

Perspectives on ABA interventions: What do we mean by ‘evidence-based’?

Professor Richard Hastings

Centre for Educational Development Appraisal and Research,
University of Warwick
Centre for Developmental Psychiatry and Psychology, Monash
University



@ProfRHastings



Today's presentation



WARWICK
THE UNIVERSITY OF WARWICK

1. Evidence-based interventions from an ABA perspective
2. The evidence context, and the *process* of developing evidence – from outside of ABA
3. The importance of understanding what question an individual study is addressing
4. Examples of behavioural interventions: is the evidence is convincing, externally?



ABA and evidence



WARWICK
THE UNIVERSITY OF WARWICK

Meaningful (*effective*) and durable (*generality*) changes in socially significant (*applied*) measurable behaviours (*behavioural*) using a clearly described intervention (*technological*), based on principles of learning (*conceptually systematic*), that can be shown to be responsible (*analytic*) for those changes in behaviour



“Evidence-based” and ABA

- The practice of ABA is wholly focused on *evidence* and in that respect can be seen to be “evidence-based”
- A technology of research design has also developed to allow these multiple dimensions of evidence to be assessed
- Visual inspection is used to wholistically evaluate the strength of evidence in any individual study/design



“Evidence-based” - SCEDs

- Various criteria for what might constitute an evidence-based intervention using SCED research
- *Quality indicators for research methodology and evidence based practices (Single Subject Designs)* - Task force of the Division for Research, Council for Exceptional Children 2003
 - Based on the *Task force on evidence-based interventions in School Psychology* 1998-2007 (Division 16 APA, Society for the Study of School Psychology, National Association of School Psychologists)
- *Empirically Supported Treatments* (APA Division 12 Clinical Psychology) - Chambless review
- *National Autism Center Standards Project* (2009)



CEC-DR [Horner et al. 2005]

1. The practice is operationally defined
2. The context in which the practice is to be used is defined
3. The practice is implemented with fidelity
4. The results from SCEDs show that the practice is functionally related to change in dependent measures
5. The experimental effects are **replicated across a sufficient number** of studies, researchers, and participants to allow confidence in the findings

“a sufficient number of” =

1. Minimum of 5 SCED studies meeting minimally acceptable methodological criteria that document experimental control, published in peer-reviewed journals
2. By at least 3 different researchers across at least 3 different geographical locations
3. The 5 or more studies must include a total of at least 20 participants

Mainstreaming ABA evidence

1. Conduct a systematic review of research evidence, grade and select studies of defined quality, apply SCED evidence criteria from a reputable source
 - Partially “plays the game” and maintains the integrity of the SCED approach
 - Not generally accepted beyond a small number of contexts
2. Conduct systematic review of research evidence, grade & select studies of defined quality, apply effect size analyses suitable for SCEDs, apply meta-analysis

SCEDs: Limitations

- SCEDs were developed to support the science of behaviour analysis - in ABA, to demonstrate/monitor meaningful behaviour change
- SCEDs are best thought of as offering strong ***practice-based evidence***?
- Should SCED data be aggregated if they are not specifically designed to ask “is this intervention effective?”
- Is the evidence base inherently positively biased (because of the focus on demonstration/proof of principle)?



What Is Evidence-Based Behavior Analysis?

Tristram Smith
University of Rochester Medical Center

Although applied behavior analysts often say they engage in evidence-based practice, they express differing views on what constitutes “evidence” and “practice.” This article describes a practice as a service offered by a provider to help solve a problem presented by a consumer. Solving most problems (e.g., increasing or decreasing a behavior and maintaining this change) requires multiple intervention procedures (i.e., a package). Single-subject studies are invaluable in investigating individual procedures, but researchers still need to integrate the procedures into a package. The package must be standardized enough for independent providers to replicate yet flexible enough to allow individualization; intervention manuals are the primary technology for achieving this balance. To test whether the package is effective in solving consumers’ problems, researchers must evaluate outcomes of the package as a whole, usually in group studies such as randomized controlled trials. From this perspective, establishing an evidence-based practice involves more than analyzing the effects of discrete intervention procedures on behavior; it requires synthesizing information so as to offer thorough solutions to problems. Recognizing the need for synthesis offers behavior analysts many promising opportunities to build on their existing research to increase the quality and quantity of evidence-based practices.



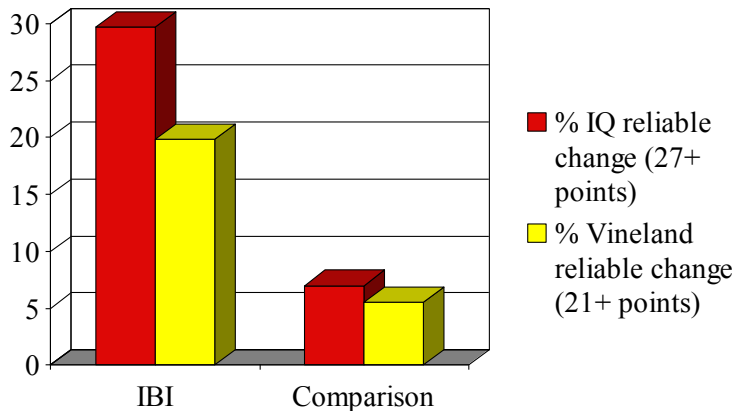
Two “levels” of ABA-based intervention

- **Individual practices:** ABA practices, usually short term, and with single outcome-focus
 - For example – toilet training, prompts for initiating social interaction
- **Comprehensive:** practices brought together into a larger scale package, usually longer term, with multiple outcomes in mind
 - For example – EIBI, Positive Behavioural Support, Early Start Denver Model, Pivotal Response Training, Verbal Behaviour

309 children in IBI vs. 144 comparison

WARWICK
THE UNIVERSITY OF WARWICK

[Eldevik, Hastings et al., 2010, *American J on Int Dev Dis*]



Evidence outside of ABA

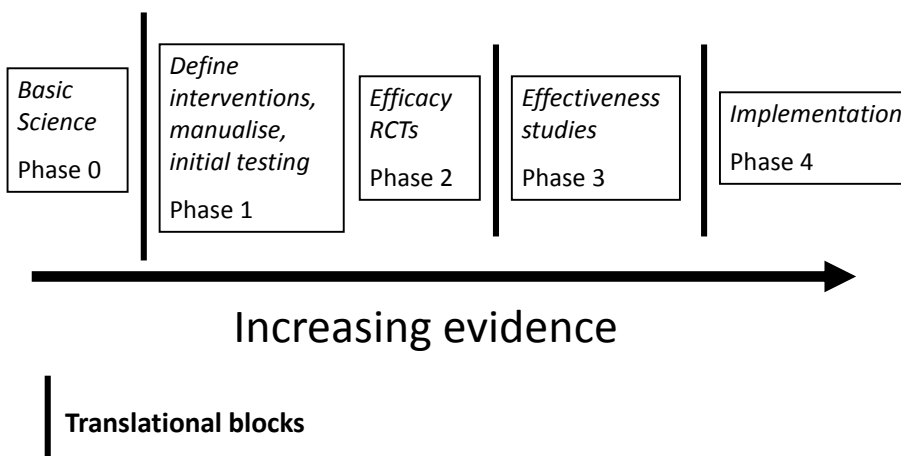
WARWICK
THE UNIVERSITY OF WARWICK

- EBM has spawned international collaborations focused on evidence for health and social/educational interventions
 - The Cochrane Collaboration
 - The Campbell Collaboration
- UK national bodies that provide reviews of evidence
 - National Institute for Health and Care Excellence (NICE)
 - Scottish Intercollegiate Guidelines Network (SIGN)

NICE behavioural recs

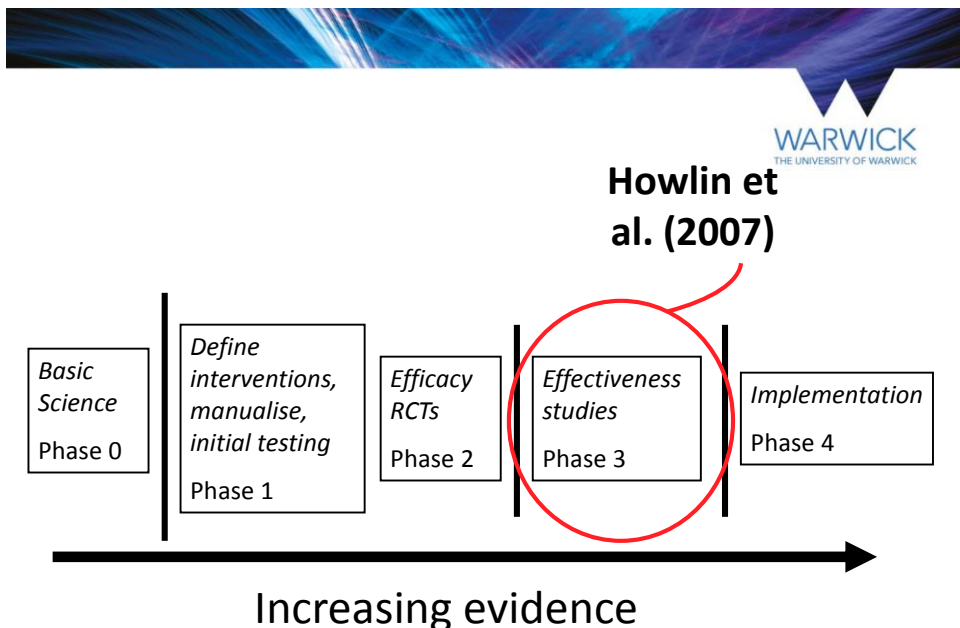
- **Borderline personality disorder** (Jan 2009) - DBT
- **Depression** in adults (Oct 2009) - Behavioural Activation
- **Obesity** (Dec 2006) - multi-component intervention
- **Child conduct disorder** (July 2006) – beh. parent training
- **Dementia** (Nov 2006) - “behavioural and functional analysis” for challenging behaviours
- **ASD in adults** (April 2012) - behavioural intervention to improve daily living skills and for challenging behaviours
- **ASD in children** (August 2013) –functional analysis for CB, modelling & feedback to teach social-communication skills
- **Challenging behaviour – ID** (May 2015) – PBS (+PT)
- **Mental Health – ID** (Sept 2016) – beh. parent training

Thornicroft et al., 2011



PECS evaluation [Howlin et al., 2007]

- 18 classes of children (N= 84) with autism allocated randomly to PECS or education as usual
- 2 days PECS workshops for teachers and parents
- PECS trainers then made 6 half-day consultation visits to each class over 5 months
- Communication initiations and PECS use increased after training, but no changes in standardised language and other measures
- Effects did not maintain after support ended



Dawson, Rogers et al.

[2010, Pediatrics]

WARWICK
THE UNIVERSITY OF WARWICK

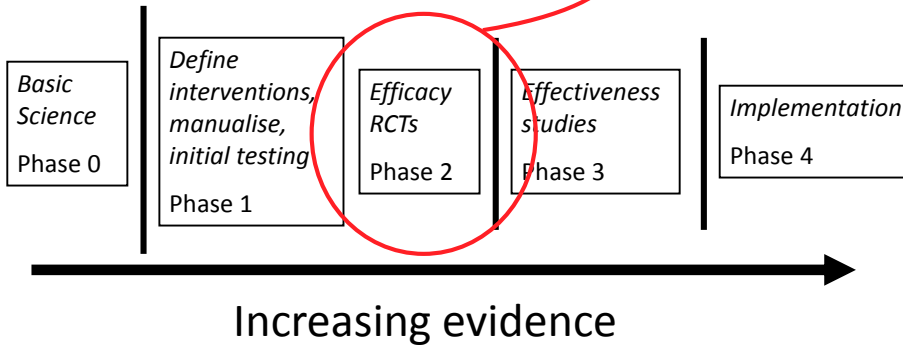
Early Start Denver Model

- Two hour sessions, twice per day, five days per week for two years delivered by therapist
- Actual therapist hours mean 15 hours per week plus 16 parent hours
- Developmentally informed, individualised curriculum using teaching strategies “consistent with the principles of ABA”
- Intervention supervised by graduate level, experienced therapists, with ongoing expert consultation

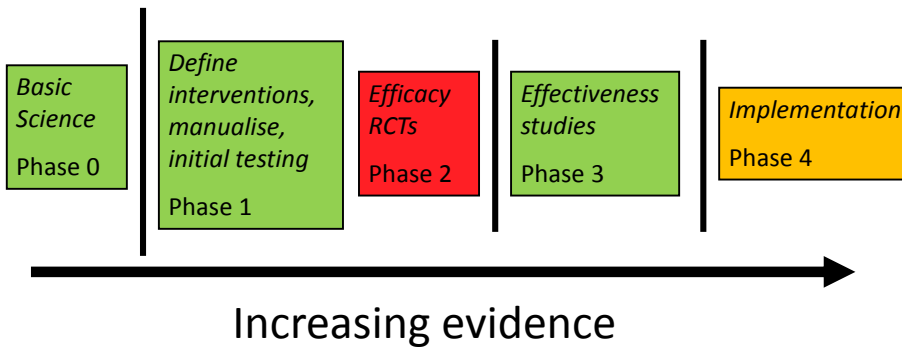
WARWICK
THE UNIVERSITY OF WARWICK

- 48 children with ASD, 18-30 months of age randomly assigned to either ESDM or TAU
- Two year outcomes:
 - Compared to TAU group, statistically significant gains in cognitive ability standardised scores (*effect size roughly .54*)
 - VABS composite standard scores remained stable in ESDM group but reduced in the TAU group (*effect size roughly .85*)

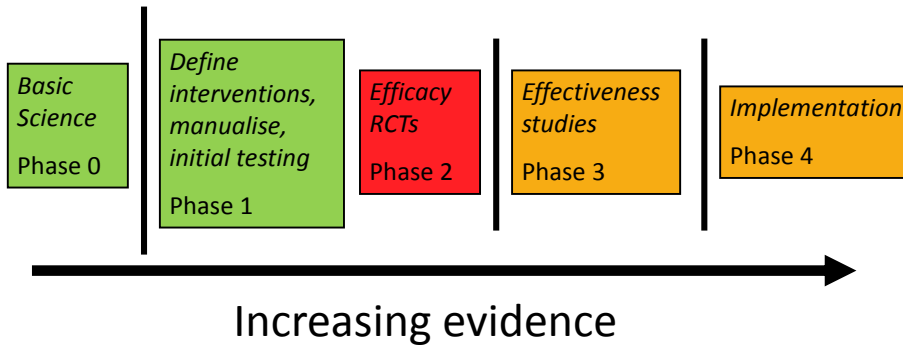
Dawson et al. (2010)



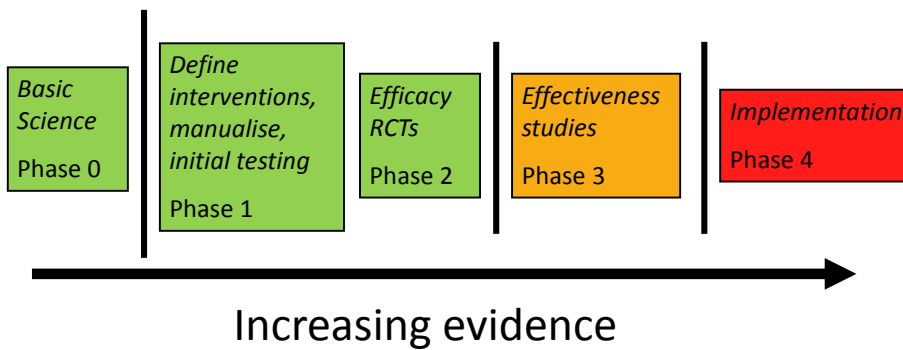
Autism - Early Intensive Behavioural Intervention



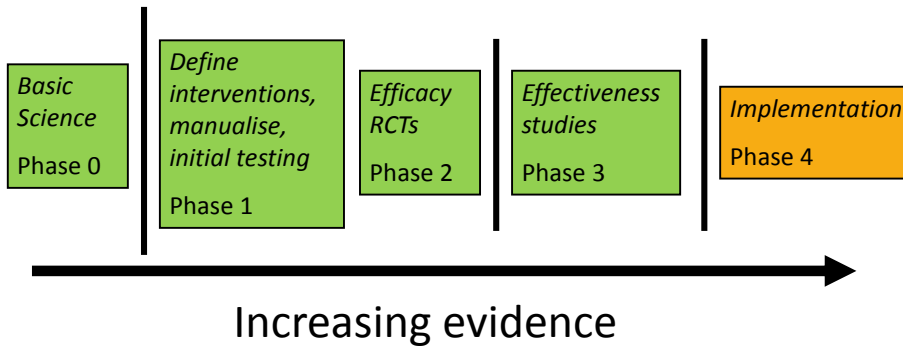
Positive Behavioural Support



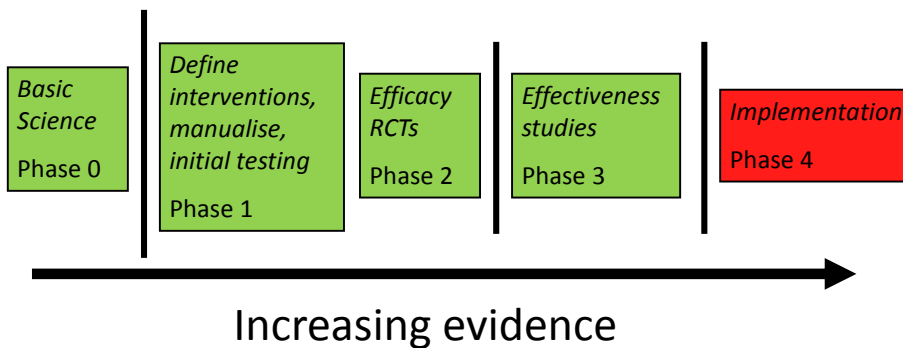
Dialectical Behaviour Therapy



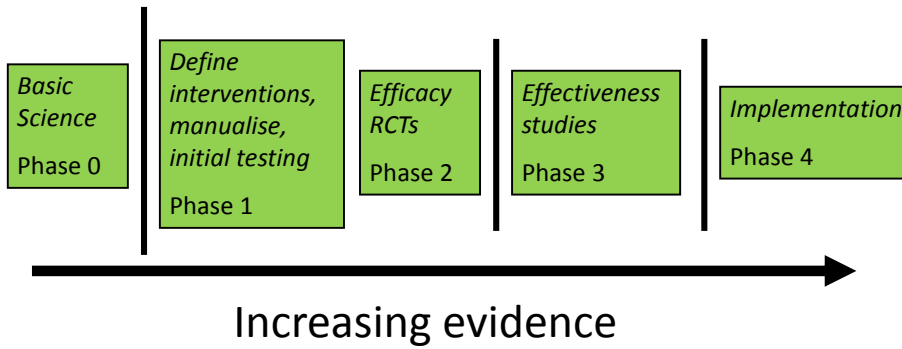
Behavioural Parent Training (Triple P, Incredible Years)



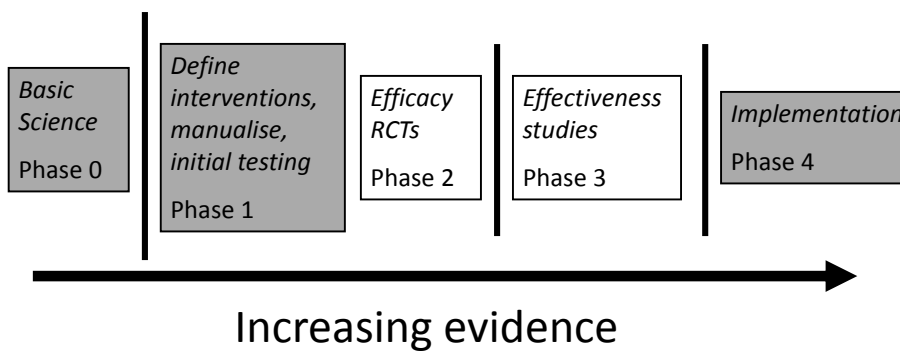
Acceptance and Commitment Therapy



Behavioural Activation for Depression



The role of SCEDs?





Implementation Research



WARWICK
THE UNIVERSITY OF WARWICK

- Perhaps an unspoken assumption that communicating a strong evidence story is enough
- An explicit assumption that correcting misrepresentations and misunderstandings about ABA will be sufficient
- ABA has a long history of failing to apply high quality analysis to the problem of implementation of our evidence-based practices
- Why are ABA interventions not used more widely?
How do we improve take-up?



Actions



WARWICK
THE UNIVERSITY OF WARWICK

1. Wake up to the broader evidence base for behavioural interventions and “reclaim” them
2. Start working out how to convince others, not ourselves
3. If behaviour analysis fails to “play by the rules”, effective interventions can be easily ignored
 - Consider RCTs once ABA evidence criteria are achieved
4. Distinguish between *practices* and *intervention packages*?
5. Promote SCEDs as a *part of* the evidence process
6. Rapid evidence development focused on implementation evaluation studies (“close to market”)? Describe your delivery models, and collect data!



R.Hastings@warwick.ac.uk



@ProfRHastings



<http://profhastings.blogspot.co.uk/>