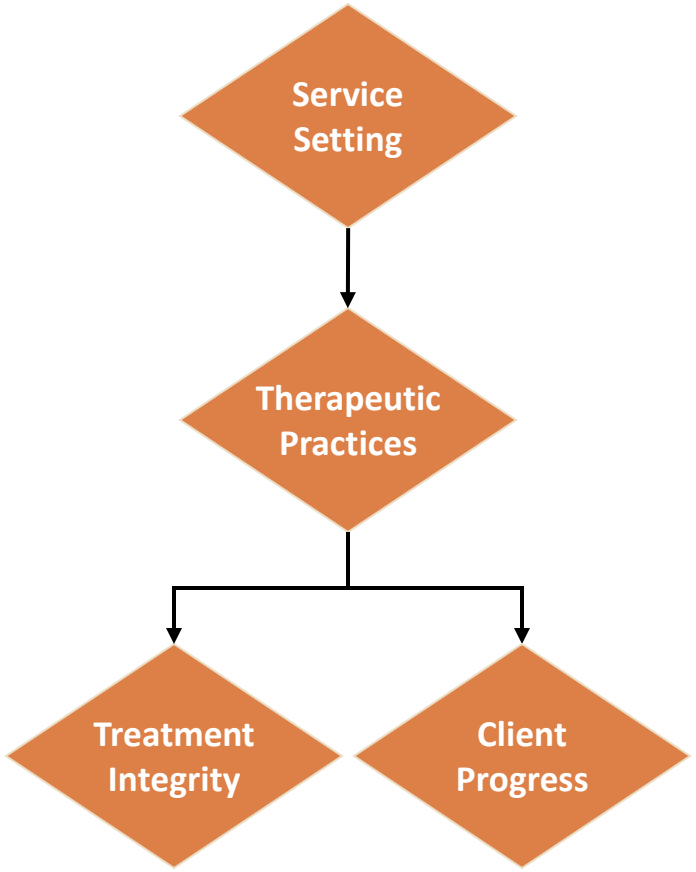
Toward a More Dynamic Decision Infrastructure…

Directions to My Party

1. Head **east** on **Market St**
2. Turn left onto **Schuylkill Ave W**
3. Take the **Interstate 76 W** ramp to **Valley Forge**
4. Keep left at the fork, follow signs for **I-76 W/Valley/Forge** and merge onto **I-76 W**
5. Keep left at the fork, follow signs for **I-76 W/Harrisburg** and merge onto **I-76 W**
6. Merge onto **I-76**
7. Merge onto **I-76 W**
8. Take exit **75** to merge onto **I-70 W** toward **Wheeling WV**
9. Keep left to stay on **I-70 W**
10. Keep left to continue on **I-470 W**, follow signs for **Columbus**
11. Merge onto **I-70 W**
12. Keep right to stay on **I-70 W**, follow signs for **Interstate70 W/Dayton/Rich Street/Town Street**
13. Continue onto **Anton Tony Hulman Jr Memorial Way**
14. Continue onto **I-70 W**
15. Keep right to stay on **I-70 W**, follow signs for **Interstate 70 W/Saint Louis**
16. Take the **Interstate 55/Interstate 70**exit on the left toward **St Louis**
17. Merge onto **I-55 S18.** Take exit **40B** for **Interstate 55 S** toward **Interstate 44 W**
19. Merge onto **I-44/I-55 S**
20. Keep right to continue on **I-44**, follow signs for **12th St/Gravois Ave**
21. Take exit **34** to merge onto **I-44 W/US-412 W** toward **OK-66/Tulsa**
22. Keep left to continue on **I-44**
23. Keep left at the fork, follow signs for **Oklahoma 66 W/Interstate 44 W/Sapulpa/Okla. City** and merge onto **I-44**
24. Continue onto **John Kilpatrick Turnpike**
25. Take the exit onto **I-40 W** toward **Amarillo**
26. Merge onto **I-15 S**
27. Keep right to stay on **I-15 S**, follow signs for **Los Angeles/San Diego**
28. Take the exit onto **CA-210 W** toward **Pasadena**
29. Continue onto **I-210 W**
30. Continue onto **CA-134**
31. Merge onto **US-101 N**
32. Take the exit onto **I-405 S** toward **Santa Monica**
33. Take the exit toward **Sunset Blvd**
34. Turn left onto **N Church Ln**
35. Turn right onto **Sunset Blvd**
36. Turn right onto **Mandeville Canyon Rd**
37. Take the 1st left onto **Westridge Rd**
38. Turn left onto **Raywood Dr** Destination will be on the left

What evidence drives decisions?





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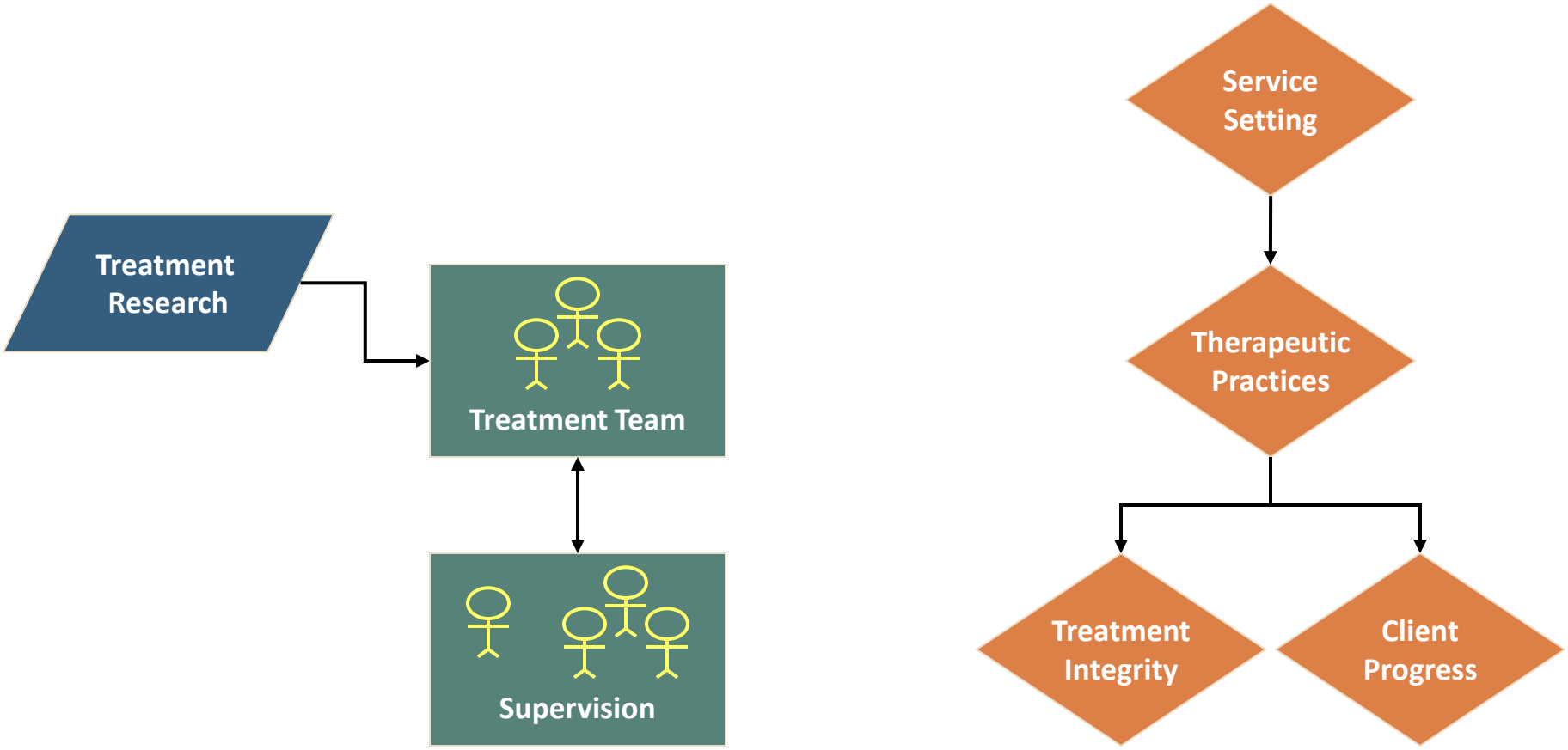
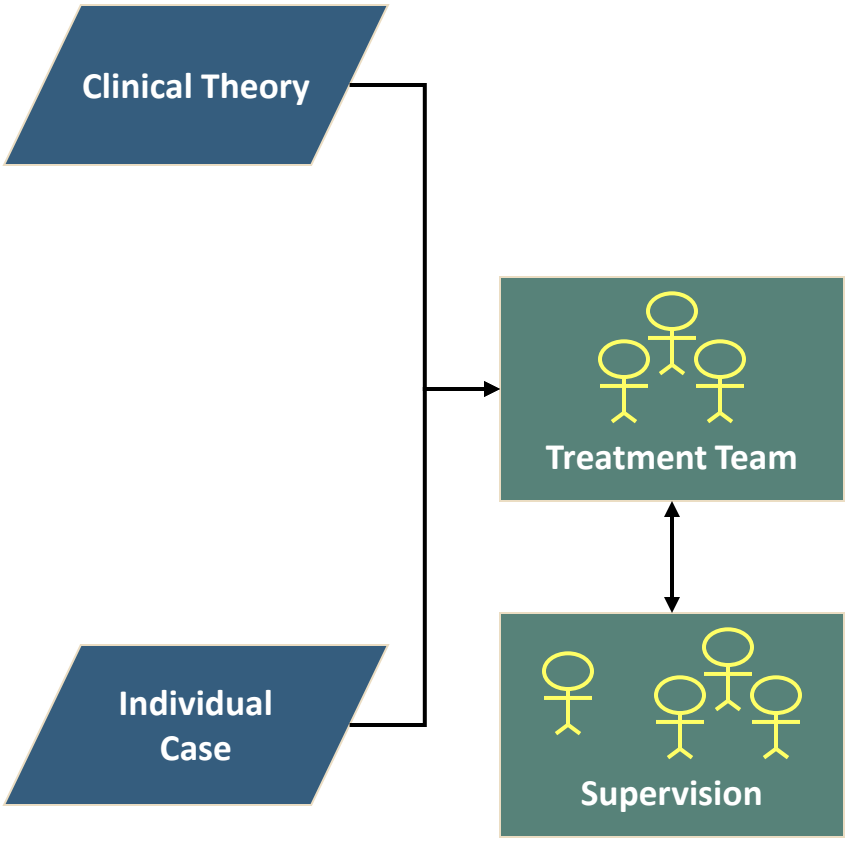
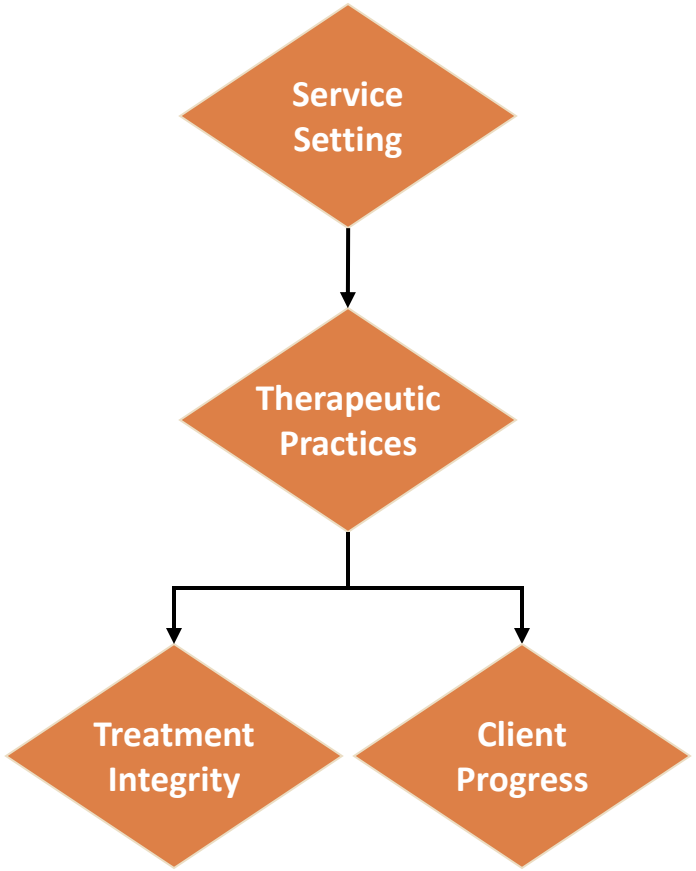


Evidence-Based Services Model

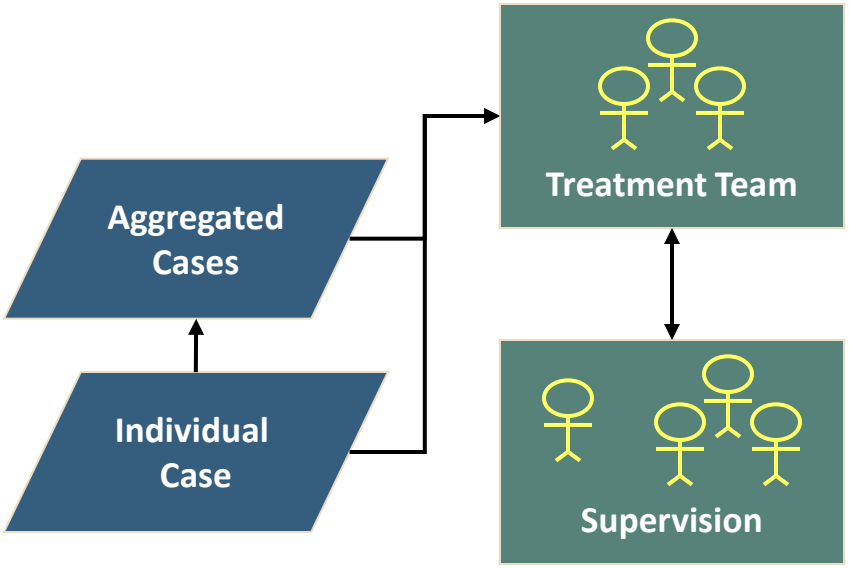
What evidence drives decisions?

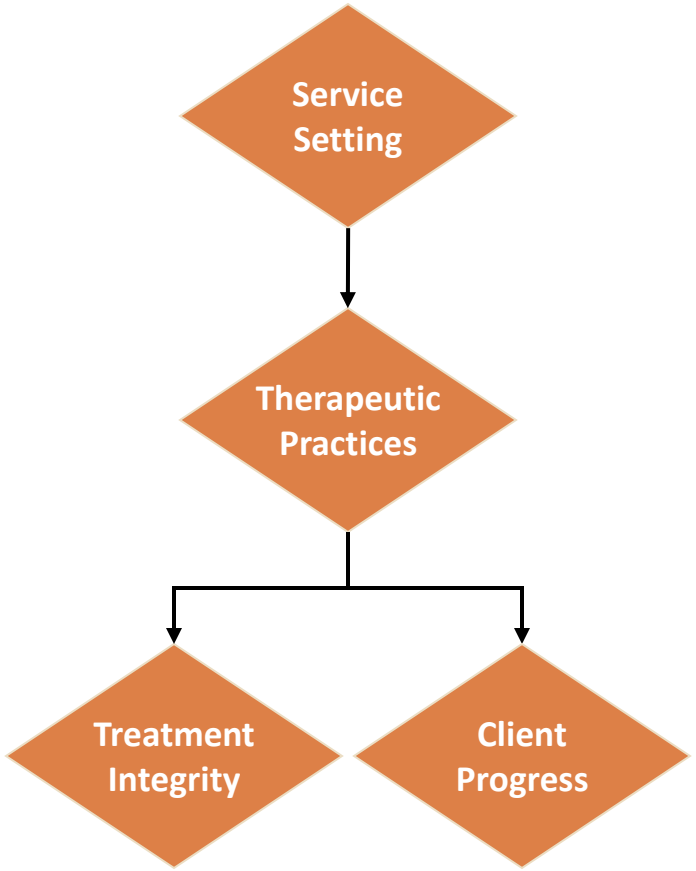




Individualized Case Conceptualization Model

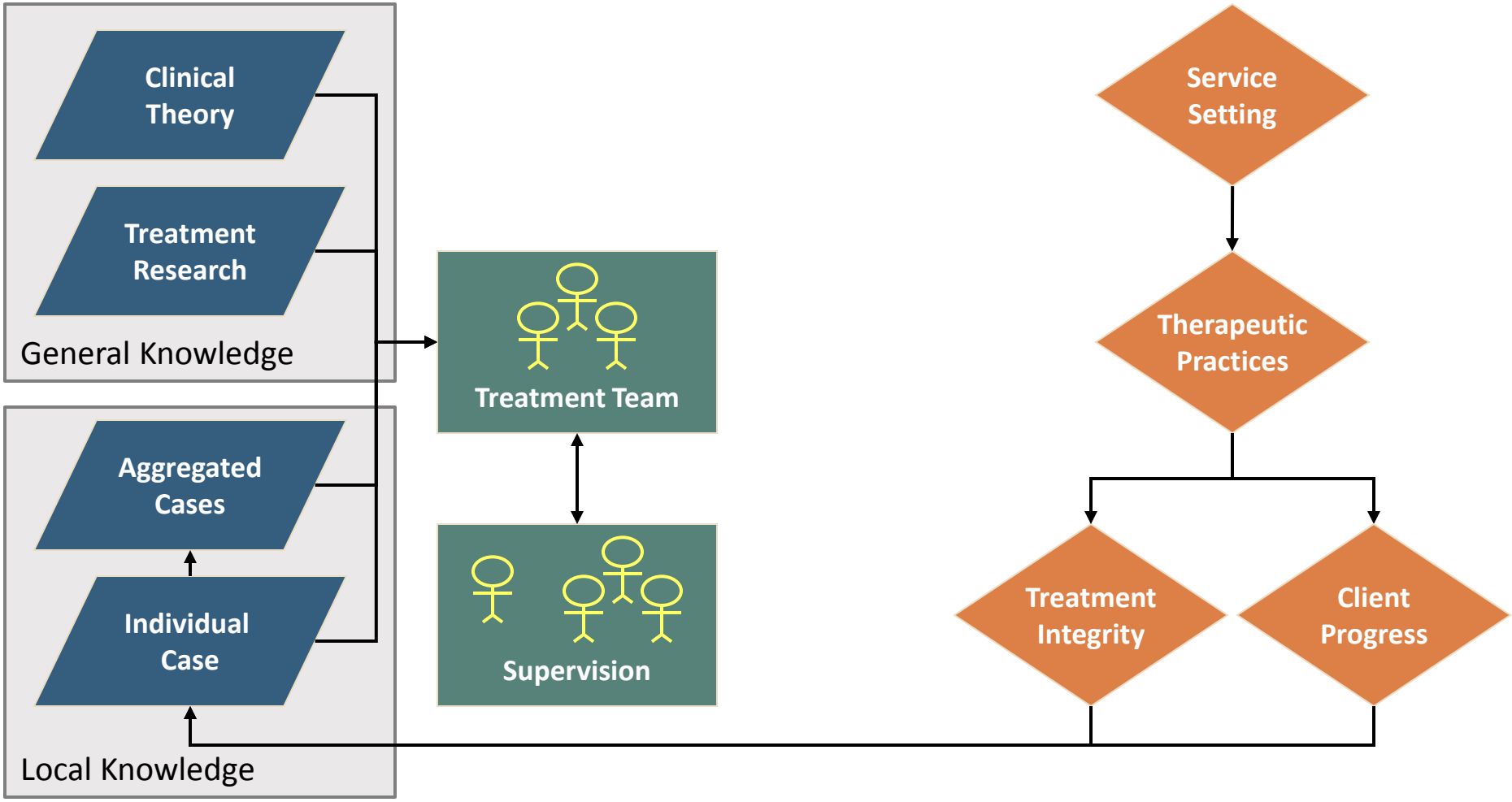
What evidence drives decisions?





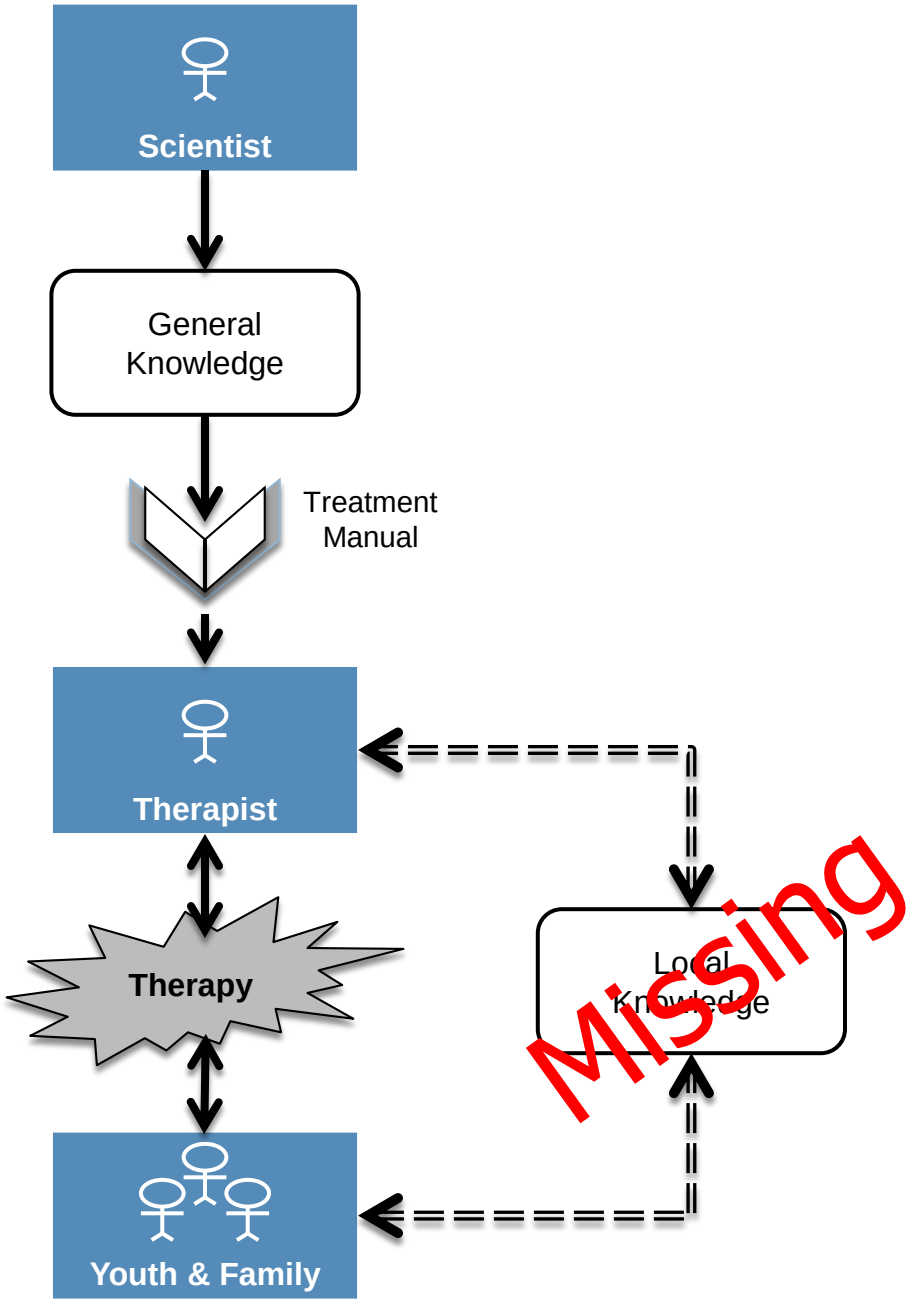
Practice-Based Evidence Model

The Full Model

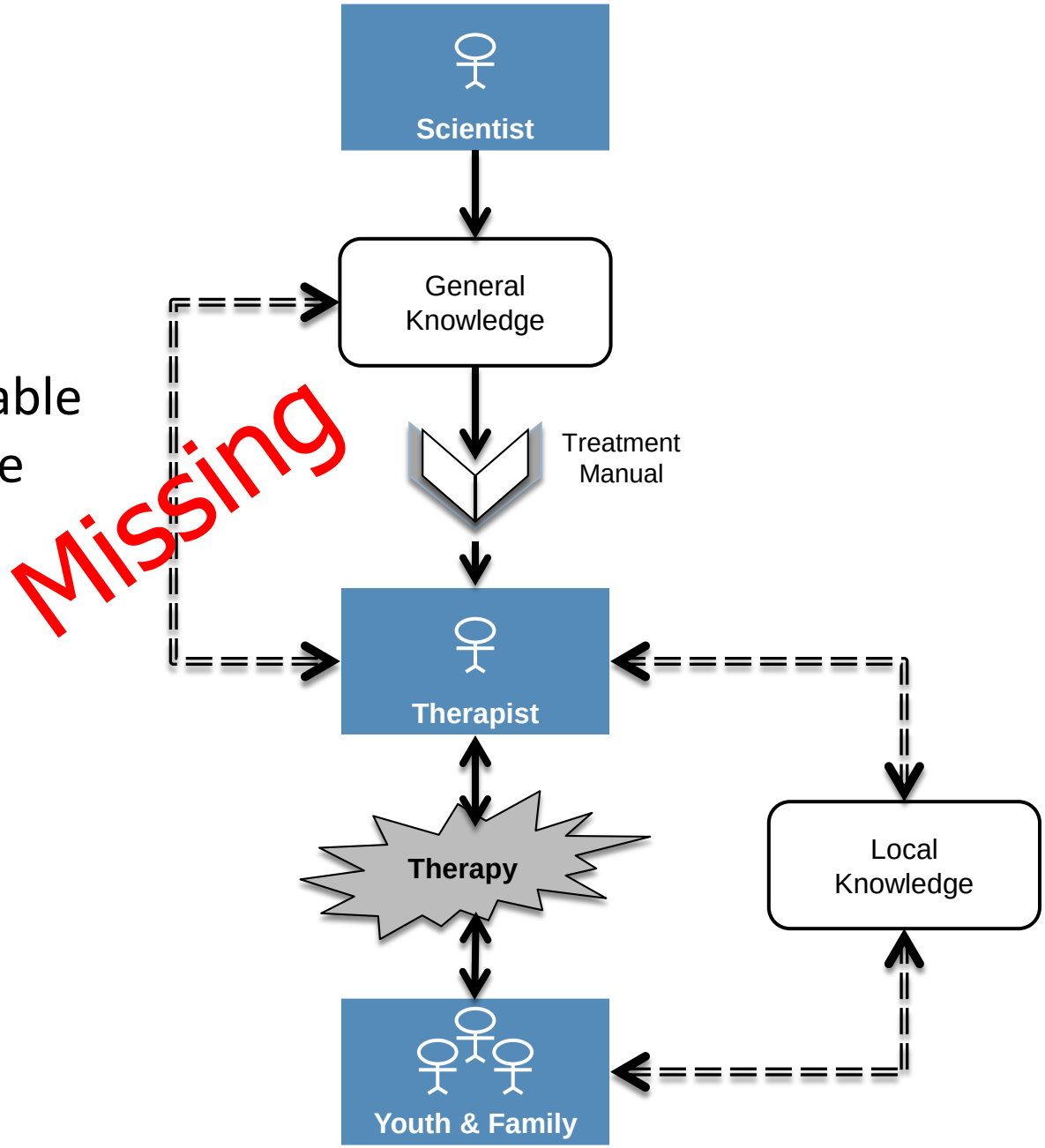


Where’s the Problem?

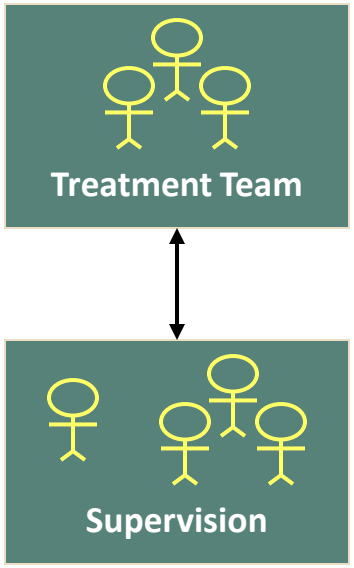
How do we know there is an exception (e.g., treatment not working as expected)?

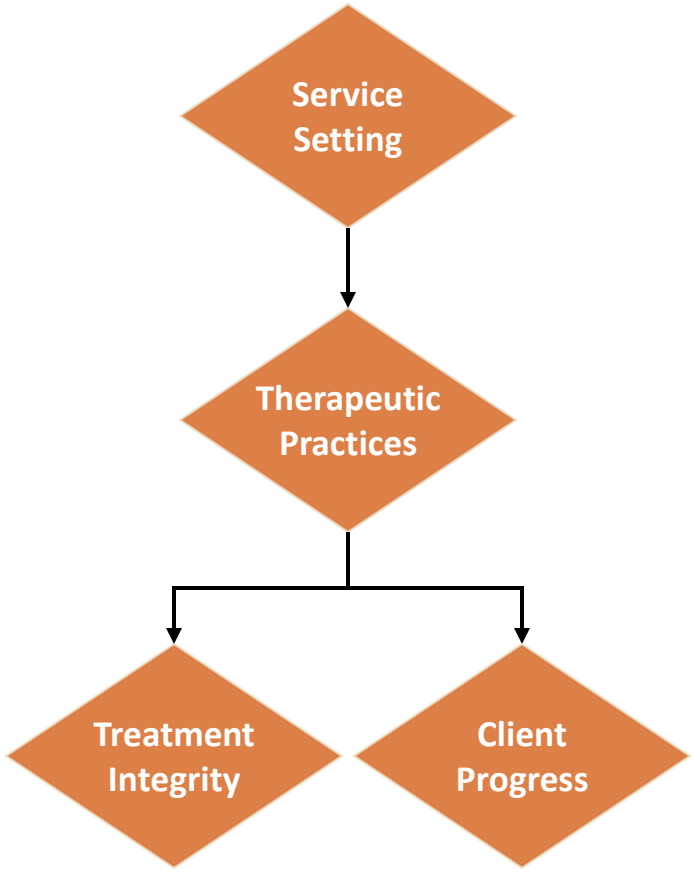


Manual as a knowledge resource not always amendable to intra-episode adaptation

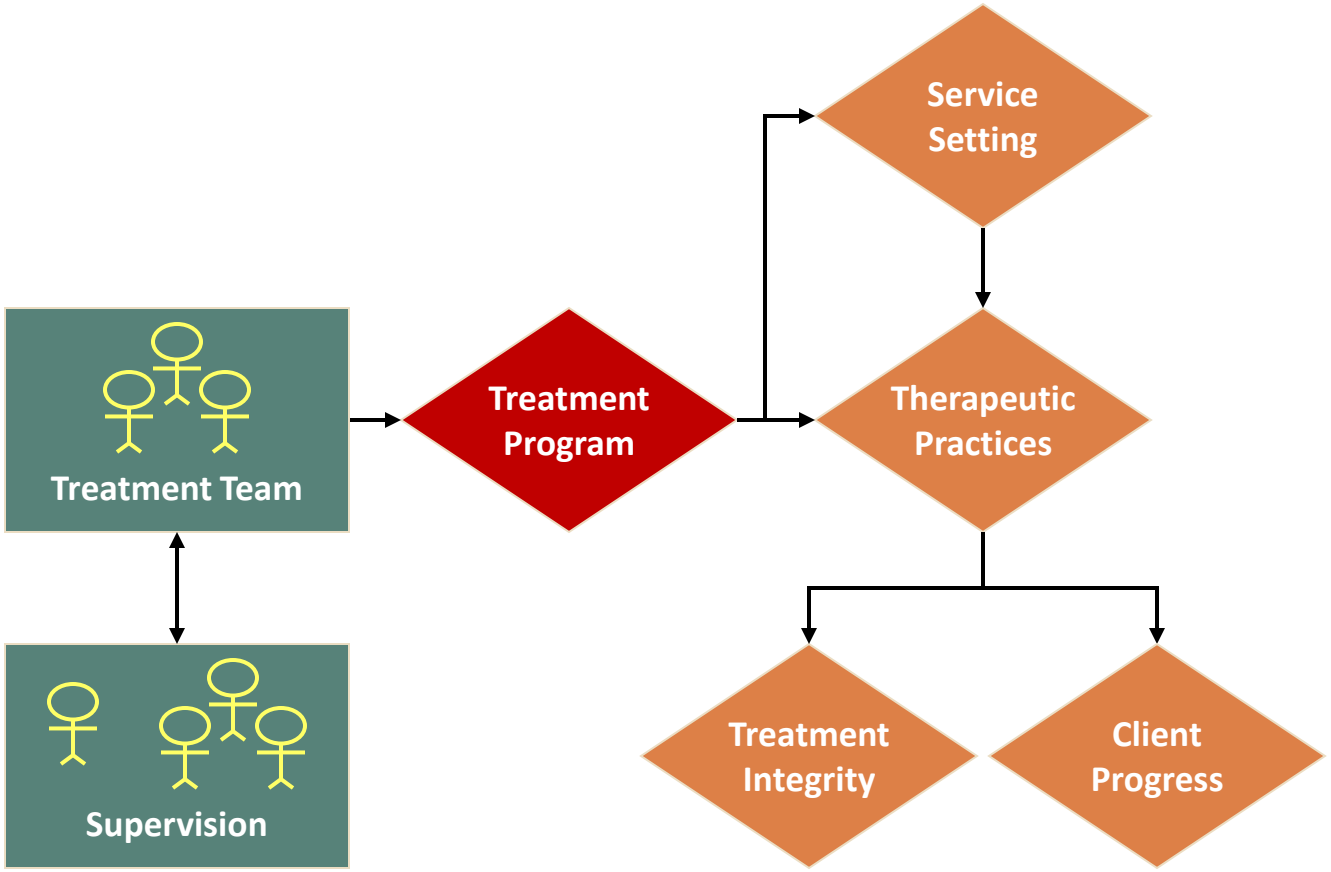


Not just problems with being dynamic, but with being developmental (meeting people where they are)…



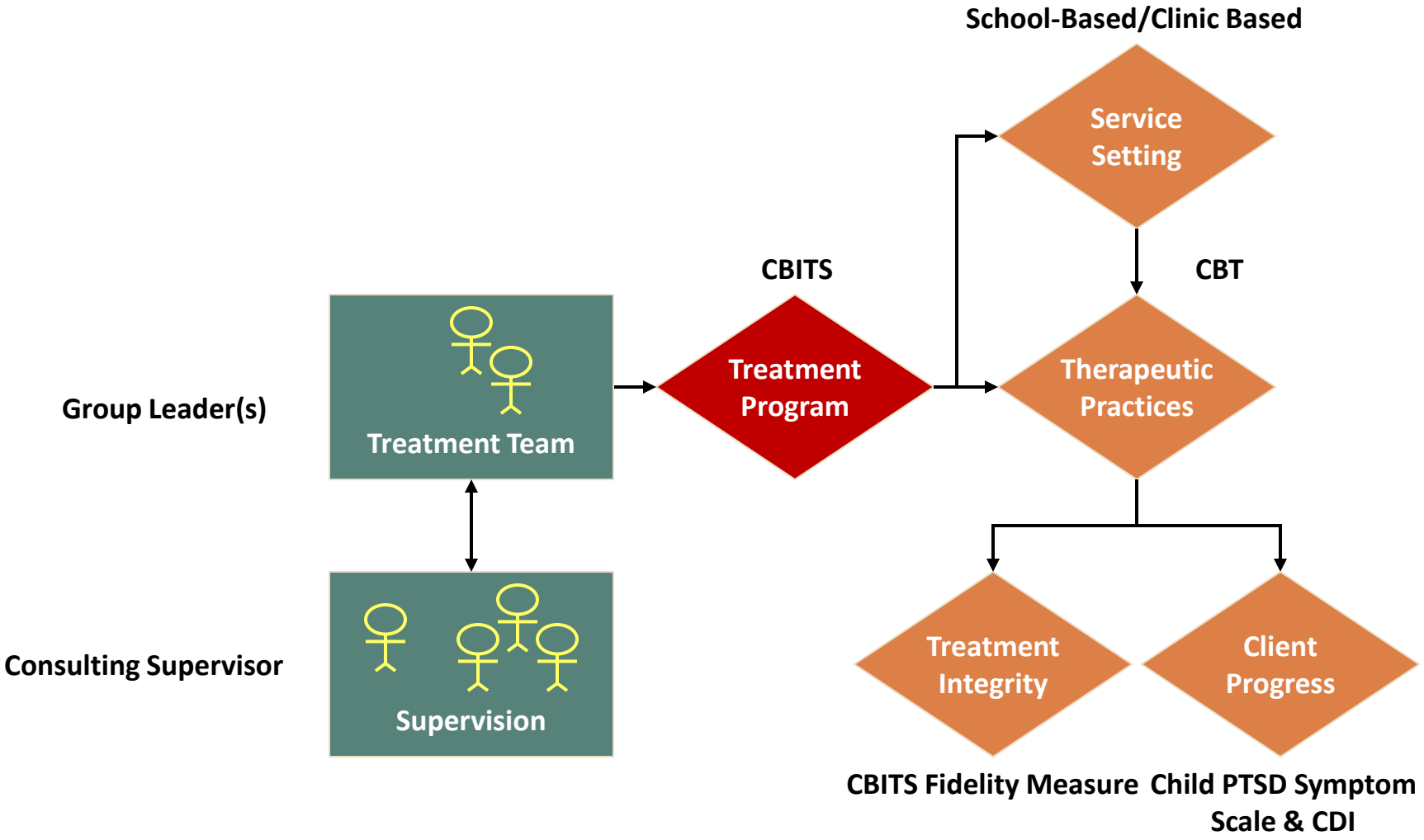


Selecting a treatment program will often dictate the setting, practices, integrity measures, progress measures, and even treatment team and supervision structure

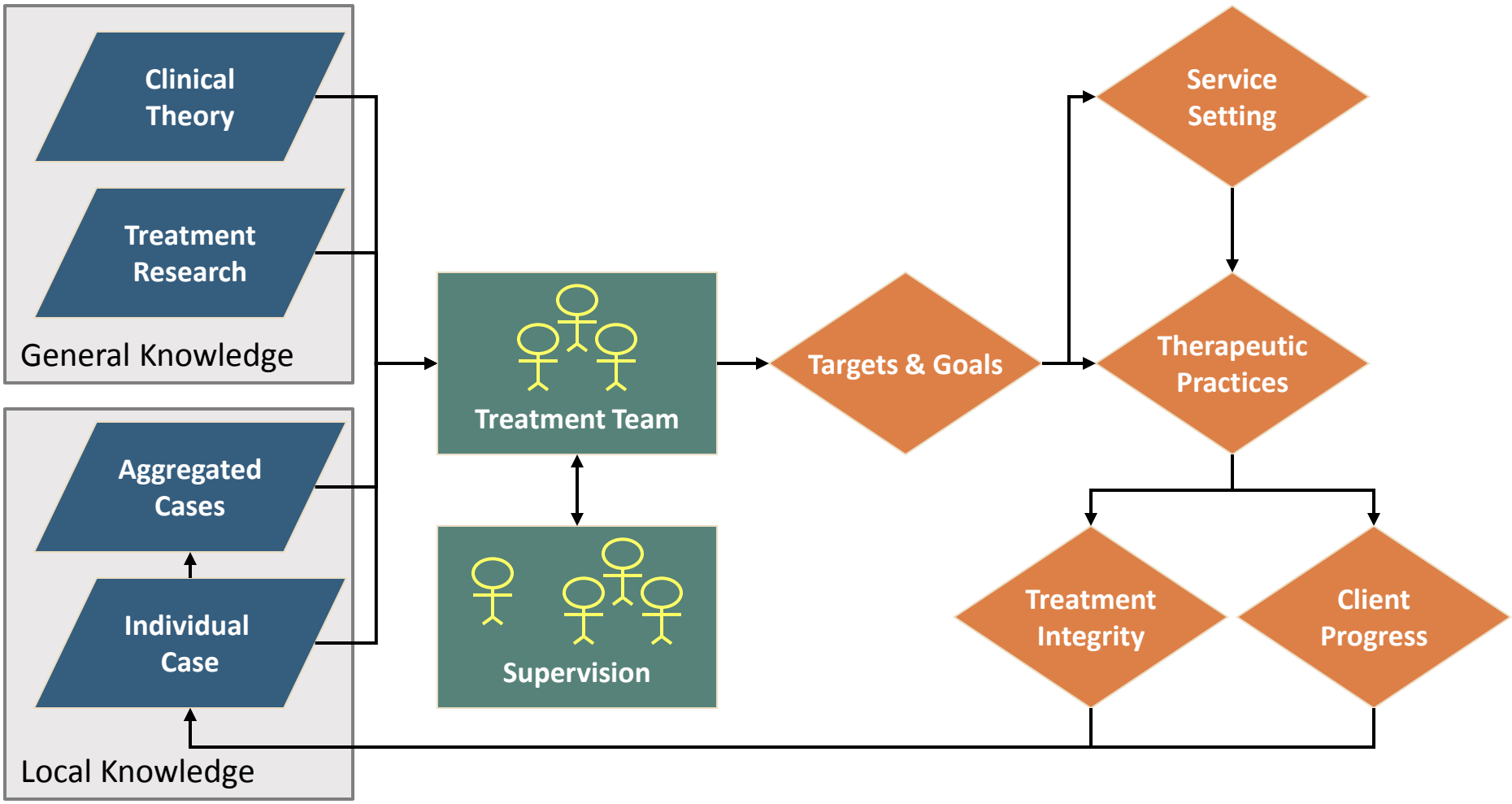


Example

CBITS: Cognitive Behavioral Intervention for Trauma in Schools



But decisions can be “unbundled” by selecting ***targets and goals*** first and making other decisions in turn

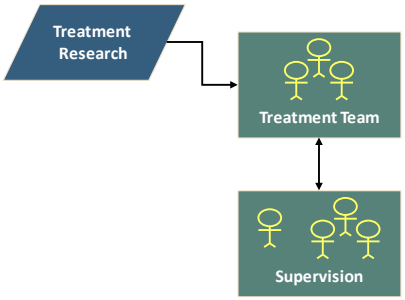


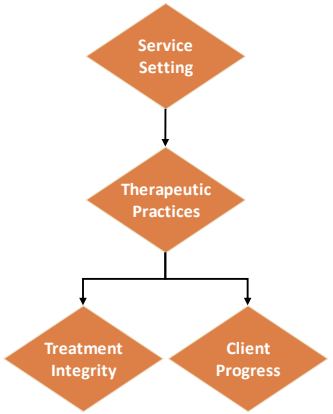
Managing and Adapting Practice (MAP)

A Treatment Builder for Direct Service

Where does the treatment research come in?

- Ongoing Review and Analysis
  - 700+ randomized clinical trials
  - 45 years
  - 1,613 study groups
  - > 50,000 youth participants

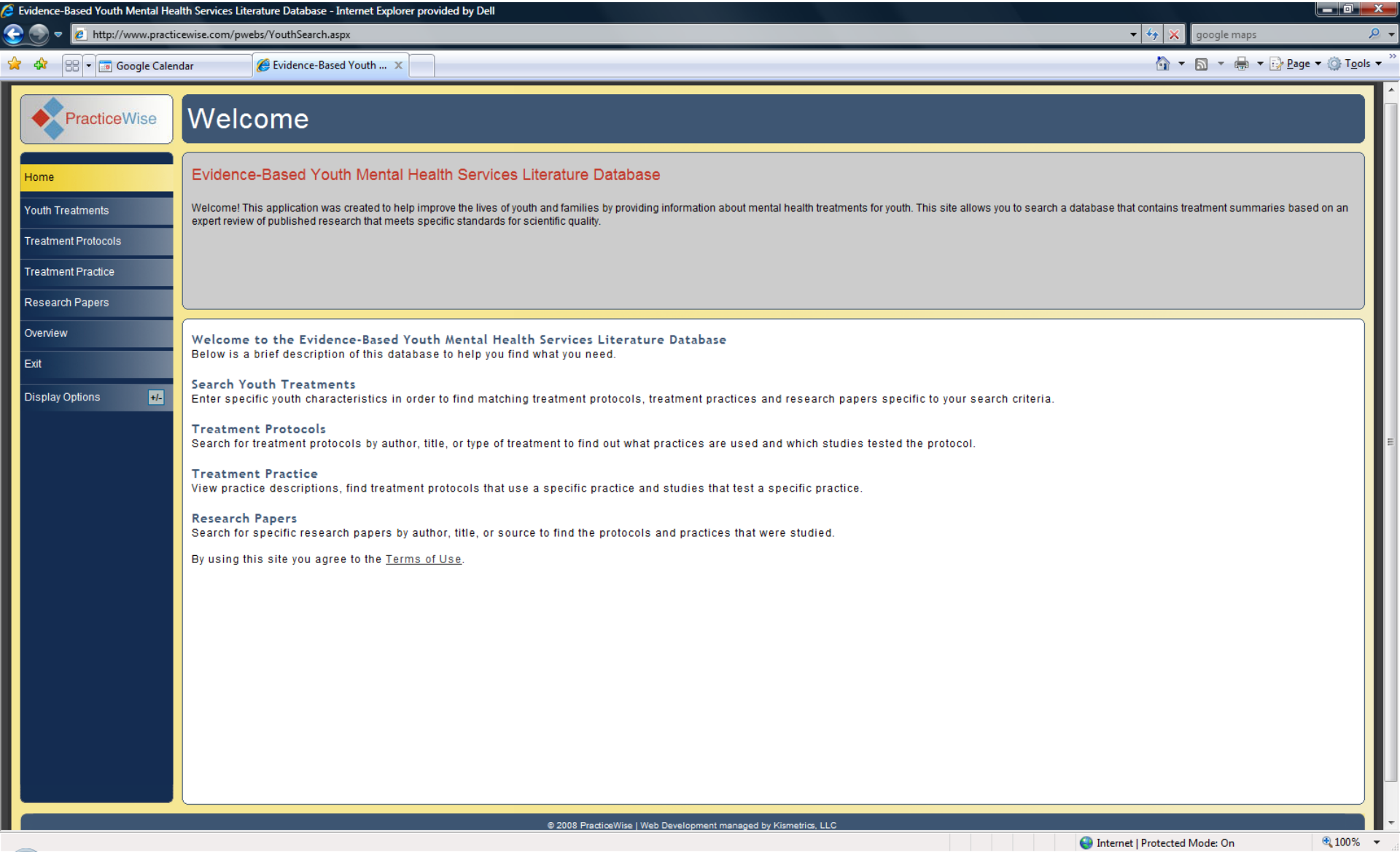




We Need a Better Interface with the General Knowledge Base

"Good to see you. As soon as I finish reading these research studies (practice parameters, Cochrane Reviews, etc.), we can start our session today."

Automated Review of Child RCTs

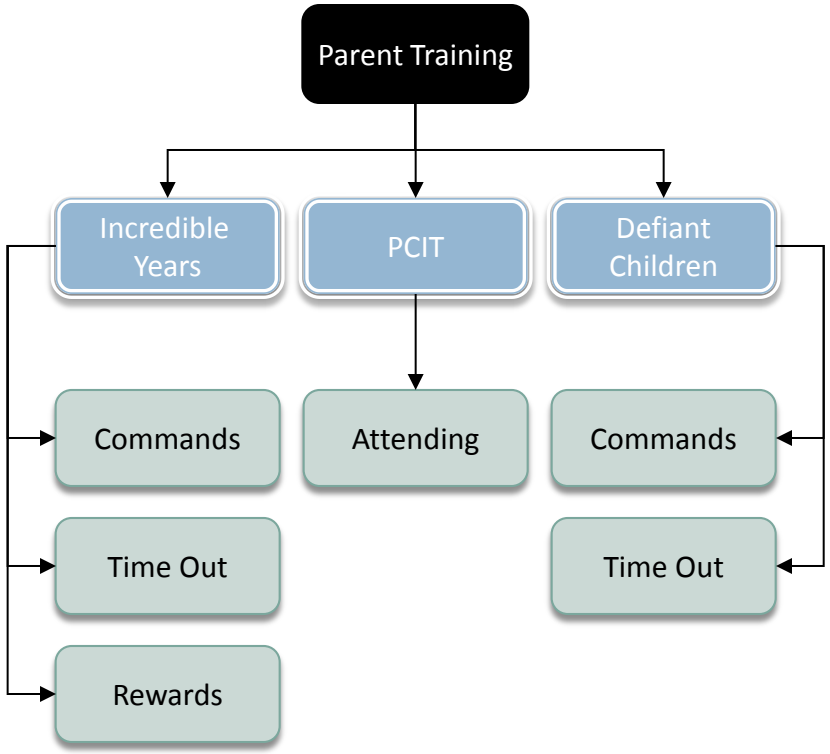


Delivering Knowledge in Multiple Levels

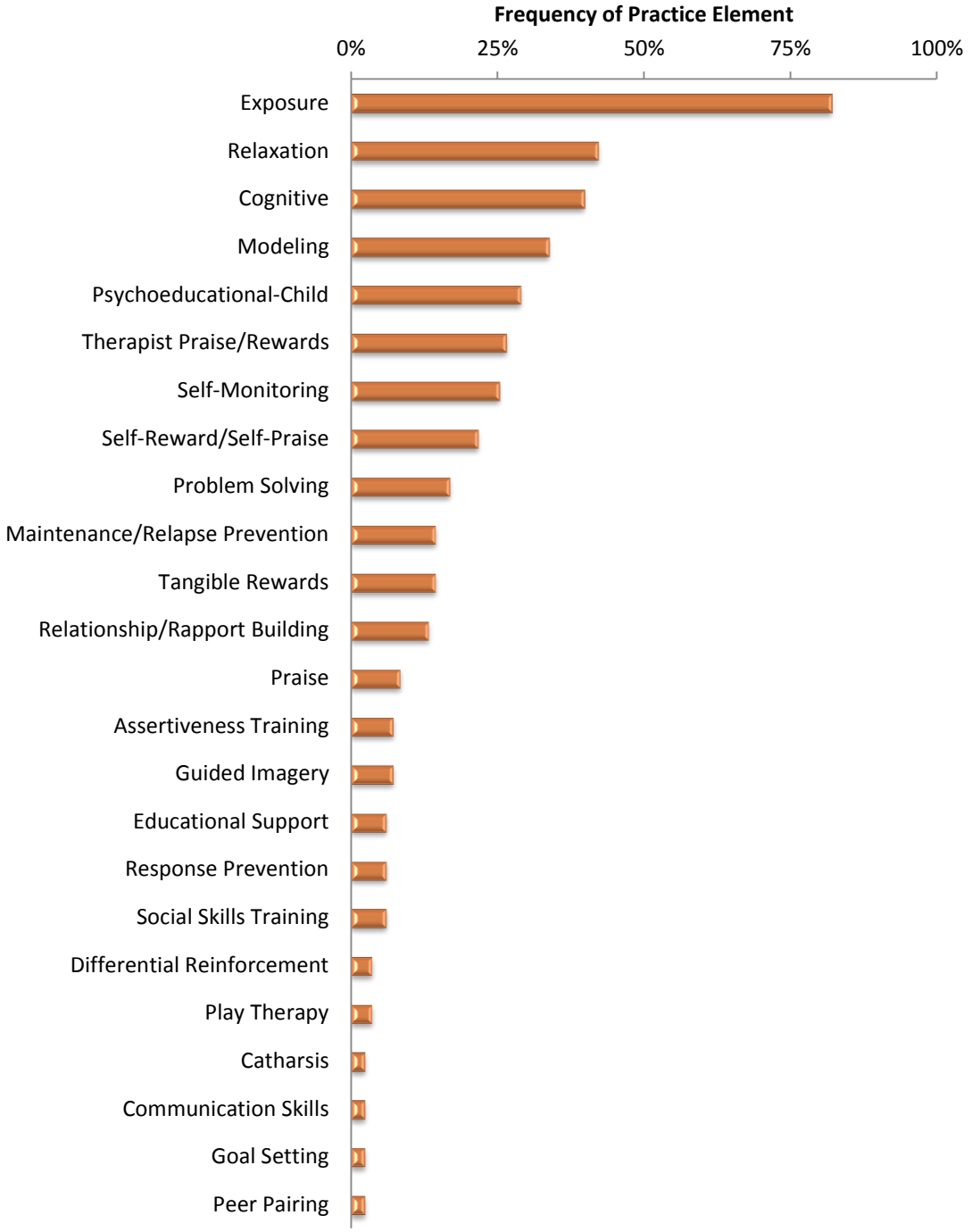
Families

Protocols

Practice Elements



Anxiety


Frequency of Practice Element
0%
25%
50%
75%
100%
Exposure
Relaxation
Cognitive
Modeling
Psychoeducational-Child
Therapist Praise/Rewards
Self-Monitoring
Self-Reward/Self-Praise
Problem Solving
Maintenance/Relapse Prevention
Tangible Rewards
Relationship/Rapport Building
Praise
Assertiveness Training
Guided Imagery
Educational Support
Response Prevention
Social Skills Training
Differential Reinforcement
Play Therapy
Catharsis
Communication Skills
Goal Setting
Peer Pairing

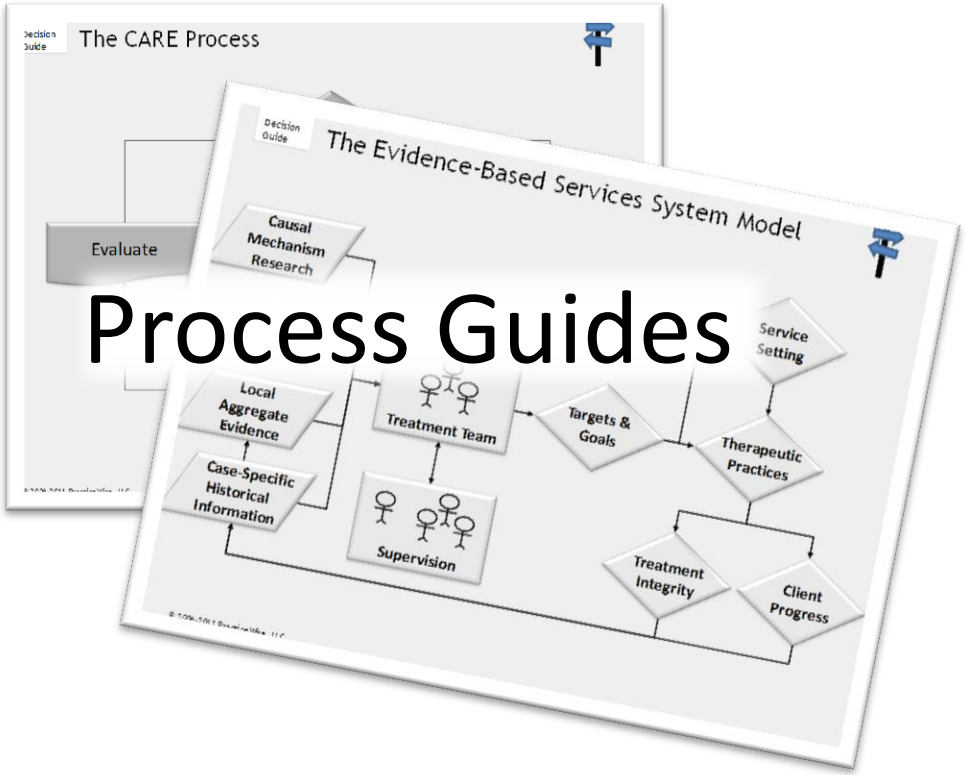
Broader Challenge: Diverse Ontologies

Domain		Examples	
	Client Development	**Provider Development**	**Organizational Development**
Targets/Outcomes	Diagnostic and Statistical Manual diagnoses Scores on defined measures Research Domain Criteria Individualized Education Plan goals	Interpersonal competencies Professional competencies Therapeutic effectiveness Certifications	Cost-effectiveness Climate and culture
Practices	Evidence-based treatments Common elements of treatments	Clinical Supervision Training Workshops Continuing Education Common elements of supervision	Leadership training Strategic planning
Populations	Children Adolescents Families Race/ethnicity Language spoken	Providers Supervisors Support Workers Teachers Nurses	Publicly funded community clinics Directly operated government programs Schools Managed care organizations
Contexts	Urban/rural School/clinic/home Poverty Stable/unstable community	Solo practice Community mental health Child welfare Juvenile justice	Recession/economic growth Privatized vs. socialized health care
Coordination	Assessment precedes treatment	Supervised work precedes licensure	Accreditation must occur every 3 years to continue operation

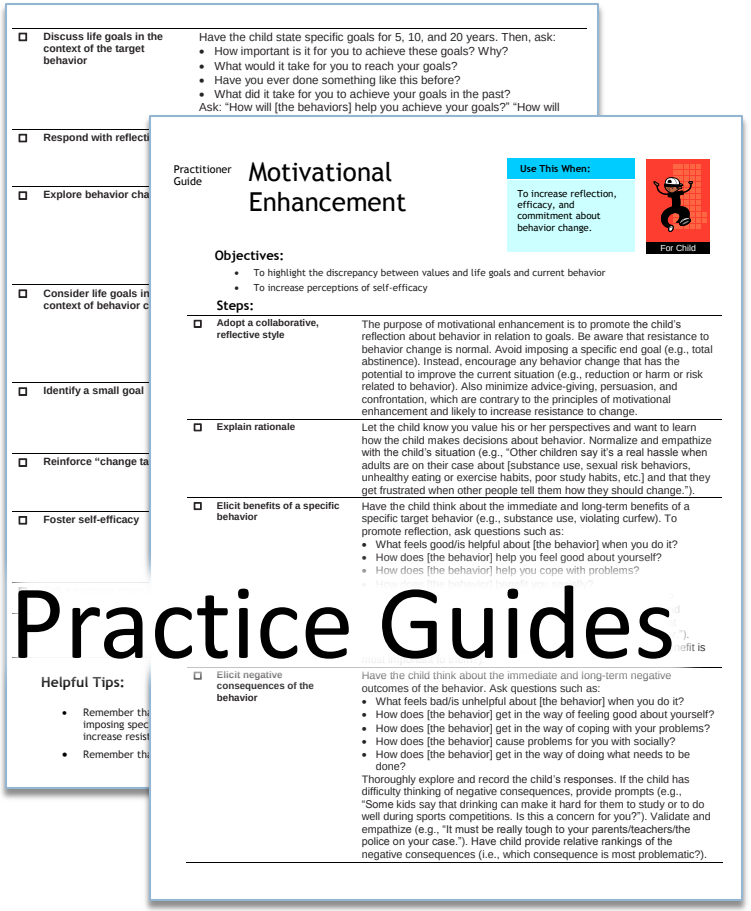
From “What to Do” to “How to Do…”

Practice Guides

Practitioner Guides



Process Guides



Practice Guides

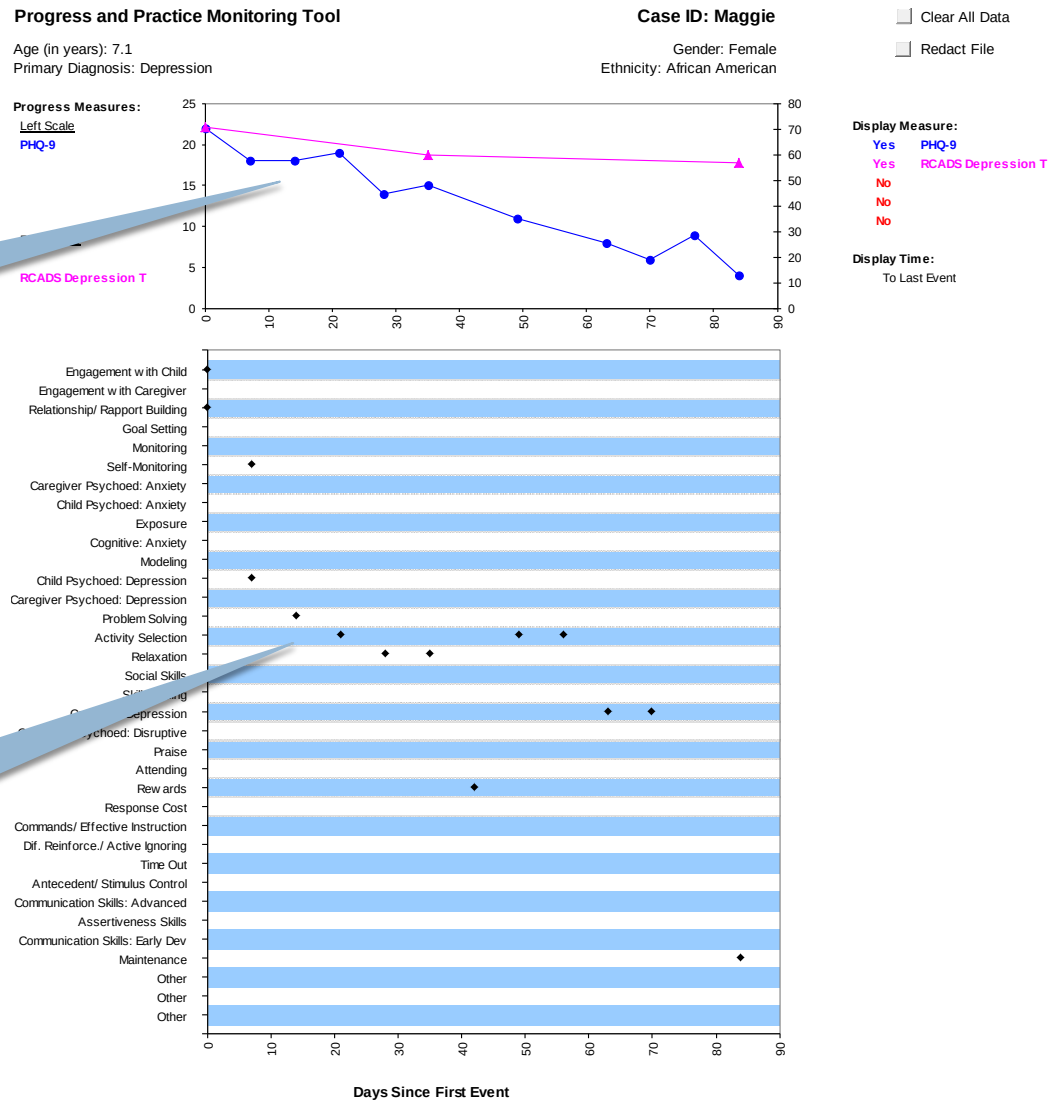
The Clinical Dashboard

Local Knowledge to Inform Adaptation, Self-Correction

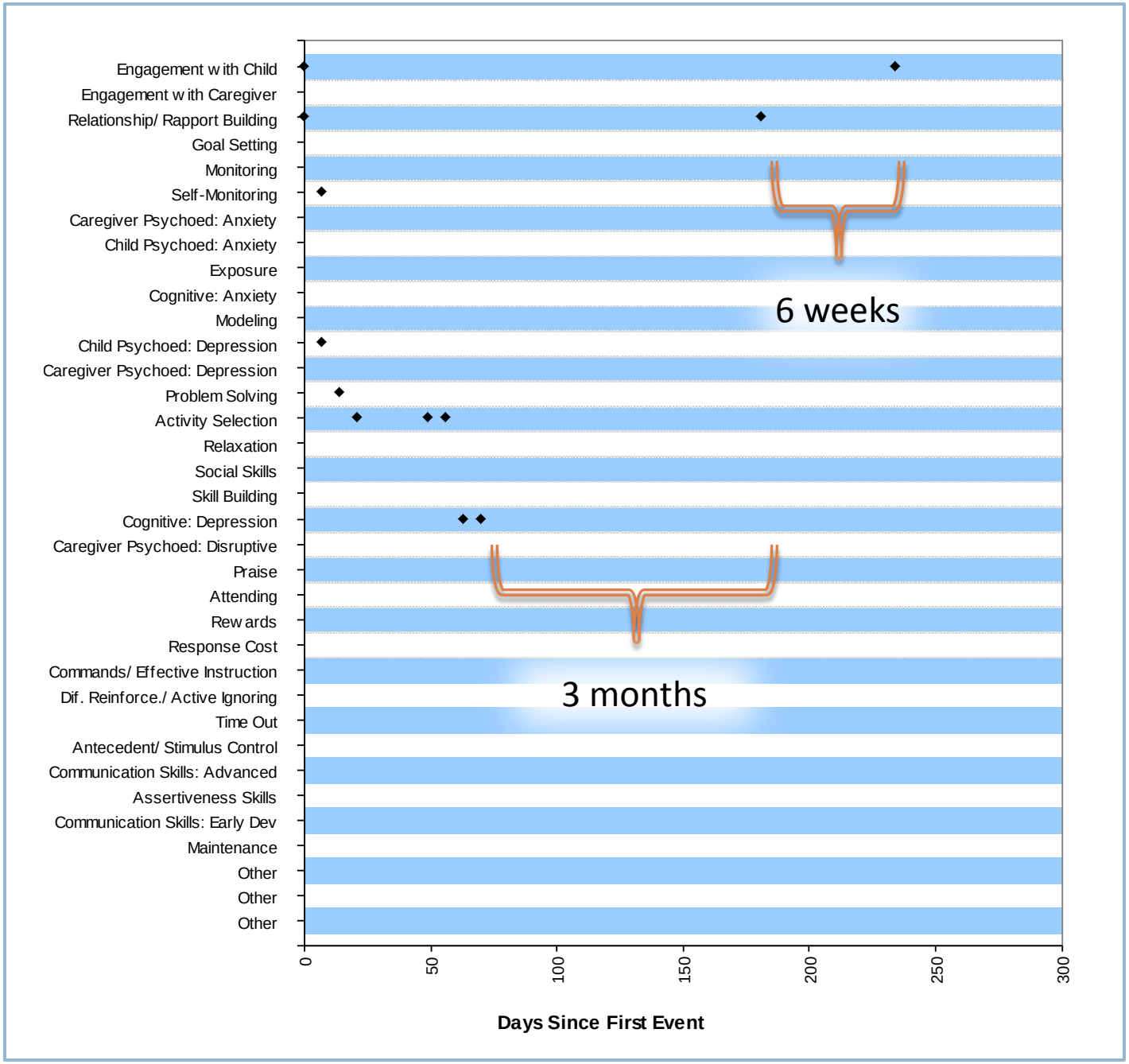
Local Knowledge Resource: Dashboard

Progress

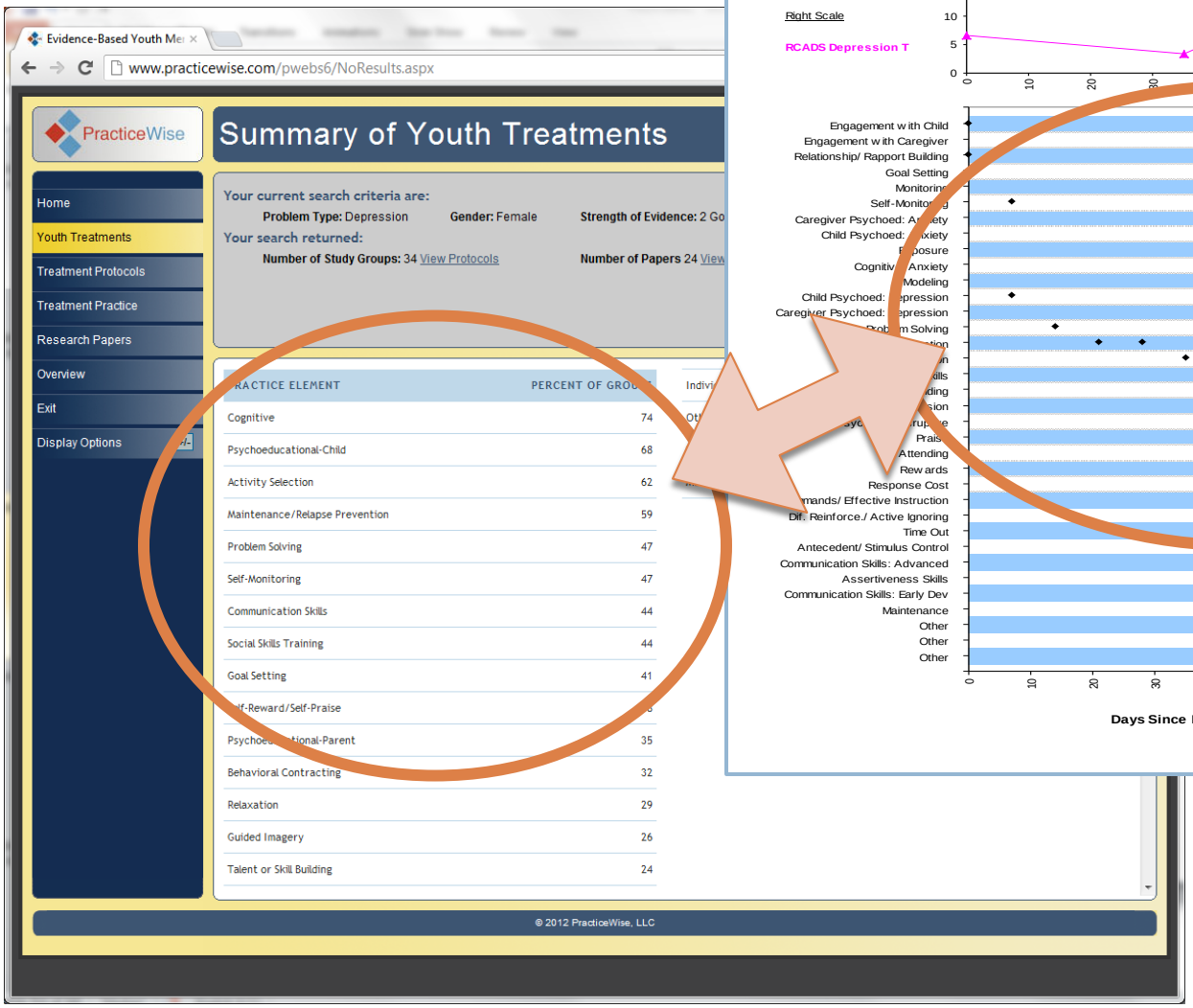
Practice



Evidence of Poor Engagement



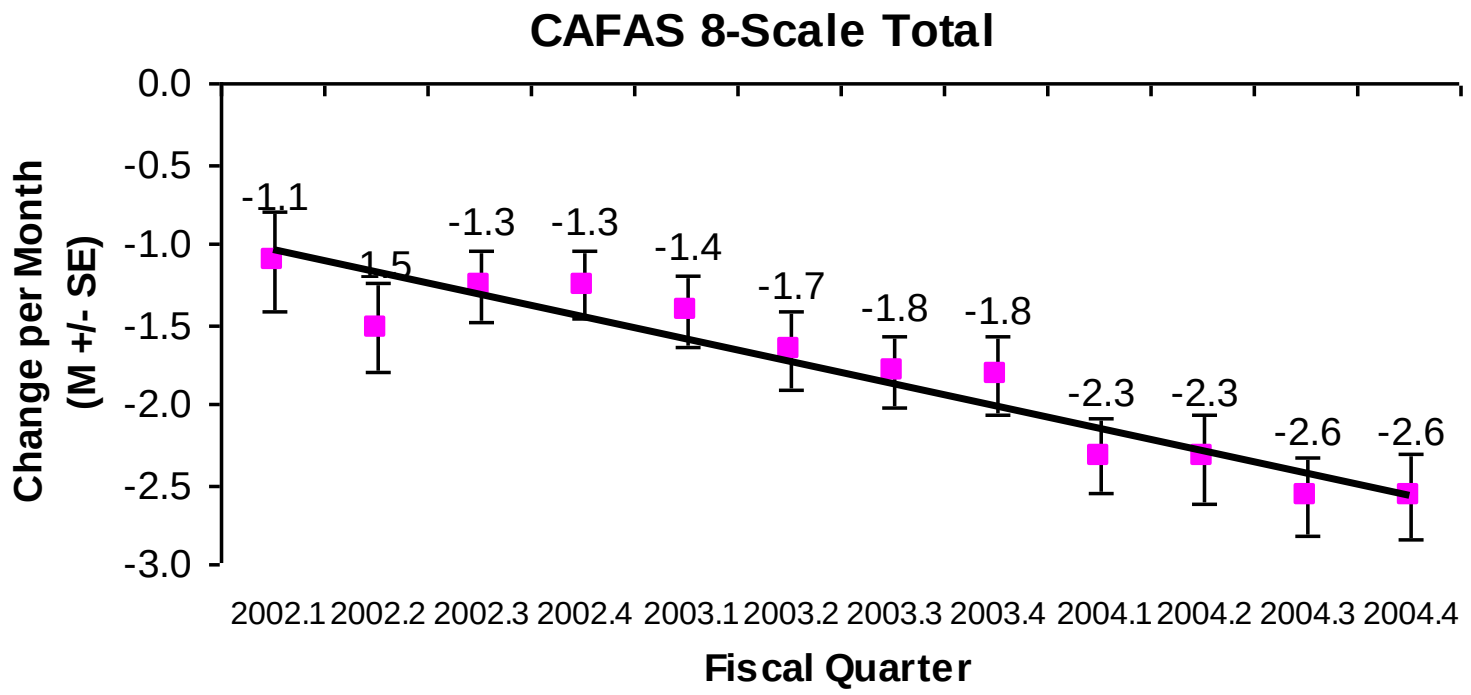
Do the Practices Fit the Problem?



How Has This Worked So Far?

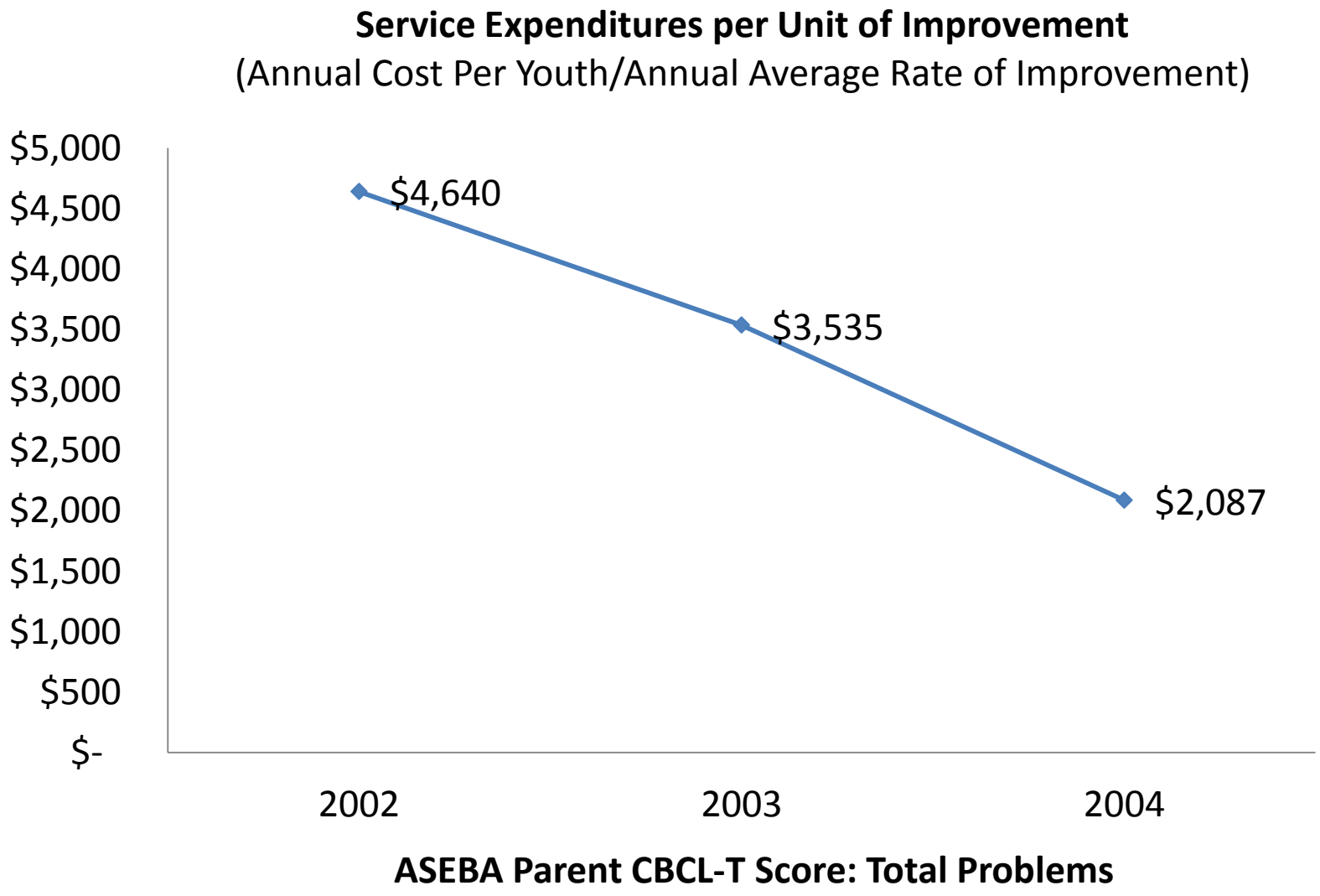
Examples from Hawaii, California

Hawaii System of Care

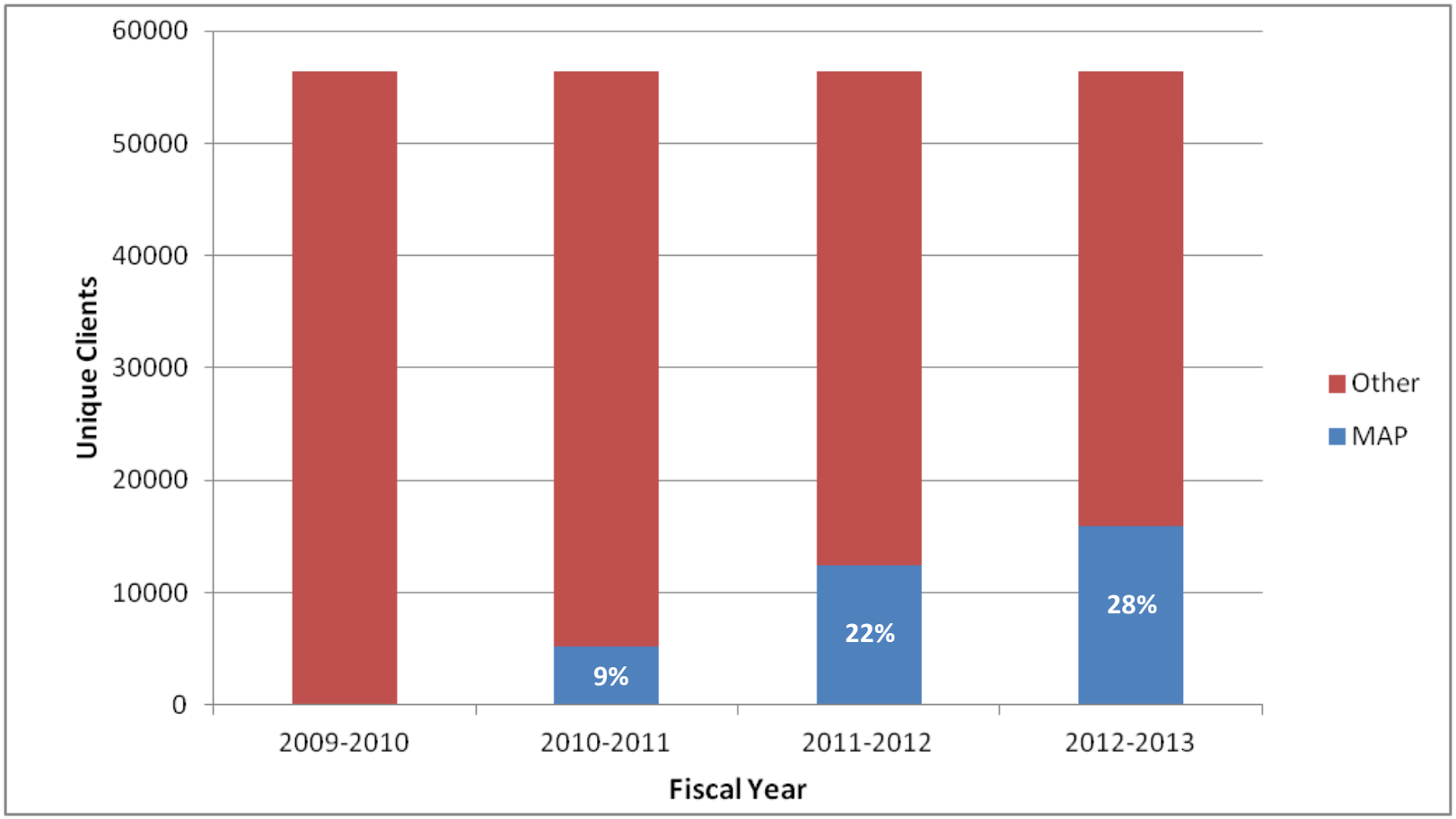


Final Effect Size for Change = .07/mo, .84/yr

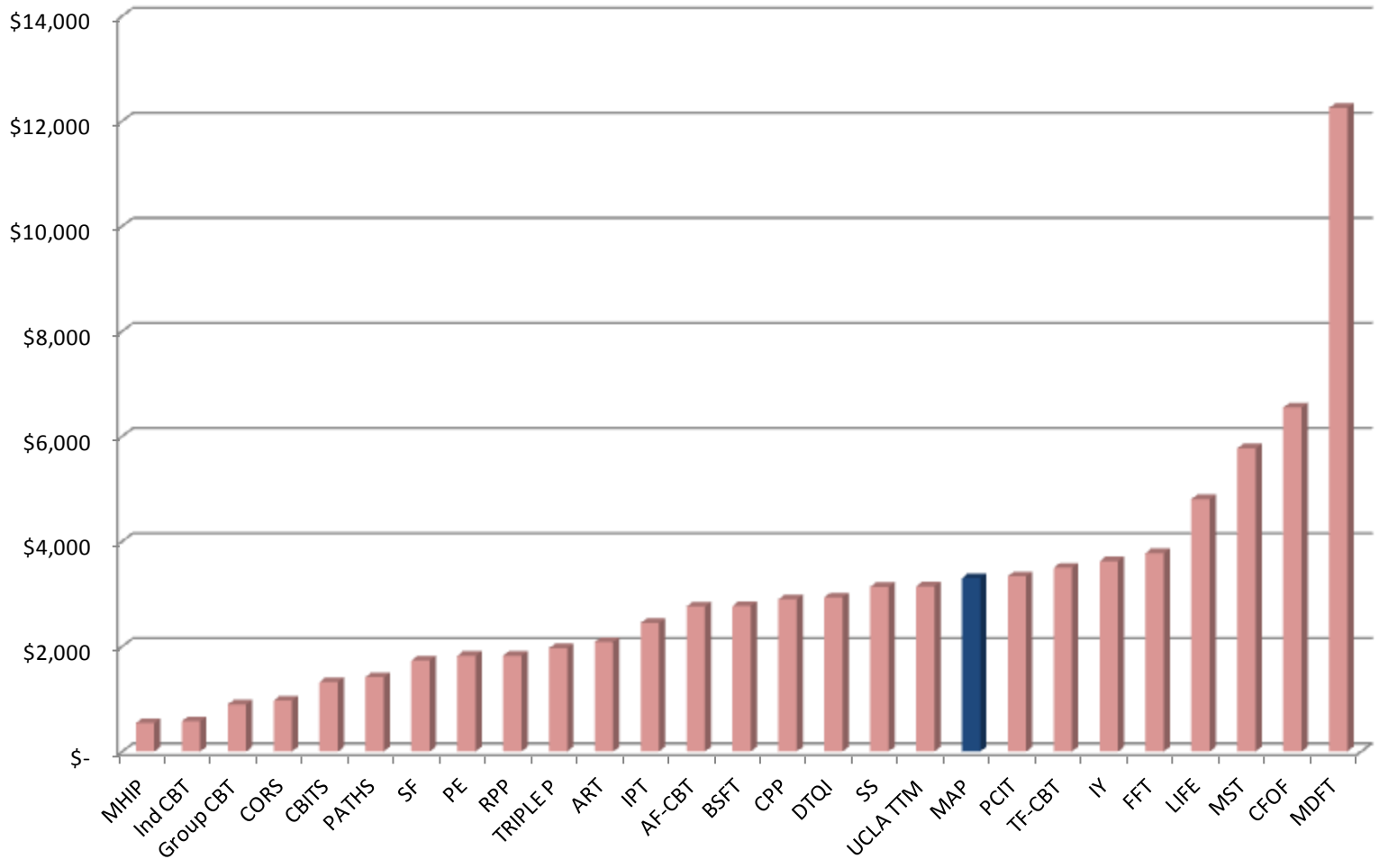
Cost per Outcome



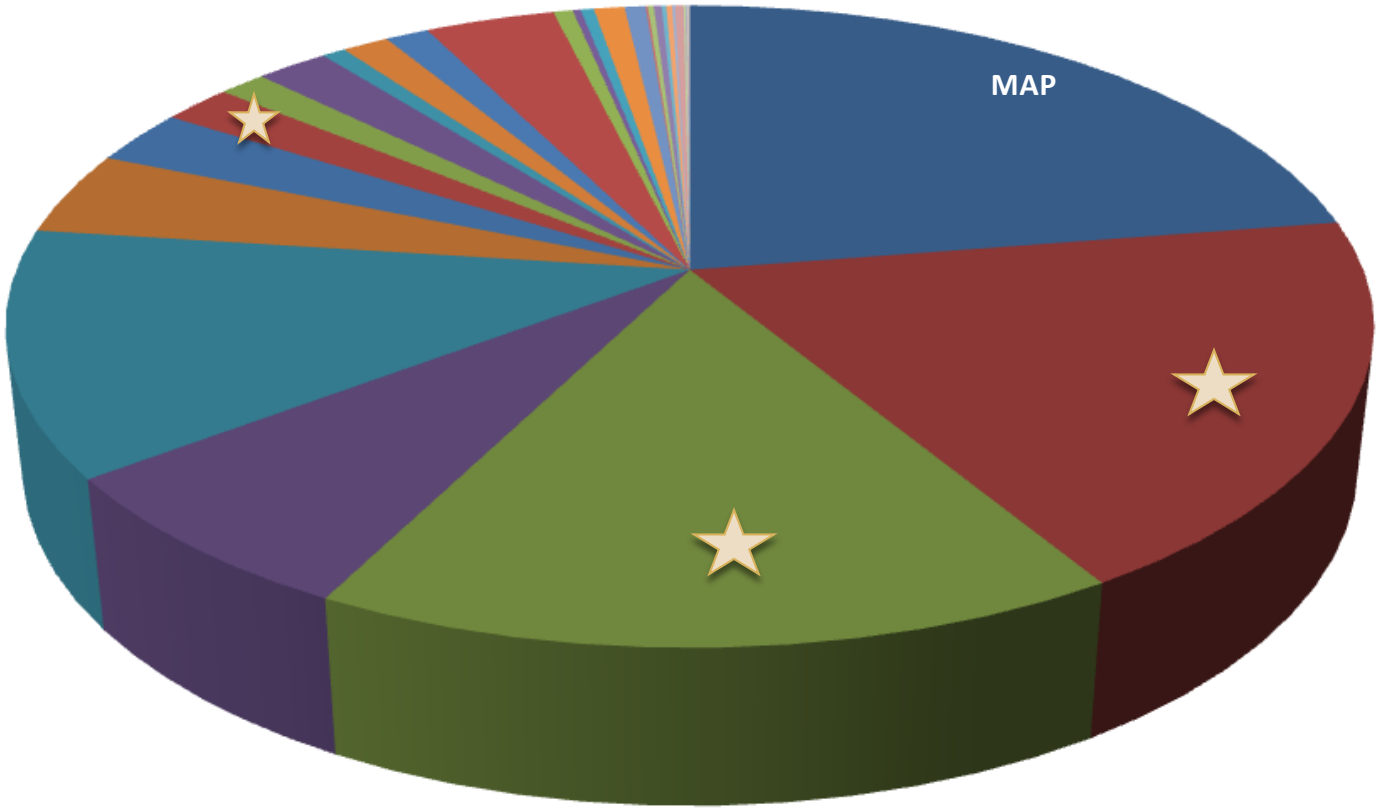
LAC DMH Utilization: 3 Years



Average Cost Per Client

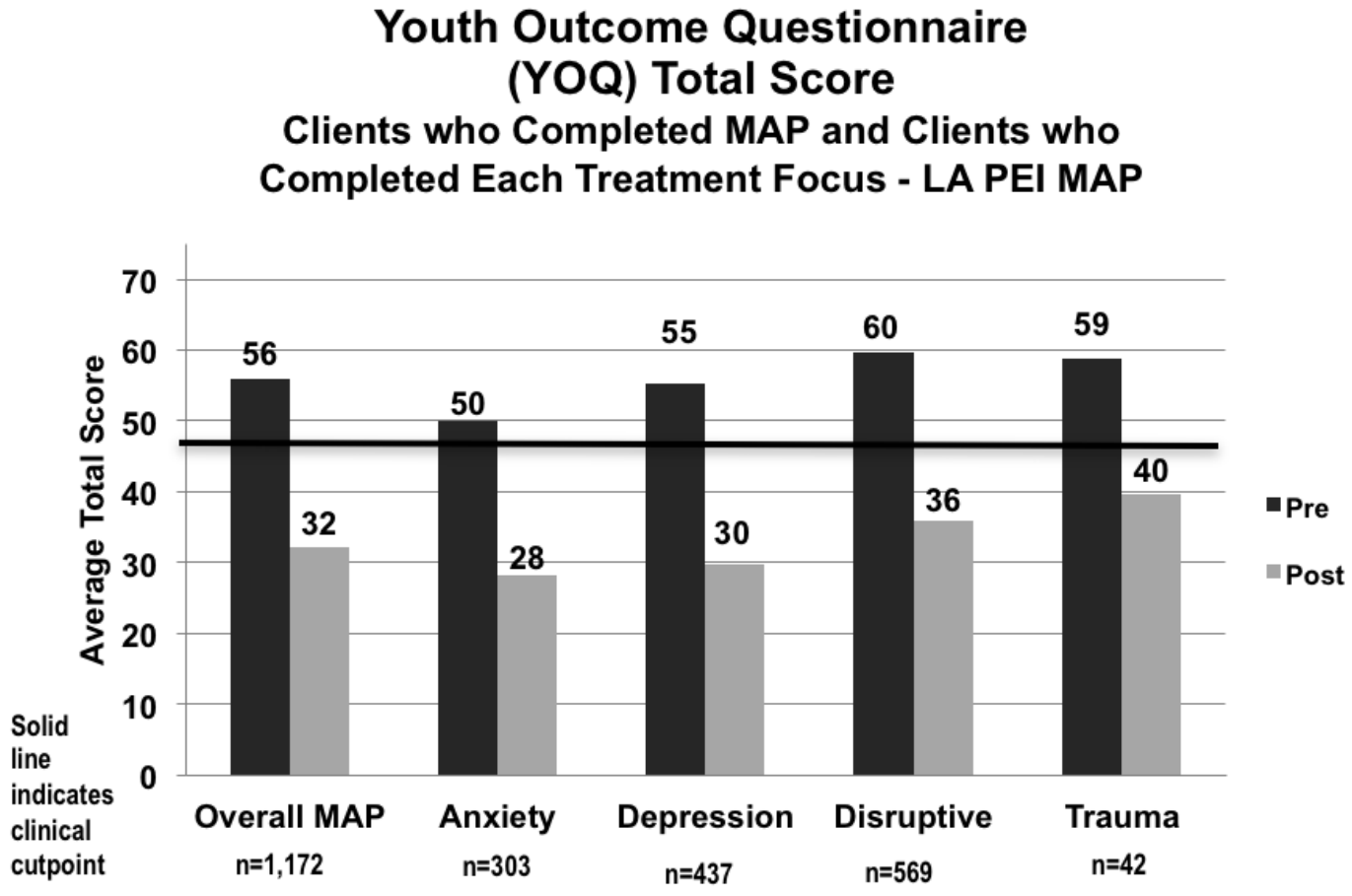


LAC DMH – FY 2011-2012



34.33% of services delivered were trauma-focused (not counting another 1.2% treated for traumatic stress using MAP)

LA County Through Dec, 2012



Pre-post effect size: Cohen's *d* = .76

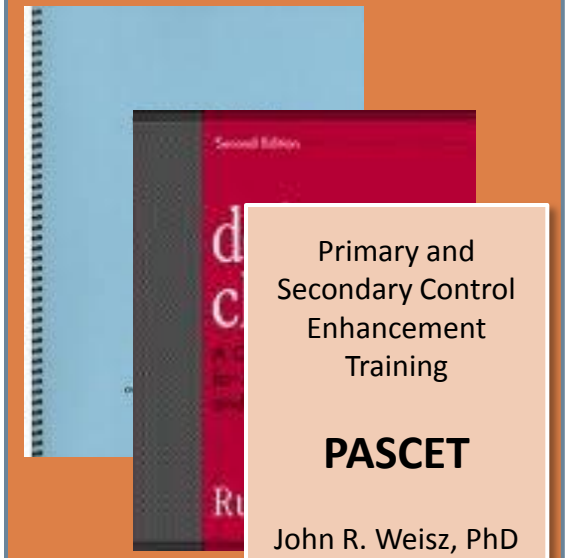
Child STEPs Treatment Project

Child STEPs Treatment Project

- Research Network on Youth Mental Health
- 5-Year, multisite randomized trial
  - Boston, Honolulu
- Anxiety, Depression, Conduct Problems
- Community therapists
- Standard Manuals, MATCH, Usual Care
- N = 174 children ages 7-13
- Funded by John D. and Catherine T. MacArthur Foundation

Random Assignment

Standard

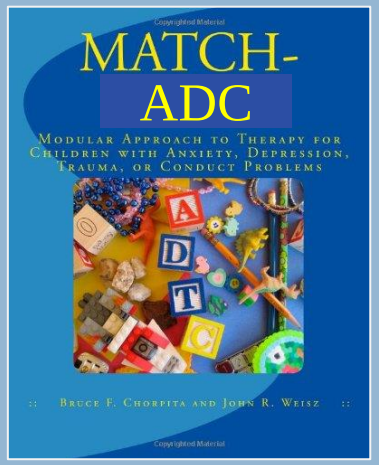


Primary and Secondary Control Enhancement Training

PASCET

John R. Weisz, PhD
University of California Los Angeles

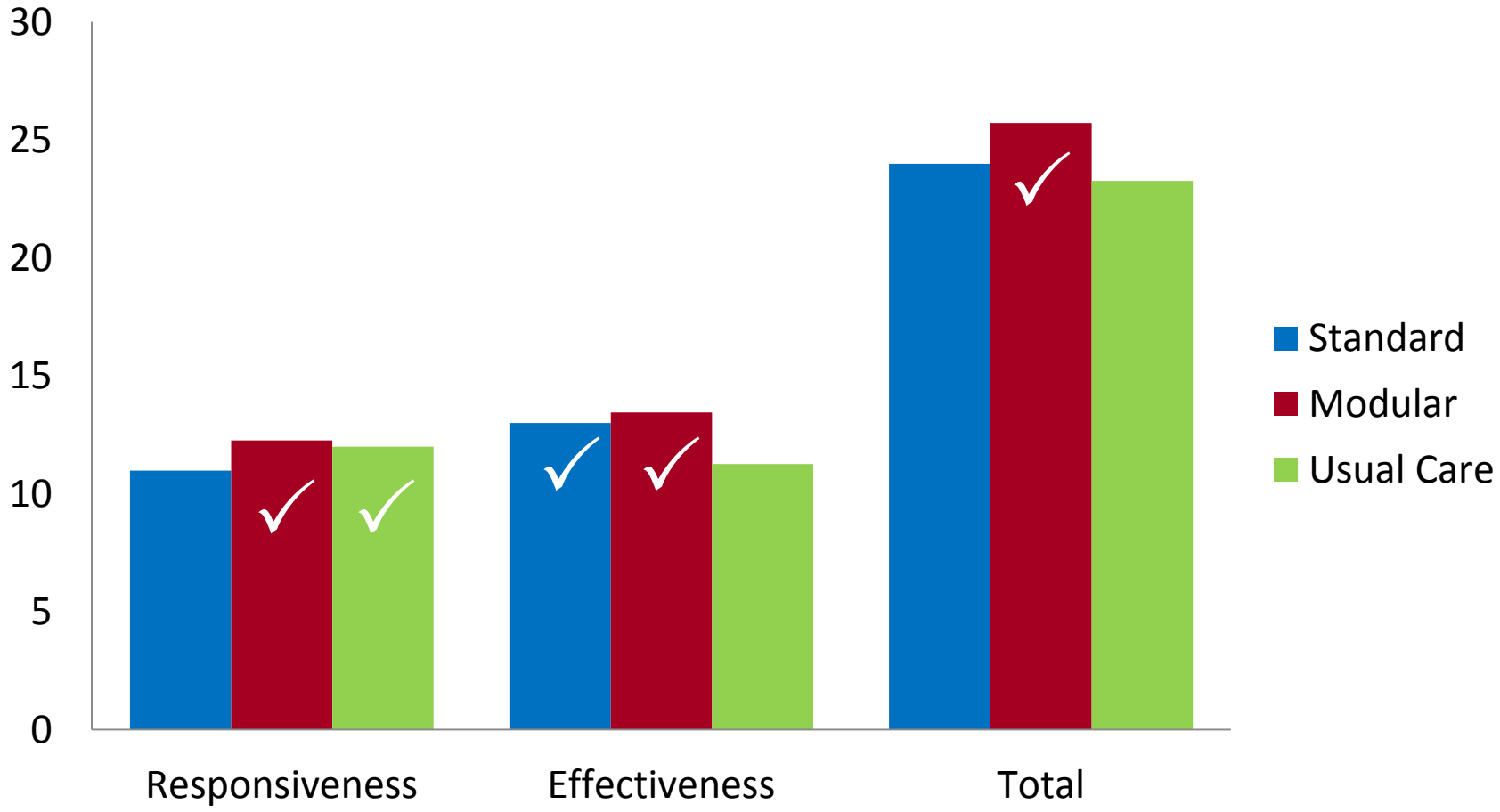
Modular



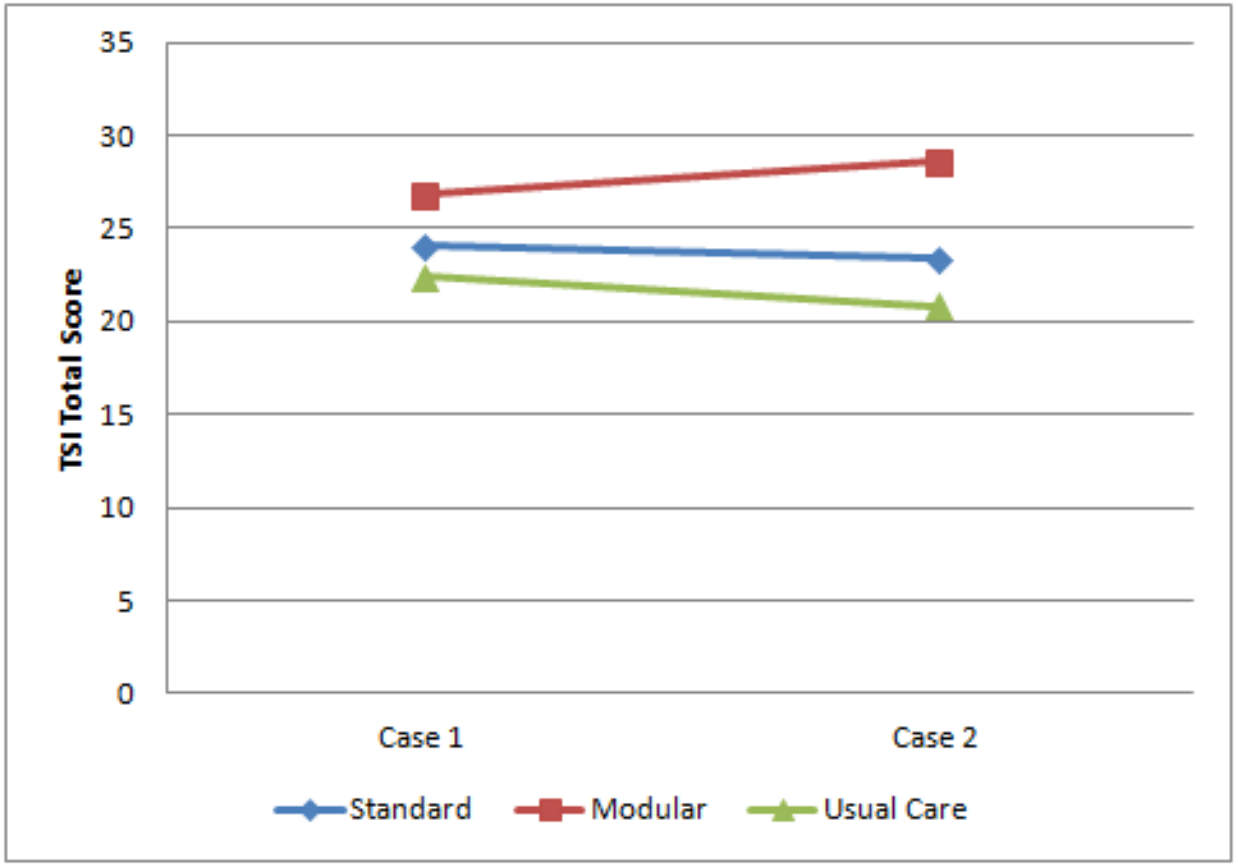
Usual Care

?

Effectiveness: Satisfaction

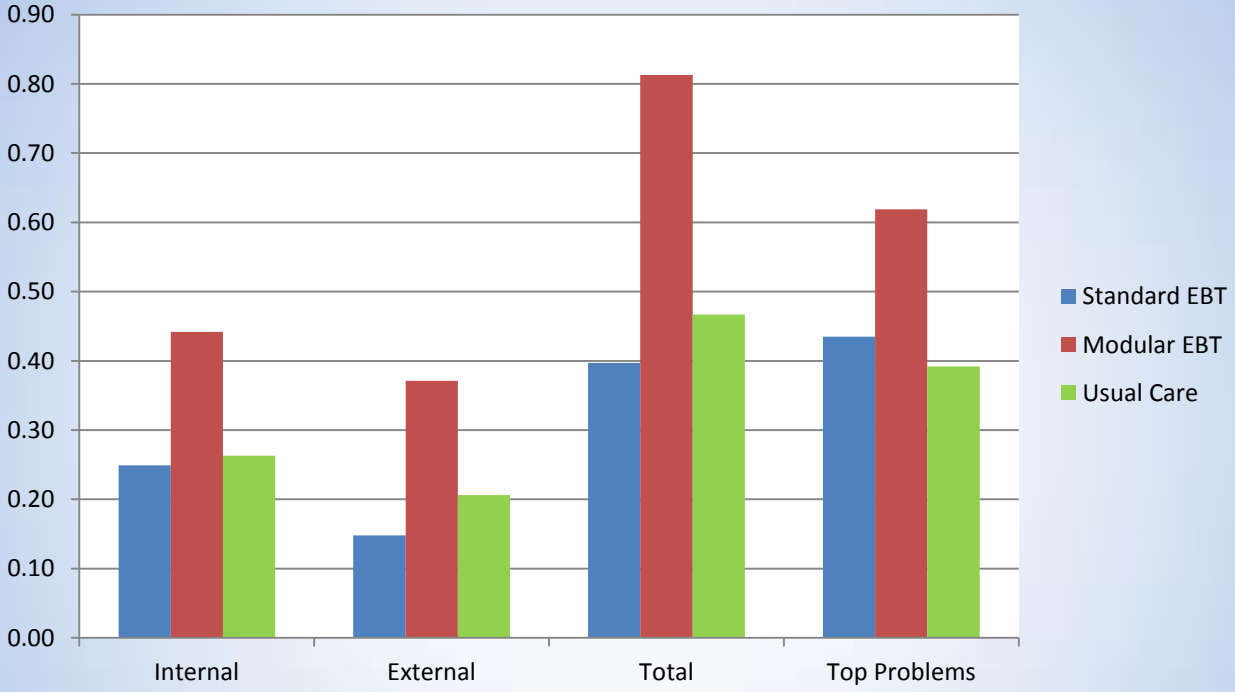


Satisfaction Over Time



Significant Case Number x Condition Interaction: Modular EBT > Usual Care ($p < .05$)

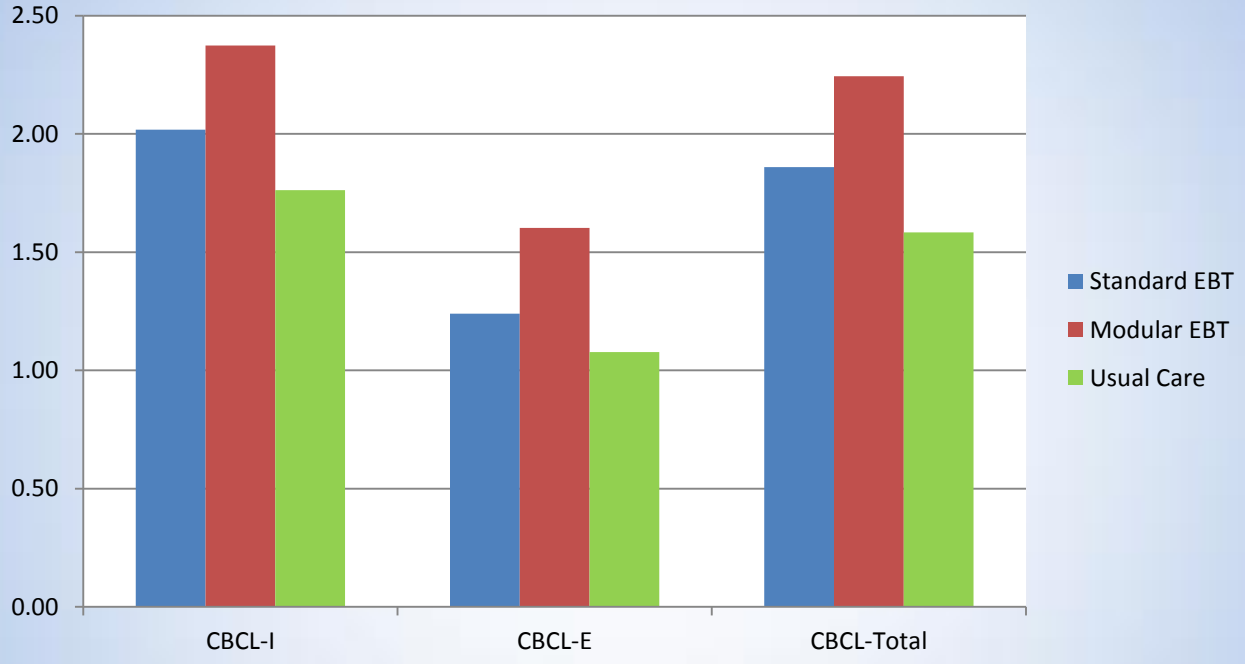
Rate of Improvement During Treatment



All Four Outcomes: Modular EBT > Usual Care, Standard EBT ($p < .05$)

Weisz, J.R., Chorpita, B.F., Palinkas, L.A., Schoenwald, S.K., Miranda, J., Bearman, S.K., Daleiden, E.L., Ugueto, A.M., Ho, A., Martin, J., Gray, J., Alleyne, A., Langer, D.A., Southam-Gerow, M.A., Gibbons, R.D., and the Research Network on Youth Mental Health. (2012). Testing standard and modular designs for psychotherapy with youth depression, anxiety, and conduct problems: A randomized effectiveness trial. *Archives of General Psychiatry, 69*, 274-282.

Rate of Improvement Over 2 Years



All Three Outcomes: Modular EBT > Usual Care ($p < .05$)

Chorpita, B. F., Weisz, J. R., Daleiden, E. L., Schoenwald, S. K., Palinkas, L. A., Miranda, J., Higa-McMillan, C. K., Nakamura, B. J., Austin, A. A., Borntrager, C., Ward, A. M., Wells, K. C., Gibbons, R. D., & the Research Network on Youth Mental Health. (2013). Long term outcomes for the Child STEPs randomized effectiveness trial: A comparison of modular and standard treatment designs with usual care. *Journal of Consulting and Clinical Psychology, 81*, 999-1009.

Clinical Outcomes: Diagnosis

Modular EBT > Standard EBT, Usual Care $p < .05$

What Do We Make of Child STEPs?

- Implications of **new design** are larger than those of **new treatment**
- Raises questions about how many treatments can providers successfully master
- It's not about flexibility – it's about guided adaptation (being developmental and dynamic)

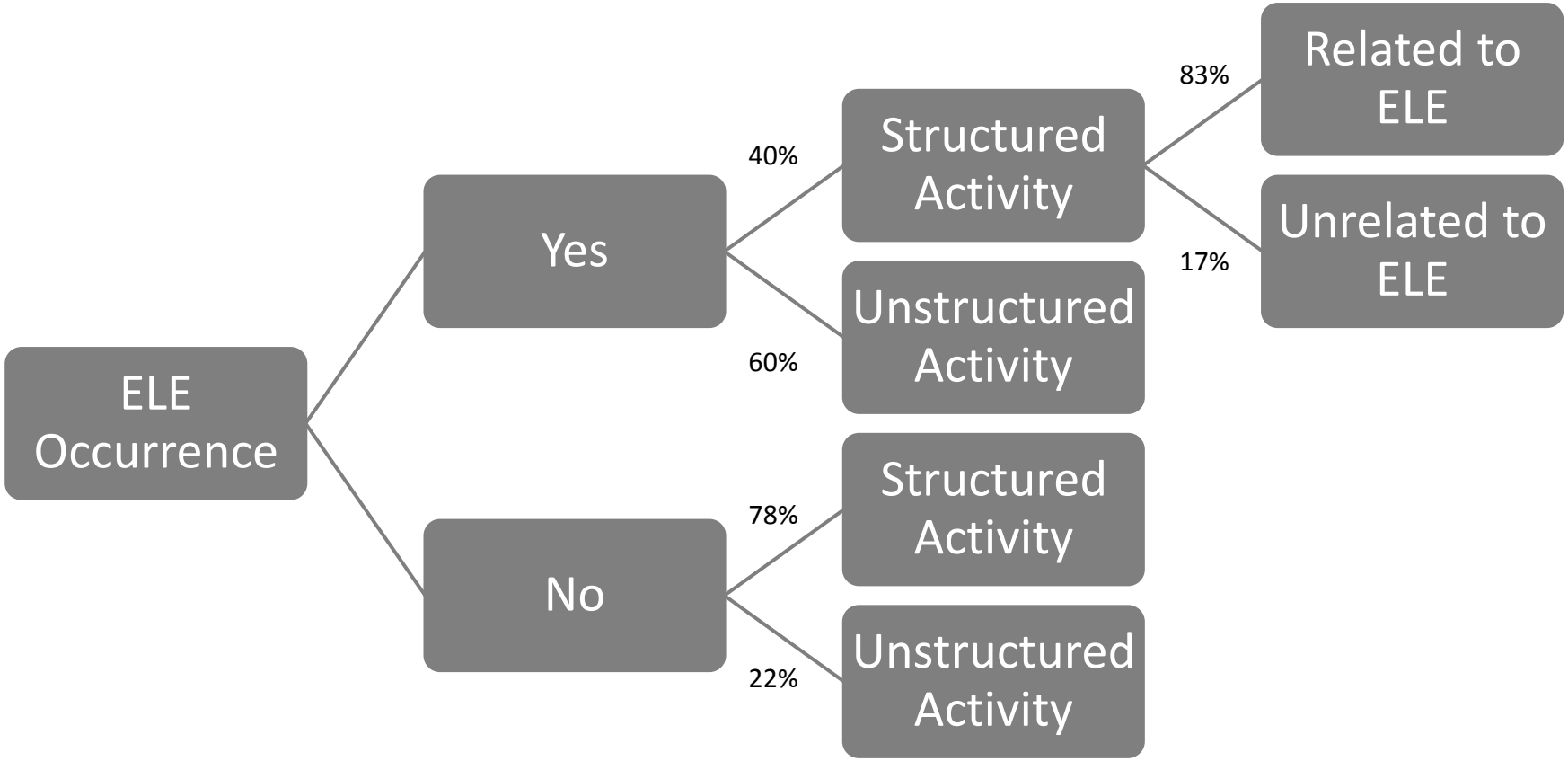
What is Happening at the Session Level?

Provider Report

- Emergent Life Events occurred in 69.1% of cases in Child STEPs trial
- Range: 1 to 12 events per case
- Cases with at least one ELE had on average 1.5 *additional* ELEs later in treatment
- Providers reported being able to fully return to their original session plan only 20.6% of the time

What is Happening at the Session Level?

A First Look at Digital Recordings



When a critical event is disclosed in session, only 33% of the time will a therapist use content from the protocol and attempt to related it to the crisis.

Summary: Key Points

- System and treatment designs must accommodate the developmental and dynamic nature of the service context
  - Developmental interfaces and exception management strategies should be built in from the start
  - Need to consider systems, treatments, encounters
- We can do far better with what we already know
  - Extending, not replacing what we have done so far

Thank You