Improving the effectiveness and accountability of ABA service delivery through evidence-based practice strategies: Guidelines for ABA practitioners

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Disclosures
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- Financial
  - Professor of Psychology, Western Michigan University
  - Co-PI on contract from Michigan DHHS, Autism Center of Excellence Project
  - Consultant for Health Alliance Plan, Detroit
  - LEND grant, leadership team
  - Honoraria for colloquium and conference presentations/workshops (including this one)

Disclosures
R. Wayne Fuqua, Ph.D., BCBA-D

- Non financial
  - Producer of video training series at wmich.edu/autism/resources
  - Michigan Autism Council (term just ended)
  - Residential Opportunities, Inc., Board of Directors
  - Great Lakes Center for Autism Treatment and Research, Steering Committee
  - Reviewer for several behavior analysis journals

Remarkable Growth in BCBAs

- https://www.youtube.com/watch?v=RZ6s7DfrSKY&feature=youtu.be

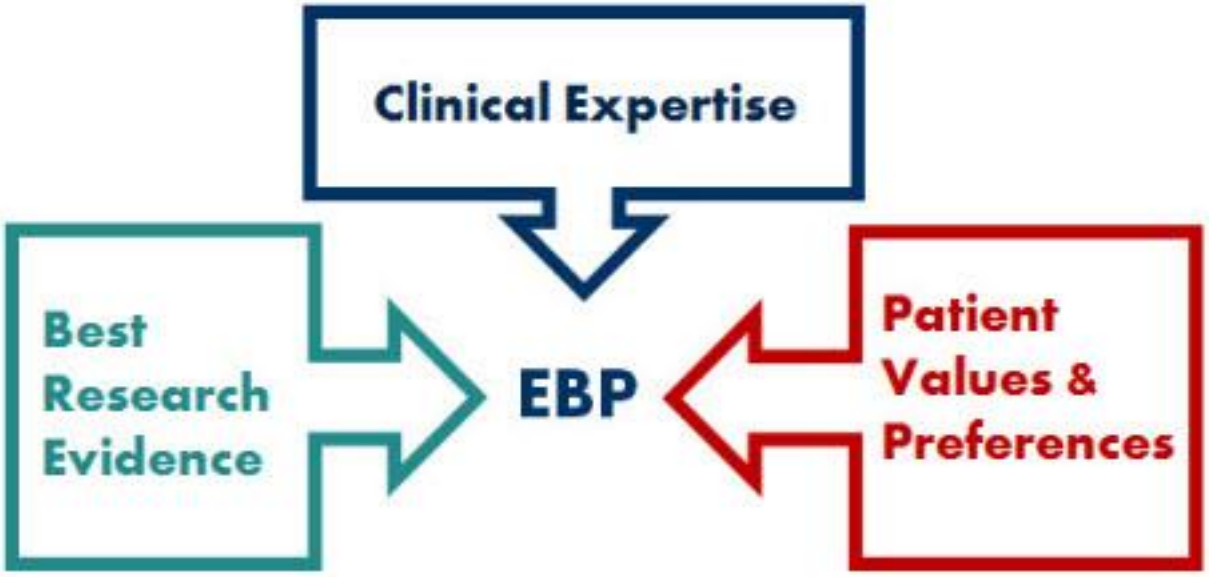
- ABA has improved many lives, often changing life trajectories
- Still room for continuous, incremental improvement in quality
- What can ABA practitioners learn from Evidence Based Practice?

Warning: Death by Acronym

- EBP= evidence based practice
- EST=empirically supported treatment
- EBBI=evidence based behavioral interventions
- Tx = Treatment (ABA interventions)

What is Evidence Based Practice?

- Clinical decision making model, recently applied to ABA (Smith, 2013, Slocum, et. al, 2014, The Behavior Analyst)
- Design and delivery of ABA services based on:
  - Best available evidence, EBBIs (ESTs controversial and too narrow)
  - Clinical experience/judgment/competence
  - Patient values, preferences
  - Contextual features
  - Ongoing clinical progress monitoring and treatment adjustments



Overview, Evidence Based Practice and ABA

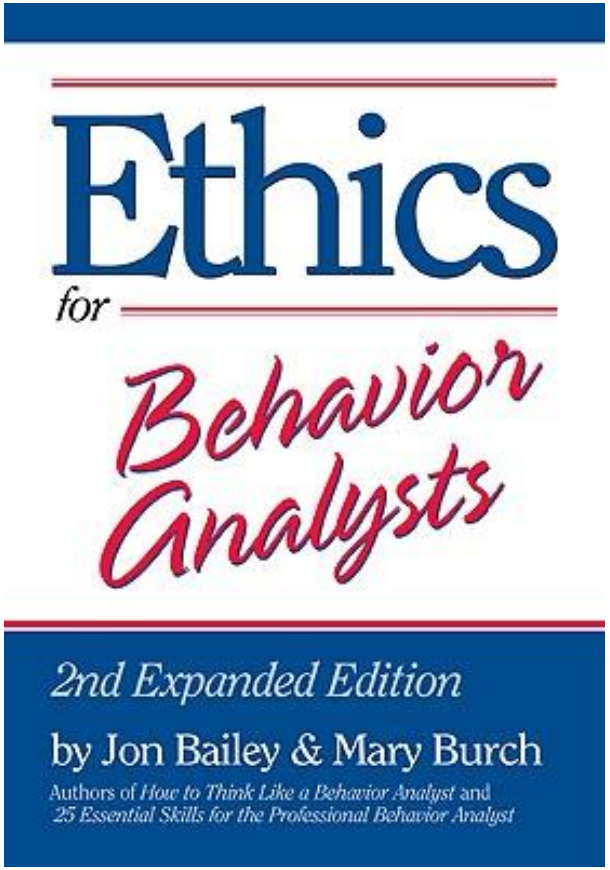
- Themes for practitioners
  - How to identify and select EBBIs for specific behavioral problems
  - How to individualize and apply EBBIs?
  - How to assess clinical response to Tx?
  - How to detect and trouble shooting treatment failures
  - How to disseminate EBP practices
  - How to use EBP concepts to market ABA

Rationale for EBP

- Improve clinical outcomes by incorporating empirical research into the decision making process– (the research to practice gap)
- EBP rationale is persuasive to nearly every audience; promote ABA by analogy to EBP in medicine
- EBP ~ ABA, certainly in autism and also in other clinical areas
- Autism insurance mandates that stipulate “evidence-based treatment, including applied behavior analysis” (MI SB 414 & 415, 2012)

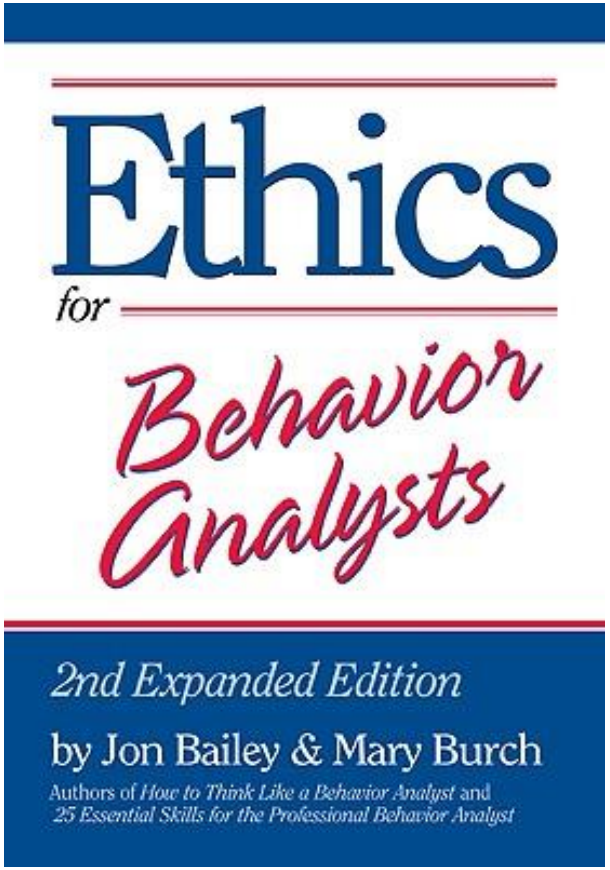
Rationale for EBP, PECC 2016

- 2.09 Treatment/Intervention Efficacy.
- (a) Clients have a right to effective treatment **(i.e., based on the research literature and adapted to the individual client**). Behavior analysts always have the obligation to advocate for and educate the client about scientifically supported, most-effective treatment procedures. Effective treatment procedures have been validated as having both long-term and short-term benefits to clients and society.



Rationale for EBP, PECC 2016

- 2.09 Treatment/Intervention Efficacy.
- (c) In those instances where more than one scientifically supported treatment has been established additional factors may be considered in selecting interventions, including, but not limited to, efficiency and cost-effectiveness, risks and side-effects of the interventions, client preference, and practitioner experience and training.



Rationale for EBP in ABA

- Behavior analysts practice EBP all the time. Don't they???
- Schreck and Mazur, 2008, Survey of BCBAs
  - % reporting use of:
  - ABA & DTT, 90%+
  - Sensory integration, 16.4%
  - Facilitated communication, 6.4%
  - Gentle teaching, 2.6%
  - Music therapy 3.2%

Are BCBAs using EBP practices?

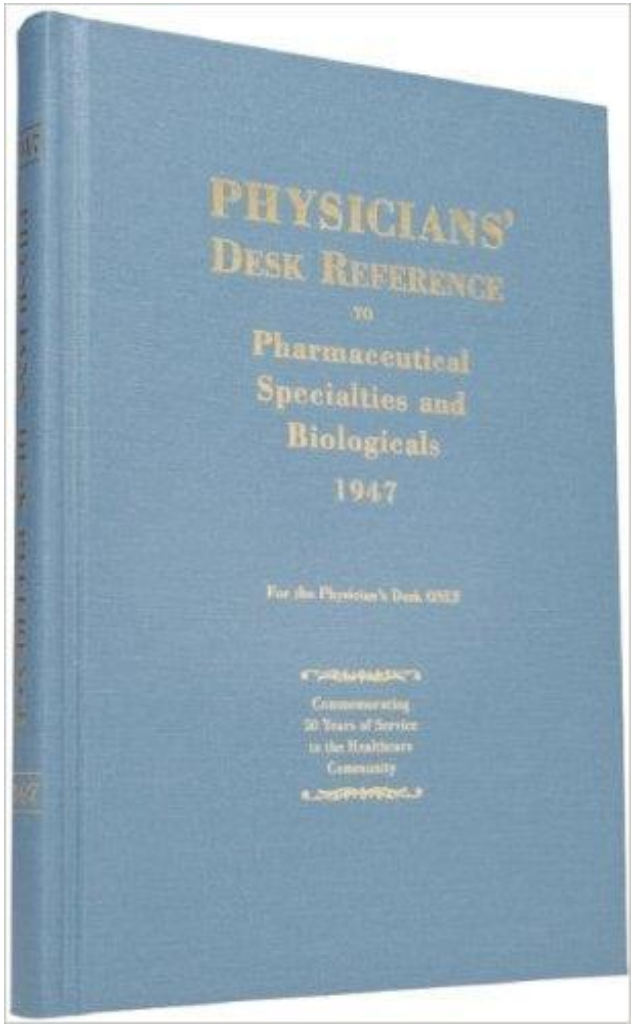
- Unsystematic reviews of insurance authorization requests from BCBAs
- Most plans articulate goals– and identify a broad Tx (e.g., DTT)
- Less than 50% describe individualized Tx
- For reauthorizations: less than 50% use standard behavioral graphs to monitor clinical progress, of these, many don't make data-based Tx decisions
- Need training in EBP for BCBAs (what to provide) and insurance providers on what to expect (accountability and quality of ABA service)

Evidence Based Practice– a multi-step process for the practitioner

- Identify, evaluate, select and individualize Tx for a particular client based on the best available evidence
- Implement EBBI with high fidelity (prerequisite skills: competence in applying the EBBI– training and clinical support materials)
- Continuous evaluation of clinical progress
- Detect and trouble shoot treatment failures

Empirically supported treatments in other content areas: Medicine

- Medicine – PDR, drugs
- 1947, 380 pp., now 3600 pp.
- Description
- Indications
- Contraindications
- Dosage
- Side effects
- Troubleshooting
- Organized by drug, not by diagnosis or symptom

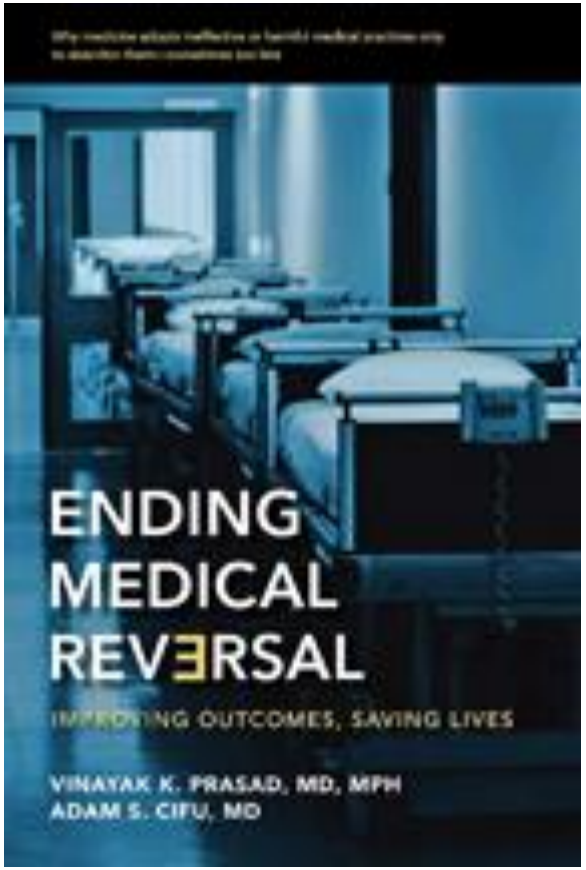


ESTs in other content areas: Clinical Psychology

- Chambless and Division 12 colleagues
  - Criteria for empirically validated treatments
  - Identified ESTs for common clinical problems such as Anxiety, OCD, Drug abuse and dependence Depression, Anorexia, Bulimia, Pain, etc.
  - Most Clinical ESTs emerge from **behavior therapy, cognitive behavior therapy or involve Tx packages based on learning principles**
  - Organized by diagnosis (DSM classification), not function-based behavioral symptoms
  - **In clinical psychology, most ESTs are based on behavior analysis principles and procedures**

Challenges in identifying ESTs

- Challenges?
  - Replication failures in med research (Ioannidis)
  - Relative merits of group versus single subject designs
  - Limitations of meta analyses
  - Appropriate unit of analysis: package vs procedure vs principle
  - EBP is more than just identifying and applying an EST!

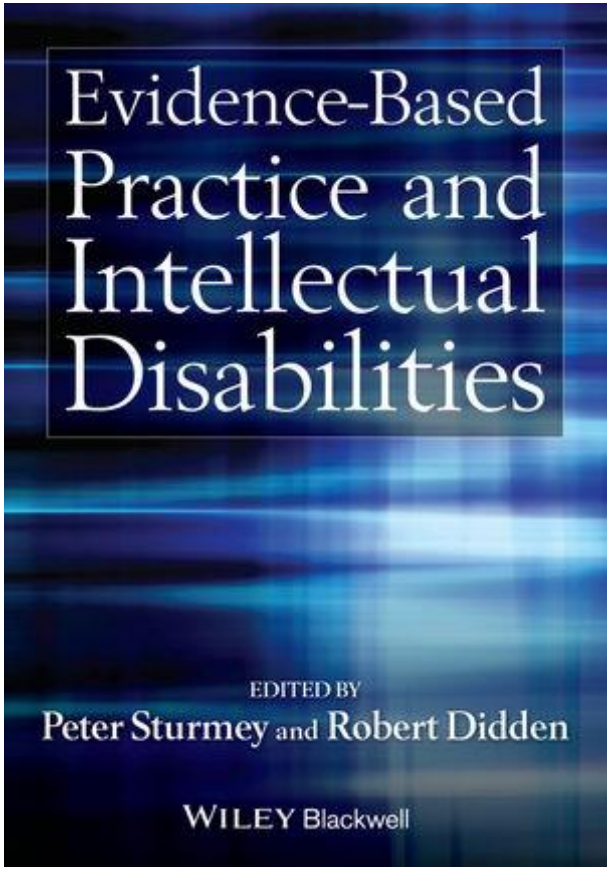


How to identify and apply EBBIs

- Internet and library searches–
  - Google:
  - Not selective: 112,000 results for “pica and behavioral treatment”
  - Google scholar– 14,400
  - Still need to evaluate each original article– quality of research, relevance
- Methods section are seldom adequate to guide implementation

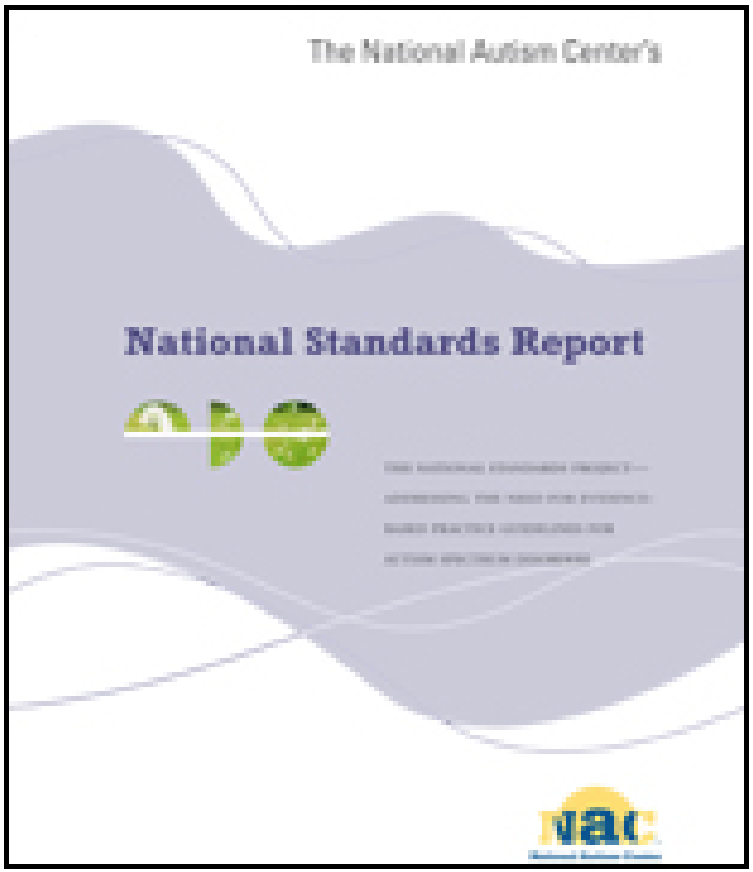
How to identify EBBIs in ASD?

- Texts
- Review articles, including meta analyses
- Conferences
- Mentors/supervisors
- All helpful but may be subject to bias in selection and interpretation
- Still need detailed guidelines on implementation of Tx



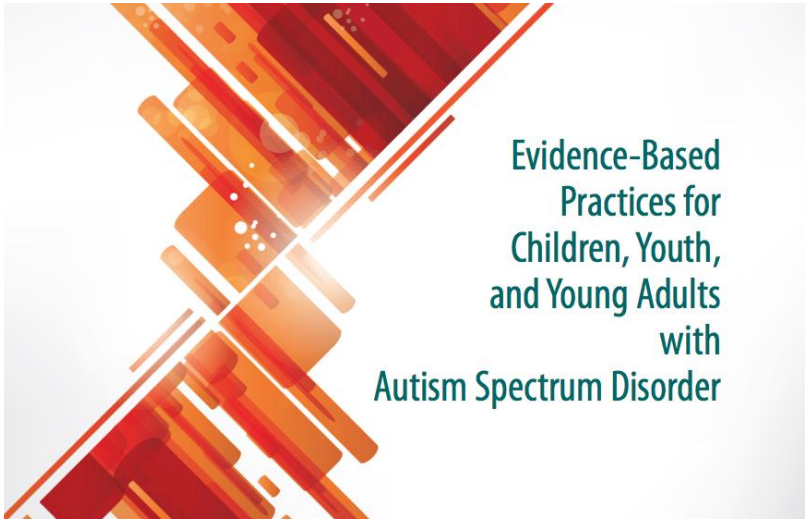
How to identify EBBIs in ASD?Autism National Standards Project

- Tx guide for autism
- Explicit inclusion criteria
- Scientific Merit Rating Scale (1-5)
  - Research design, DVs, IV integrity, generalization and maintenance of Tx effect
- Classify Tx effects: beneficial, unknown, ineffective, adverse
- Limits—Broad treatment categories, treatments not linked to specific behaviors and FA results



How to identify EBBIs in ASD? National Professional Development Ctr, 2014

- Tx guide for autism (example #2)
  - Organized by intervention not by problem
  - Some Tx categories are very broad
  - Still need:
    - How to match and individualize Tx
    - How to implement Tx
    - Detect and trouble shoot treatment failures



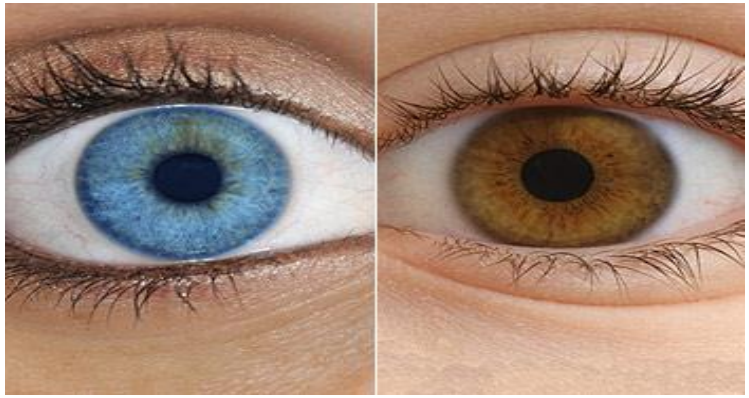
EBP in ASD: Other considerations

- Individual variability hidden in group averages (non responders, drop outs, adverse responses)– applies mainly to RCTs
- We seldom publish “treatment failures”– also applies to SSEDs
- Client values and preferences– how to adjust treatments (or to modify client values/preferences??)
- Training and competence of treatment agents (BCBAs, teachers, parents, siblings)
- Contextual constraints– selecting ecologically valid target behaviors and Txs
- Cost considerations
- Potential for harm/misuse
- Implementation and dissemination prior to adequate testing and evidence? Should/could our process parallel the FDA?

Is EBP relevant and compatible with ABA services?

Challenges: Extrapolating from research and tailoring TX to your client

- Are some client factors more relevant than others?
- Eye color?
- Age?
- Gender?
- Ethnicity?
- Religion?
- Diagnostic labels?
- FBA– maintaining variables



- But: Jane Elliott: Blue eyed, brown eyed experiment– eye color linked to **expectations** and **discrimination**.

Client characteristics are relevant to the extent that they:

- Impact acceptable goals and Txs?
  - Which behaviors are valued/reinforced
  - Which Txs are acceptable?
  - OK to ask about cultural factors (or observe)
- Limits on accepting client values
  - Is it OK to refuse treatment/service based on questionable client goals?
  - Is it OK to **“modify”** client values?

Challenges: Contextual considerations

- Match Tx to the context– busy classroom versus one:one DTT session
- Constraints of some Tx contexts (e.g., home based ABA): circumvent or refer?
- Select goals based on ecological validity – “receiving environment”
- Or change the receiving environment

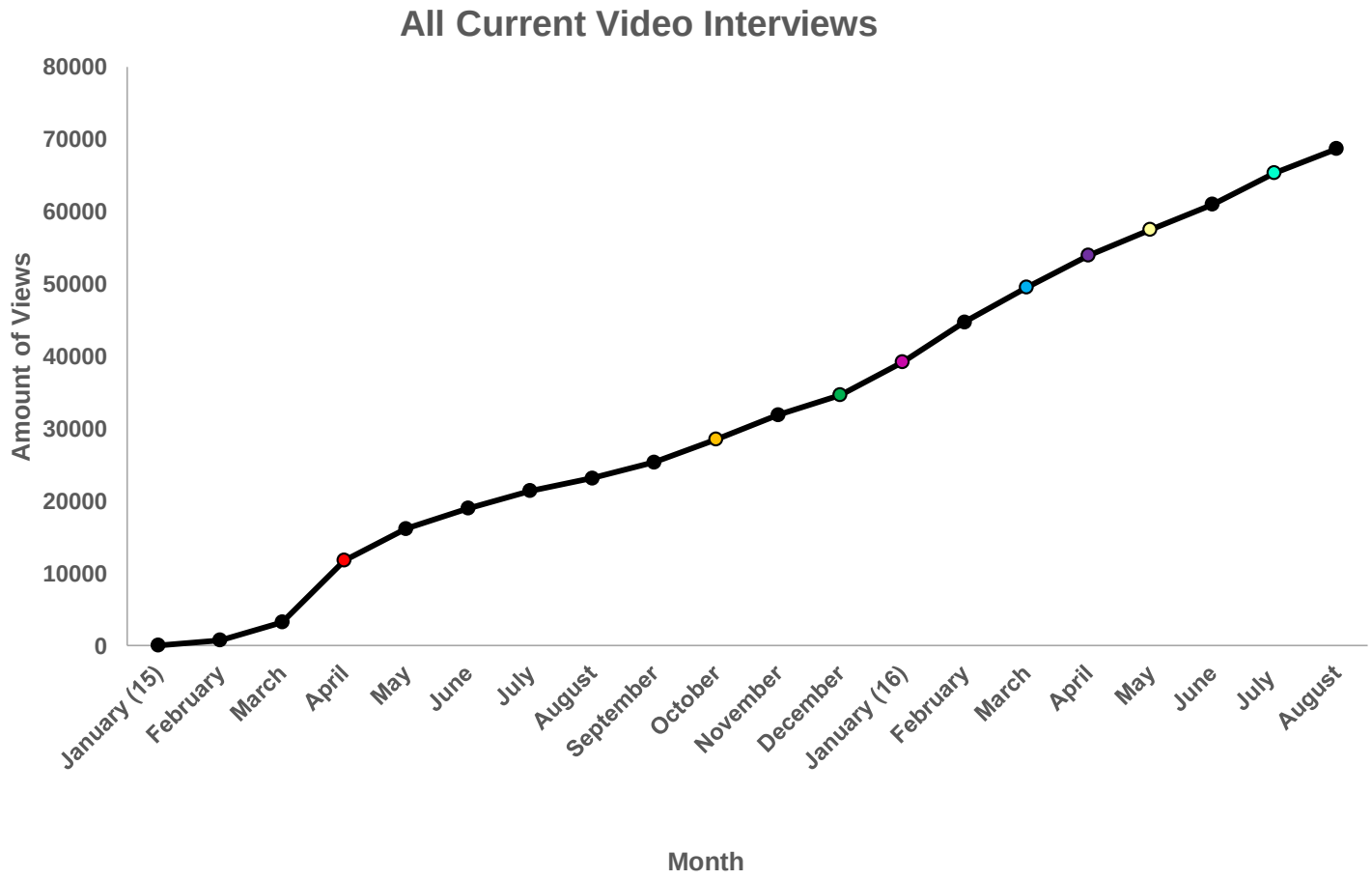
Challenges: How to implement EBBIs

- Checklists and treatment guidelines
- Videos of therapy being applied or simulated
  - Association for Science in Autism
  - Rethink Autism
  - Autism Center of Excellence, WMU: wmich.edu/autism/resources

Examples of videos (from wmich.edu/autism/resources)

- Fifteen videos currently posted, **free of charge**, including
  - Behavioral sleep problems, Kuhn
  - Assessment and treatment of SIB, Iwata
  - Preparing for medical procedures, Allen
  - Functional Behavior Analysis, Iwata
  - Differential reinforcement, Vollmer
  - Functional Communication Training, Fisher
  - Preference assessment procedures, DeLeon
  - Evidence based practice, Wilczynski
  - Social Skills Training, Weiss
  - Pharmacology, Poling
  - Behavioral Feeding Issues, Piazza
  - Verbal Behavior Assessment and Tx- Sundberg

Training Video Dissemination



Still need larger and more systematic video library and treatment guidelines that include:

- Purpose and appropriate use of Tx
- Treatment matching (e.g., FBA, client characteristics)
- Contraindications, side effects and precautions
- Recommended personnel (e.g., BCBA, RBT, teacher, parent role)
- Assessing clinical progress & benchmarks
- Trouble shooting non-responders
- Alternative treatments
- Evidentiary support
- Treatment guidelines/ implementation task analysis

Challenge: Detecting and trouble shooting treatment failures

- What is a treatment failure?
  - Effectiveness– did not reach goal
  - Efficiency—too long to reach goal
  - Cost/benefit ratio, including adverse side effects
  - Mean performance is OK but unacceptable levels of variability
  - Goals obtained but no impact on outcome measures (quality of life, independence)

Treatment Failures

- Prevalence of treatment failures????
  - Often buried in group research
  - Seldom published in single subject research – failure to demonstrate experimental control = rejection (publication bias)
  - We do not need a journal of ***treatment failures***--- but we do need research to:
    - Identify limits of generality for “proven treatment”
    - Identify and verify the factors needed to transform an ineffective Tx into an effective Tx

Trouble shooting Tx failures

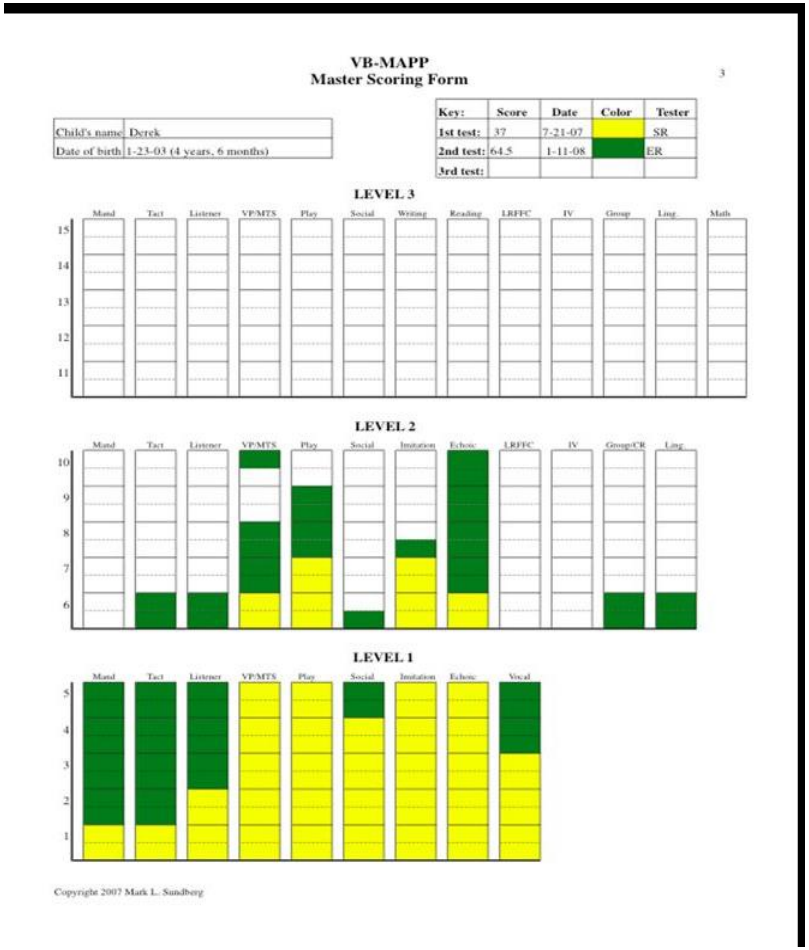
- Need trouble shooting strategy:
  - To insure effective and efficient treatment—client rights, public support, insurance accountability
  - To preempt flight to questionable or harmful Tx
  - To prevent rejection of ABA-based therapy services as ineffective

Tx Failure: Troubleshooting

- Detect TX failures in a timely manner with frequent assessments
- Identify and act on deviations from “envelope” of expected Tx gains
- Assessment may occur at different levels of sensitivity for different audiences (practitioners, insurance carriers, policy makers)

Commonly used assessments that are NOT adequate for detecting treatment failures

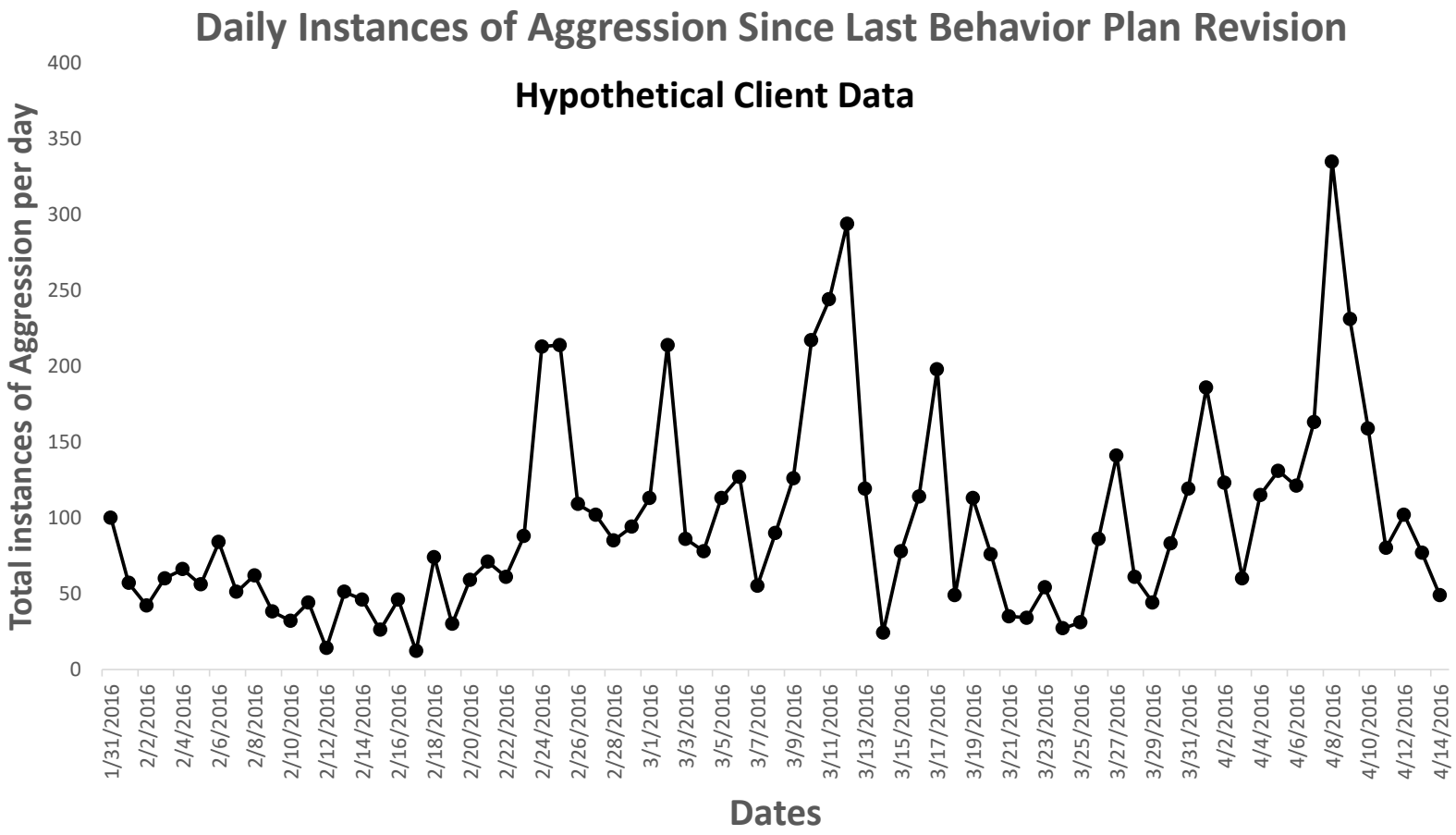
- VB MAPP, ABBLS-R etc.
- VB MAPP, **Excellent** comprehensive assessment, linked to TX
- Assessments are too infrequent to monitor progress and adjust TX
- Display does not emphasizes rate of progress on current goals



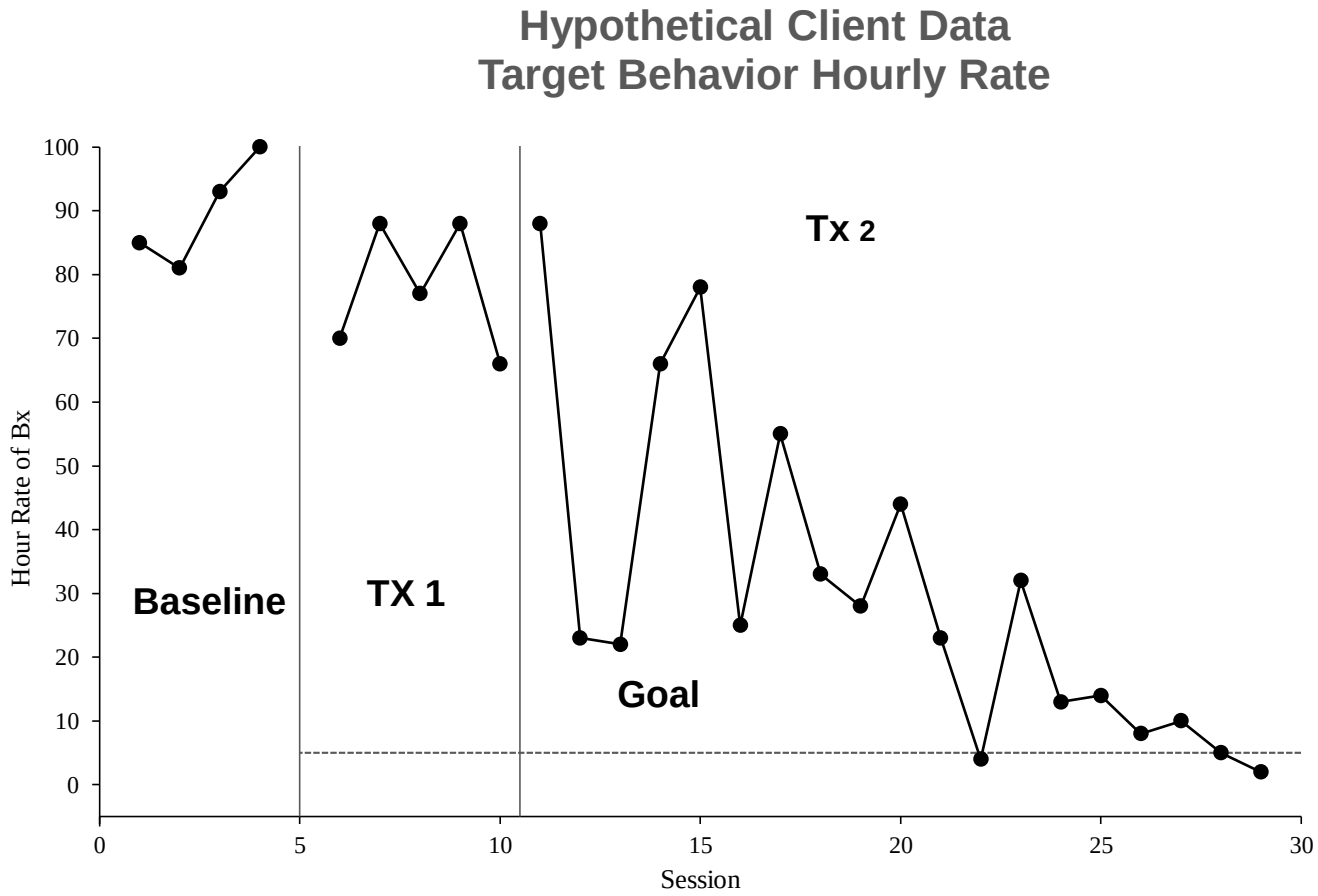
Commonly used assessments that are NOT adequate for detecting treatment failures

Goal	Skill Area	Date introduced	Date Mastered
1a	Social Behavior	2-1-16	5-1-16
2c	Compliance	6-15-14	4-1-16
3	Classroom group	11-15-15	In progress
7	Math concepts	4-1-15	4-15-15

Monitoring alone is not enough



Frequent monitoring and assessment of *response to intervention* is crucial



Step 1: Tx Failure: Measurement issues

- Assess the quality of evidence?
  - Objective vs subjective data
  - Potential for bias
  - Valid, sensitive and accurate measures?
- Criterion for judging success/failure
  - Clinical vs. statistical criteria for success
  - Normative versus exemplary standards

Step 2: Tx Failure: Troubleshooting treatment goals

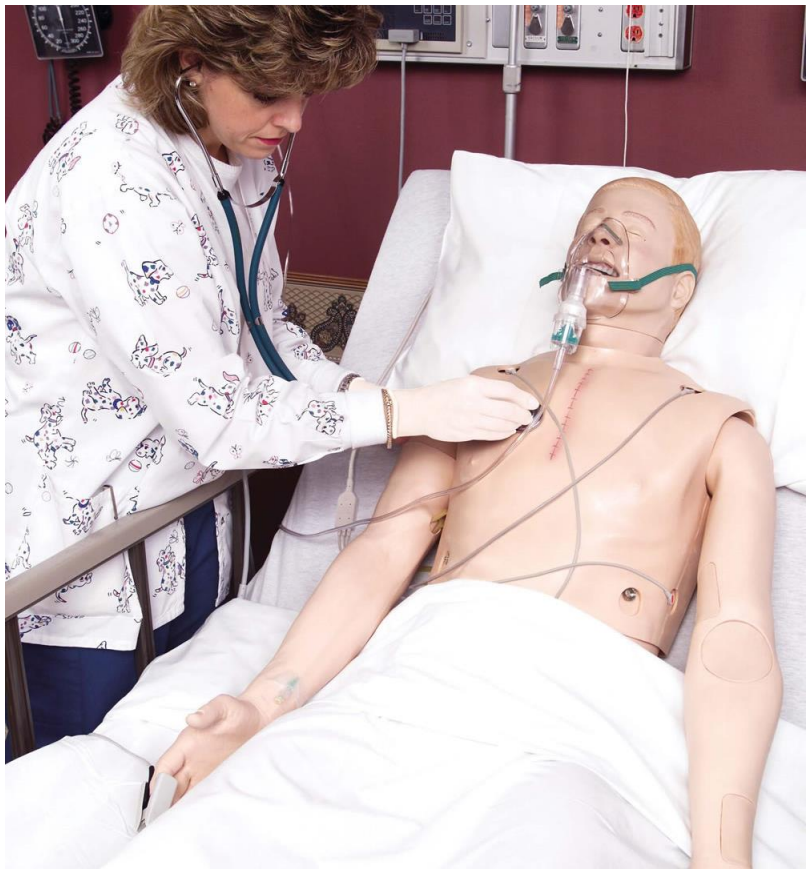
- Are treatment goals within the "capability" of the client?
  - Might require training of prerequisite skills
  - Might not be physically or developmentally possible
  - Limited opportunities and barriers to performance

Step 3: Tx Failure: Treatment Fidelity

- Is Tx applied consistently and as designed? (assumes we know crucial elements versus elements that can be individualized)
  - Train and manage staff (teachers, parents)
    - **Can't do** (need training, treatment manuals and job aides, simulations to fluency, feedback)
    - **Won't do** (staff reinforcement for effective Tx implementation, make client gains an effective reinforcer for staff)
    - Identify barriers (e.g., setting, resources needs)

Step 3: Acquiring skills in EBBI implementation

- Read methods section of journals
- Workshops and lectures? Only, if behavioral skills training model
- Treatment manuals
- Video models
- Need practice and corrective feedback
- Simulation-based training and feedback?



Simulation-based training in ABA

- Ellie Kazemi's work with robots (NAO) to simulate child clients
- Internet-based simulation, Teach Live
- Low tech versions with actors

Step 4: If treatment is being applied correctly, then ask

- Are reinforcers still effective?
  - Developmental issues
    - Age appropriate reinforcers?
  - Transient issues that effect reinforcer efficacy
    - **Motivational operations** in place
    - Sources of interference? Meds, illness, sensory problems
  - Contextual issues: concurrent contingencies, e.g., unauthorized sources of reinforcement– peers?
    - Undermine Motivational Operations
    - Strengthen behaviors that compete with therapy goals
  - Function altering strategies– many from behavioral economics—response effort, substitutability, etc.
  - Stimulus preference assessments– how often?

Step 5: Generalization failures

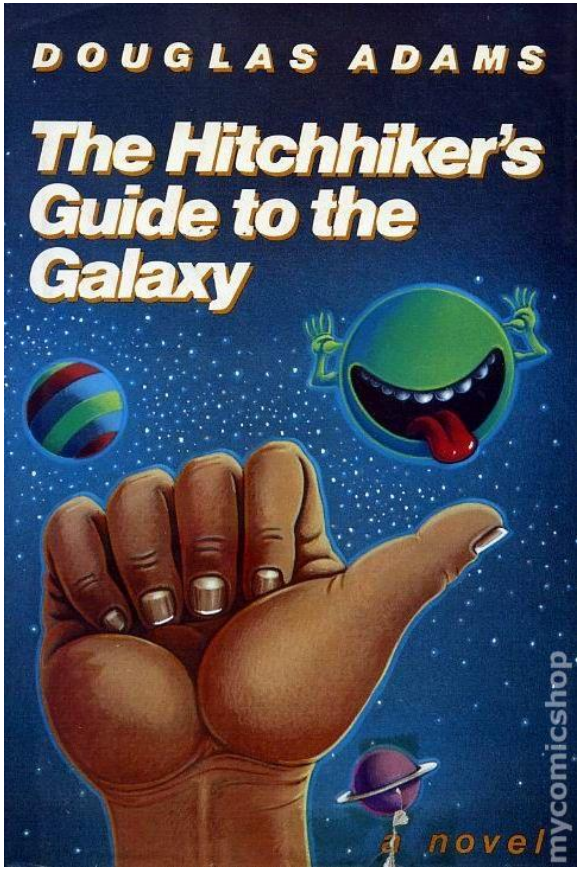
- Did the S+s really acquire control in the original training? (“overselectivity”)
- Are S+s from training in place in generalization setting?
- Reinforcement contingencies in place in generalization setting?
- Warning: Do not “train and hope” or passively rely on stimulus generalization
- Behavior is “determined”– generalization will not persist without reinforcement

Step 6: Gains are not maintained

- Select behaviors that contact and might be maintained by naturalistic contingencies in the receiving environment
- Focus on altering the “naturalistic contingencies” (e.g., parent training, peer training)
- Gradually fade out contrived contingencies—shift control to naturalistic contingencies
- Can you arrange “prosthetic environments” to maintain behavior “forever”

Treatment failures will happen!

- Don’t panic
- Develop a systematic strategy to trouble shoot
- An important role for practitioner: reports on the success and failures of EBBIs in the “real world” applications



Dissemination of EBBIs: Opportunities and Challenges

- Marketing to parents, teachers, gate keepers (pediatricians)
- Branding and seals of approval
- Ease of application– identify essential and optional components
- Scalable– 10 minute check ups
- Delivery modalities—technology (of course)
- Link to other activities (well child visit)
- Frame as “coaching,” “check up”
- Continuous quality improvement and integrated evaluation data


That's all Folks!