



# Implementation science: what is it and how can we do it?

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Medicine

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# Why do implementation science?



*"My question is: Are we making an impact?"*

# Evidence based practice v implementation science

## What is evidence-based practice?

Sackett et al, BMJ, 1996 (evidence-based medicine: what it is and isn't)

- *The practice of evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research.*
- *Individual clinical expertise means the proficiency and judgment that individual clinicians acquire through clinical experience and practice*
- *By best available external clinical evidence we mean clinically relevant research, often from the basic sciences of medicine, but especially from patient centred clinical research*

# Evidence based practice v implementation science

## What is Implementation science?

### Implementation Science Journal

(<http://www.implementationscience.com/about>)

- *Implementation research is the scientific study of methods to promote the systematic uptake of proven clinical treatments, practices, organisational, and management interventions into routine practice, and hence to improve health*
- What influences uptake?
  - Who the patient is
  - What the clinician does (type of treatment provided)
  - The characteristics of the setting in which the service is provided

# Evidence based practice v implementation science

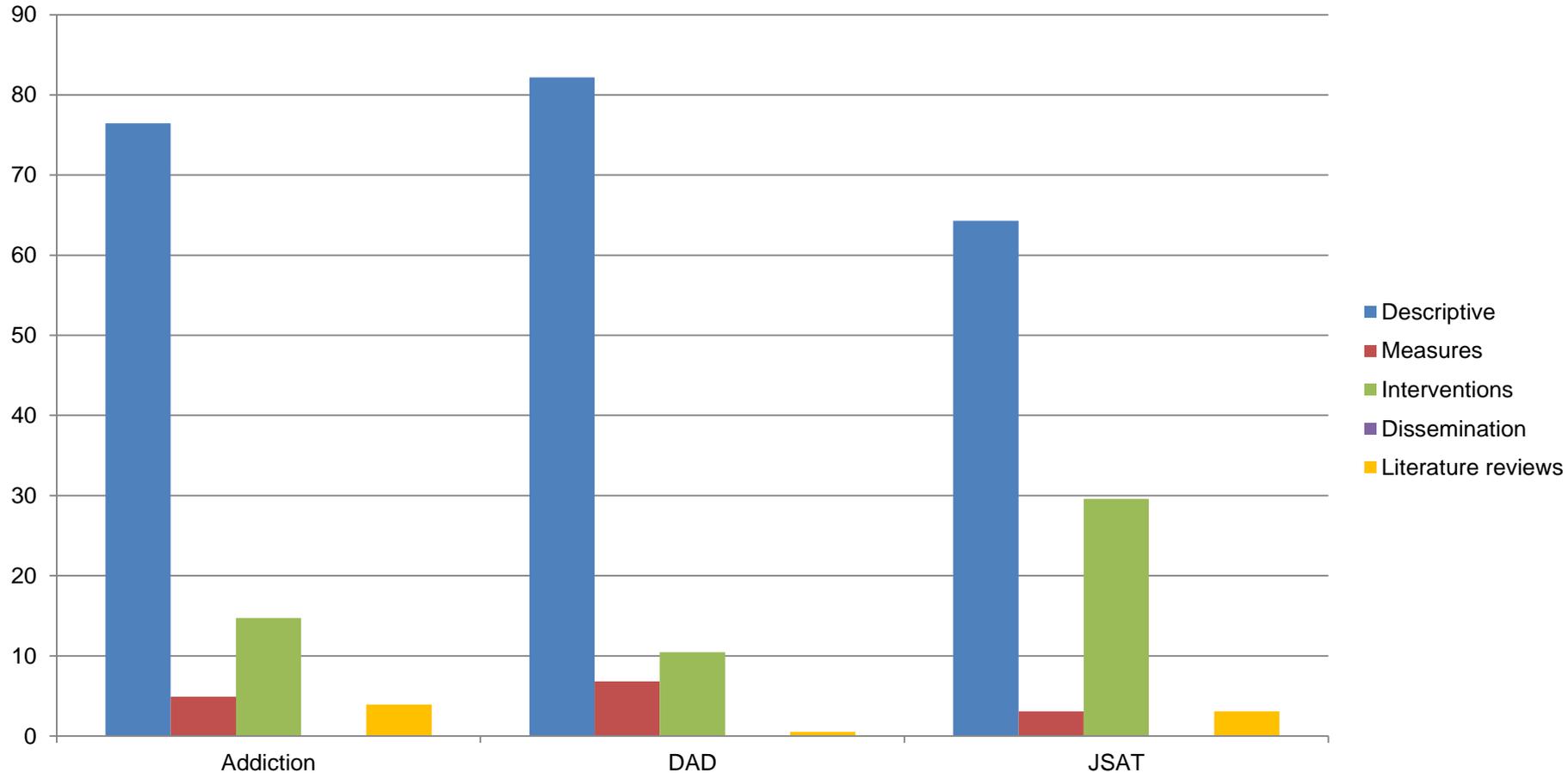
- EBP is about getting clinicians to understand the evidence, in the hope that they will combine it with their clinical expertise
- Implementation science acknowledges that clinician knowledge about treatment effectiveness is not enough for EBP to occur routinely: what a clinician does is partly about her/his knowledge, partly about patient characteristics and partly about the characteristics of the clinical setting
- Are patient, clinician and setting characteristics *really* all important?
  - Project MATCH – alcohol outcomes differed by site, not treatment group
  - Hospitals with better treatment outcomes (lower rates of complications, lower adverse health outcomes, and lower post-operative and long term mortality) have: higher case-loads, higher staff to patient ratios, specialised treatment units, teaching status.

# Evidence based practice v implementation science

- What EBP and IS have in common is the idea of translating knowledge from research into clinical practice
- Various models for how this might happen:
  - Virtuous cycle (eg. NHMRC)
  - T1 and T2 research (eg. NIH in the US)
- Problems with these models:
  - Takes a long time for the translation to occur ~ 17 years!
  - Reliant on the chance that what a researcher evaluates is something clinicians are doing, or might want to do
  - What 'works' in the tightly controlled environment of a clinical trial, may not work in practice, or may work differently in practice ('post-surveillance' research by pharmas)
  - In public health / clinical medicine, there's not much to translate – very little intervention research and what has been done is generally poor quality

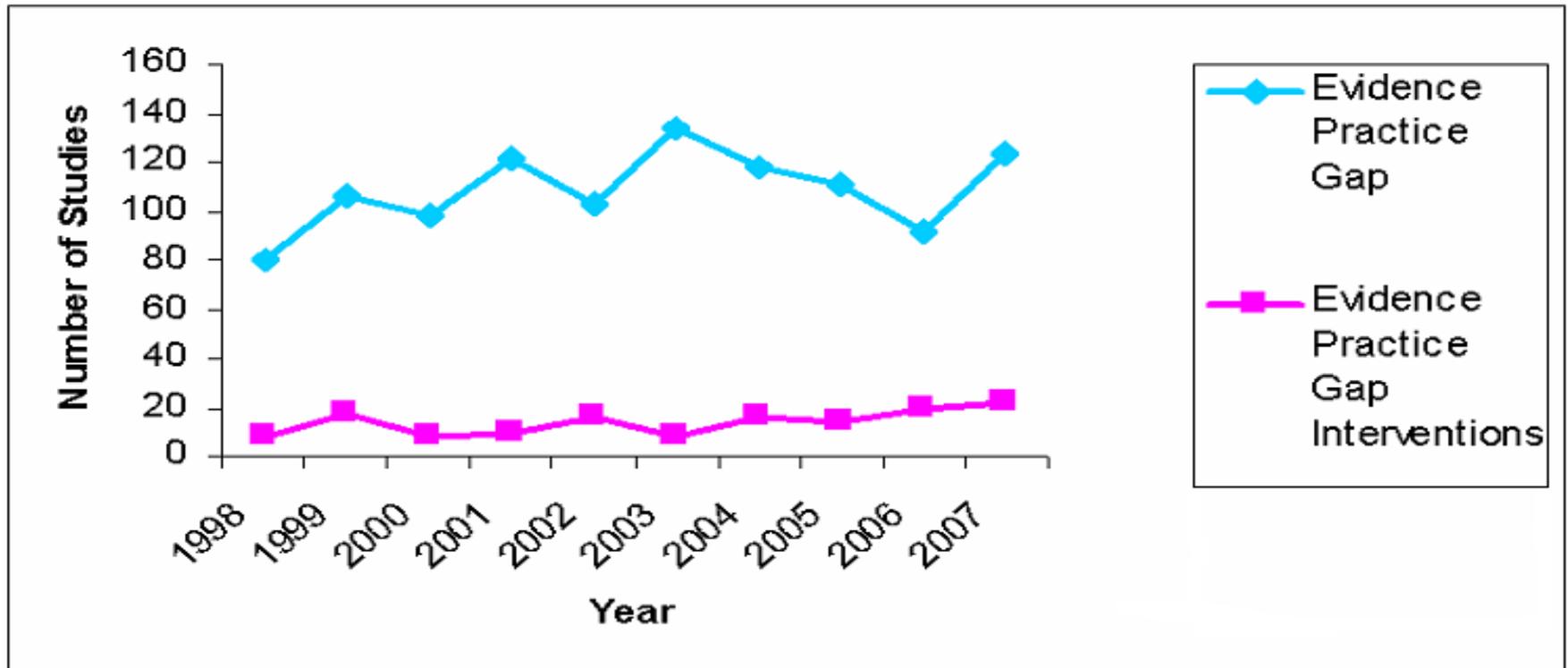
# Evidence based practice v implementation science

- Publication types in main drug and alcohol journals: 1990 - 2010



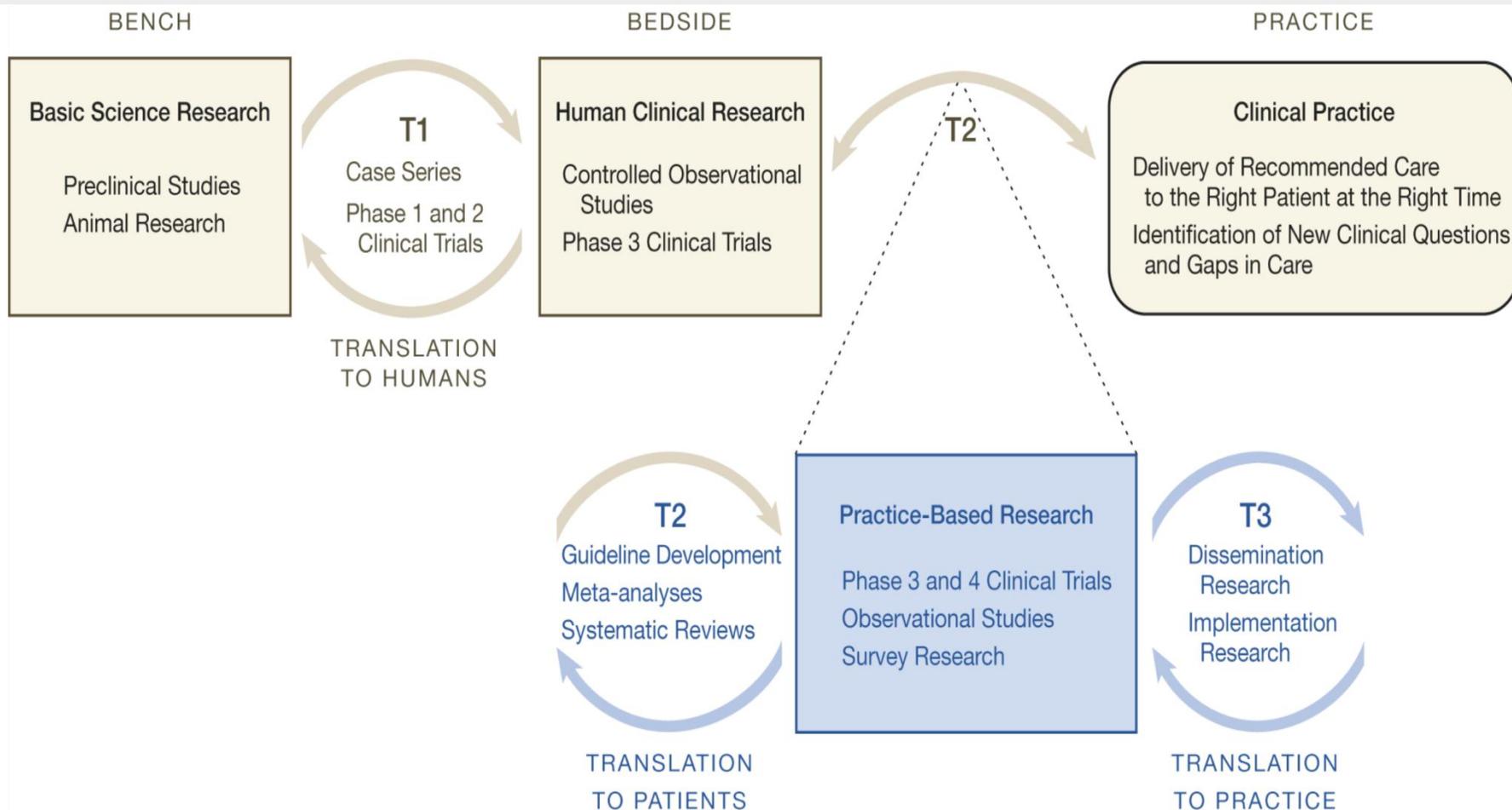
# Evidence based practice v implementation science

- Translation across the Evidence/practice gap



From: **Practice-Based Research—“Blue Highways” on the NIH Roadmap (Westfall, et al)**

JAMA. 2007;297(4):403-406. doi:10.1001/jama.297.4.403

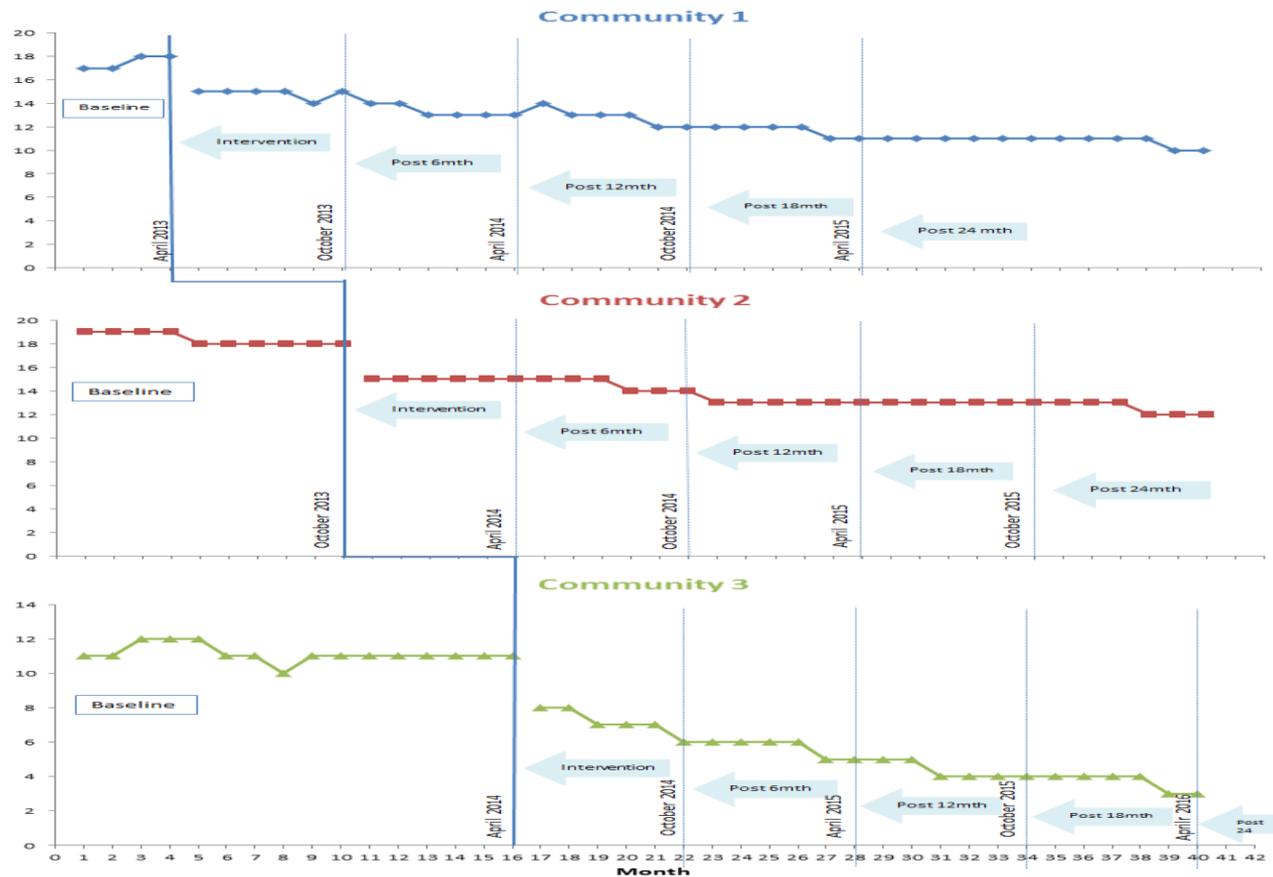


# Evidence based practice v implementation science

- T3 research (NIH) was an attempted solution, but hasn't gained traction. Why?
  - Researchers and clinicians driven by different agendas: researchers to publish and get grants; clinicians to provide best clinical care given time and cost constraints. Is there a lack of trust between researchers & clinicians?
  - Researchers highest priority is evidence from research methods; clinicians highest priority is flexibility in service delivery
  - Wrong evaluation designs - researchers haven't been able to meet the challenge of generating evidence that is 'good enough'
  - Not enough use of routinely collected data
  - BUT McKeon: "embed research in the health system." Will this get picked up?

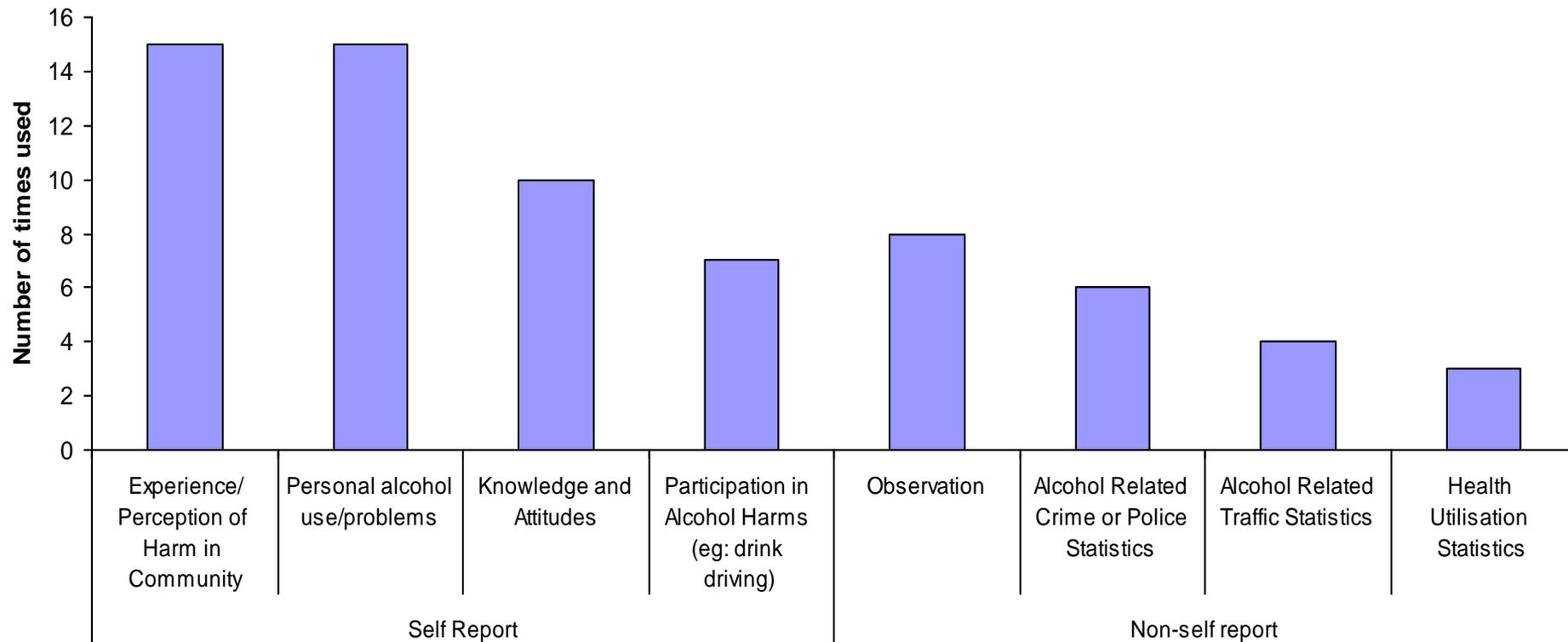
# Good enough evaluation designs

- Best possible level of evidence comes from randomised controlled trials (RCTs). Next best option is called stepped wedge design (*Hawkins et al, 2007 - AJPM*)



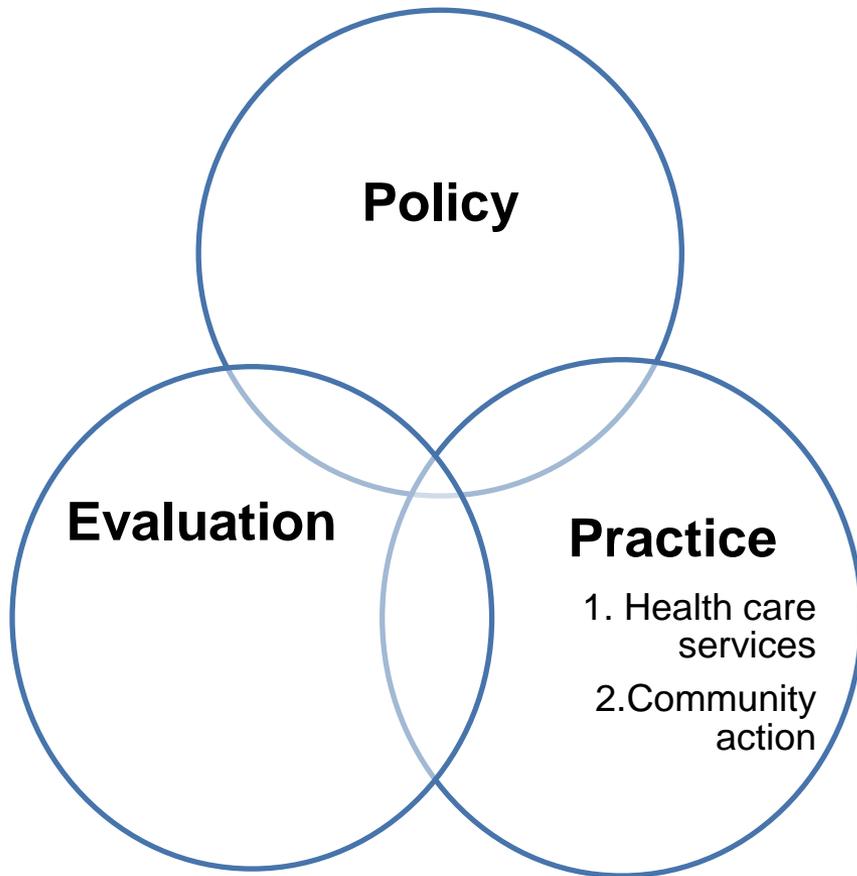
# Under-use of routinely collected data

- 21 community-action alcohol intervention studies, few use routinely collected data (*Hawkins et al, under review*)



# Can we do it better?

- Yes. There are different models for how to do this, but something like this:



# Can we do it more frequently? Sax Institute model:

More frequent and better quality  
research integrated into routine clinical  
practice and policies

## Supportive policy (& researcher) **cultures**

- Increase exchange
- Increase research skills in policy
- Increase incentives

## Identify **opportunities** for integrated research

- Models to scope research questions in different situations
- Business processes

## Build research **capacity**

- Build infrastructure
- Provide incentives
- Business processes

# How might it work in practice?

## PRACTICAL / CLINICAL INTERVENTIONS

## FUNDING

## RESEARCHERS

Projects  
1a, 2a, 3a

Projects  
1b, 2b, 3b

Projects  
1c, 2c, 3c

Evaluation funds  
& brokering?

Evaluation  
Team

- Tailoring
- Practice skills
- Implementation

- NHMRC partnerships
- ARC linkage
- NGOs

- Evaluation design
- Measures (qual/quant)
- Analysis skills
- Reviews of evidence

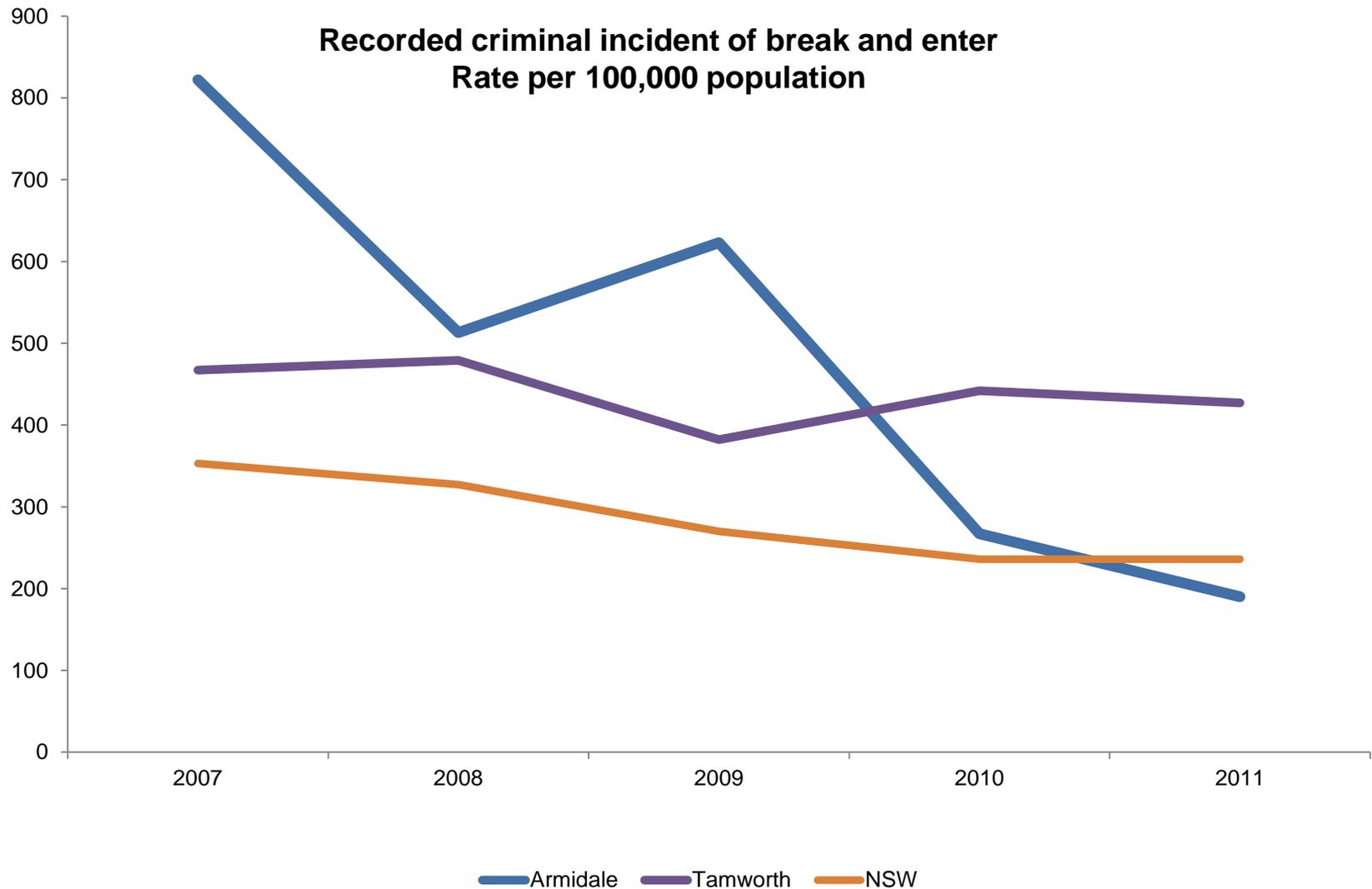
# Can we do it better? Local examples:

- Both clinicians and researchers must have meaningful input. Different models for this:
  1. Researcher idea that clinicians agree to evaluate:
    - Family-based intervention for alcohol - Lyndon, Yurrana Gunnya
    - Long lead-in time to 'fit' the intervention to clinical practice and 'fit' the measures into routine assessments
    - But can lead to sustained use of an intervention with at least some evidence for its effectiveness
  2. Clinician/community idea that researchers agree to evaluate:
    - BackTrack (Armidale, Tamworth)
    - Beat da Binge & Gindaja (Yarrabah, FNQ)
  3. Intervention developed together with clinicians and researchers
    - REACH trial with Orange OAMS and 7 other AMSs

# Therapeutic practice elements from evidence-based practice

	BackTrack activity	ACRA	FWB	Other therapies (eg MI)
<b>Engagement</b>	From the outset interaction with young people is open, honest and in a language they can understand. A trusting and stable environment is created (eg. BT shed or tea room)	Rapport building and motivation	Bring people together/establish that we start with ourselves, Create a safe space: respect, authenticity, empathy, listening and trust	MI - Orienting to the style of MI (basically being enthusiastic, honest and respectful - all things BS already does) MI - Person-centred guiding and active listening (OARS) DBT - Reciprocal communication style (self-disclosure to client, mirroring language)
	Timeline	Functional analysis of problem behaviours	The life journey process	
	Circlework	Functional analysis of desired behaviours		
	The helping Hand	Regular review (the happiness)		
	The intake survey	Identifying a support person		
	The good behaviour agreement (with self-developed contingencies for what happens if agreement is broken e.g. I will go outside to cool down for 10 mins)			
<b>Empowerment</b>	<b>BT</b>	<b>ACRA</b>	<b>FWB</b>	<b>Non EBP activities</b>
	Youth workers support young people and encourage them in new activities or ideas (e.g. supporting a youth worker with CV & interview skills)	Systematic encouragement	Explain that everyone has inner qualities that can grow only when basic needs are met	
	Given responsibility to do activities within BT day to day ops. E.g. show new kids around, show how to shear			
Providing opportunity for young people to progress to employment within BT as youth workers				
<b>Education &amp; skill development</b>	<b>BT</b>	<b>ACRA</b>	<b>FWB</b>	<b>Non EBP activities</b>
	Tafe or Cert I,II, III or IV	Activity scheduling and creating opportunities for achievement		
	Metal work and associated training in shed	Goal setting		
	Training on farm (cattle branding, marking, sheep shearing, fencing etc)	Review of goals		
	School 1-2 days per week on BT premises (The Paddock)	Develop a schedule for contingency management		
	<b>ACRA</b>	<b>FWB</b>	<b>Non EBP activities</b>	
Flying under the radar. Workers discuss with the group why they feel the way they do sometimes, and how they can identify certain behaviours/feelings to stop a bad situation	Activity scheduling: focus on activities that will divert attention away from problem behaviour: taking out of town on w/e's	Explain the grief process and effects of loss and crisis	DBT - Self-soothing and relaxation techniques, mindfulness, emotion regulation	

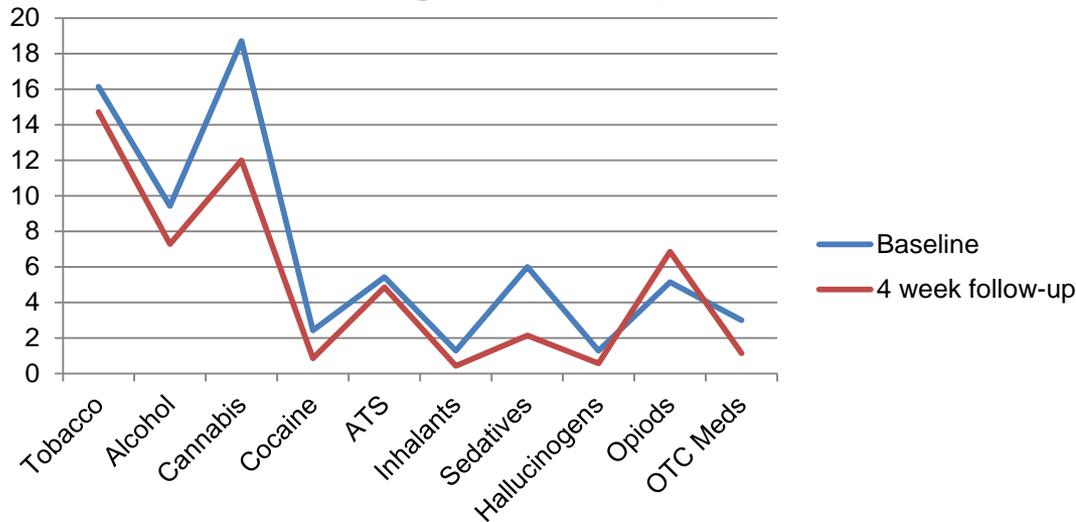
# Can we do it better? Local examples:



# Are the local examples working? Outcomes

- Family-based intervention for alcohol - Lyndon, Yurrana Gunnya

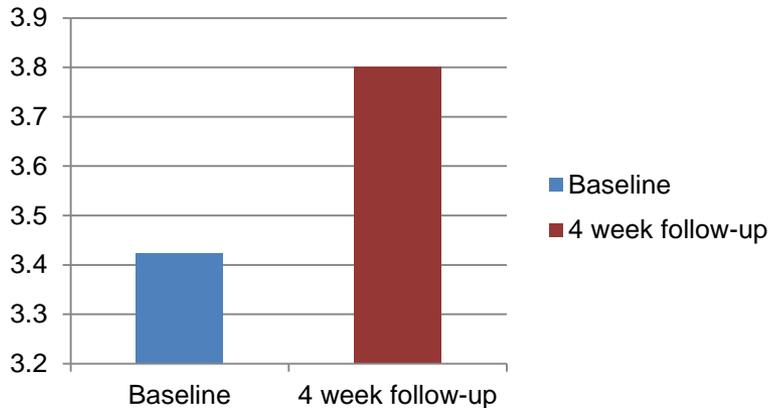
**Average ASSIST scores (n=7)**  
[higher score indicates more problematic drug/alcohol use]



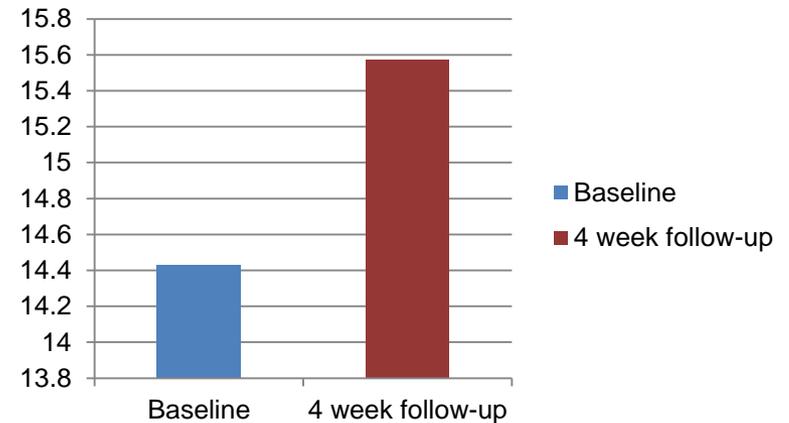
# Are the local examples working? Outcomes

- Family-based intervention for alcohol - Lyndon, Yurrana Gunnya

**Average GEM scores (n=7)**  
[higher score indicates better SEWB]



**Average K-5 scores (n=7)**  
[higher score indicates worse distress]



# Talks

## 1. OnTrack - Tracy Lawson

- Drawings are in some sense examples of heuristic / therapeutic elements that are fairly common across different treatments
- Partner with researchers to do formal evaluation / research
- Not changing those elements, just aligning them with the literature

## 2. Recovery - Wendy Cabot & Cherie Nay

- What's the logic of the evaluation
- What are measures / outcomes (REE, well-being, satisfaction, interviews)
- Ongoing: identify areas where program could be further tailored/refined
- Ongoing feedback and 'smart targeting'

## 3. MI - Rod MacQueen

- Same principles for organisational change and patients
- Not a silo approach
- Better involvement of community and clinics in evaluation/research

# Talks

## WORKSHOP

- Can we design an evaluation for a program
- Revisit an existing / previous evaluation of a program
- Define principles?
  - Research team needs to be a mix of skills
  - Work with what practitioners are already doing
  - Embedding / aligning / integrating, not something different or extra
  - Clinics / services working in partnerships.