iBASIS and PACT
Towards an evidenced, integrated early care pathway for autism

Jonathan Green

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and Manchester Academic Health Sciences Centre

‘Proven and sustained support from day one’

Principles of an Evidence-led Developmental Approach

- Autism is ***developmental and enduring***
  - *Support needs to reflect this*

‘Proven and sustained support from day one’

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- **Social valency and autonomy** are key to autistic flourishing in communities
  - Focus on the early social environment to promote development - and social outcomes

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- **Current clinical response**
  - Generally reactive, poorly evidenced, episodic and late in development…..

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- **Current clinical response**
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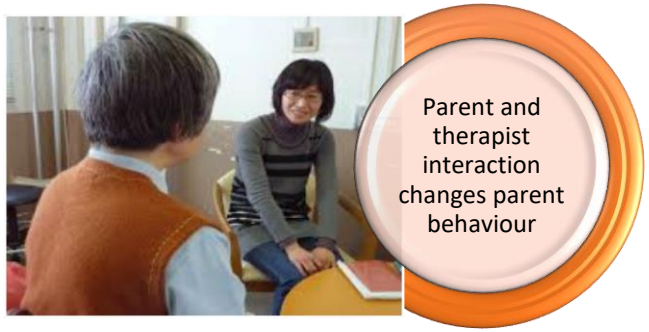
- **Need for efficient, evidenced, and developmentally pulsed interventions**

  demonstrating downstream developmental effects

Primary family support for resilience through parent-mediated intervention



Intervention delivered with parents to enhance social development in the neurologically-vulnerable child

iBASIS – from infancy pre-diagnosis

PACT – after diagnosis early years

Caregiver-infant transaction in early development

Caregiver dyadic response

The social environment around the child

Dyadic transaction

'Attunement'
'Goodness of fit'

Early infant development and social communication

Positive outcomes in social communication development, psychological development *(relatedness, trust, social motivation, mental health, well being)*

Caregiver-infant transaction in early development

Caregiver dyadic response

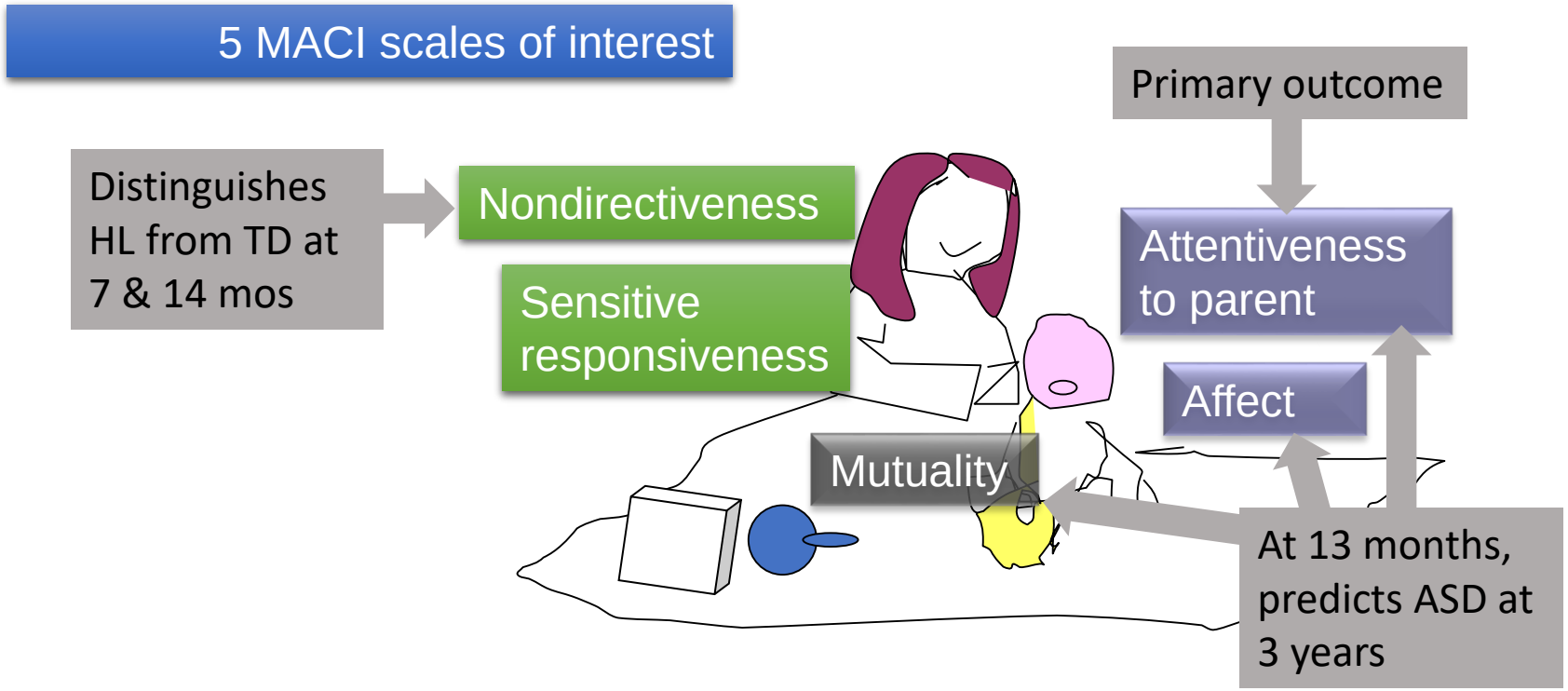
The social environment around the child

Dyadic transaction altered…..Wan et al 2013/19

Neurodivergent Development and early communication differences

Parent-infant interaction

- 6-min parent-infant free floor play videotaped in lab
- *Manchester Assessment of Caregiver-Infant Interaction* (MACI; Wan et al., 2012, 2013)
- Global rating (1-7) scales, blind-rated, independently validated on HL and LL samples



Caregiver-infant transaction in early development

Caregiver dyadic response

The social environment around the child

Dyadic transaction altered…..Wan et al 2013/19

Less ‘Attunement’
‘Goodness of fit’

Less positive outcomes in social communication development, psychological development *(relatedness, trust, social motivation, mental health, well being)*

Neurodivergent Development and early communication differences

What is specific about parent-mediated intervention?

- Natural environment of family
  - Context for social development
  - Transactional account of known developmental processes
  - Does not imply primary parenting problems
- Parental empowerment, confidence, family function
- Efficient of professional time
- Potential 24/7 therapeutic effect extending beyond treatment end

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- To do this the intervention aims to make focused, reproducible impacts on targeted parental interactions using video feedback
  - More than education or coaching
  - Known to be very effective for observation, reflection and adult learning

PACT/iBASIS logic model

Therapy increases parent synchronous response

Increased child communication initiations in dyad

Improved autistic behaviours with researcher in ADOS

Endpoint

3/6 yr follow up

Improved autistic behaviours with researcher in ADOS

Follow up

PACT/iBASIS logic model - evidence

Therapy increases parent synchronous response

Increased child communication initiations in dyad

Replicated in 7 RCTs to date

Improved autistic behaviours with researcher in ADOS

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3/6 yr follow up

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Follow up

Replicated in 4 RCTs (-ve in one with less dosage, one equivocal)

3 RCT with preserved ITT

Infancy intervention – 'iBASIS'

- Home based, manualised
- 12 sessions over 5 months (9-14 months)
- Daily practice plans for parents

Sequential themes

- 'Infant watching'
- 'Speaking for the baby' – *inferring intentionality*
- Generalising to mealtime and other activities
- Sharing feelings – *affect matching*
- 'Sharing talk' – *promoting communication*

Adapting to 'atypicality':

- Inflexible attentional style, face preference and visual face processing, affect matching and reciprocity, reactivity, atypical sensory behaviours, social babble/early communication

Green et al 2017 - iBASIS Intervention RCT N=54, 9-14 months

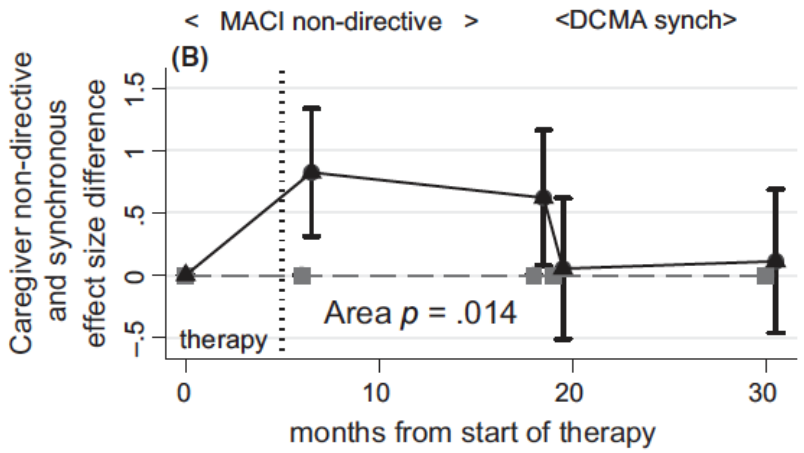
Infants from 9 months at familial autism likelihood within BASIS
iBASIS-VIPP vs TAU

THE JOURNAL OF CHILD PSYCHOLOGY AND PSYCHIATRY
ACAMH THE ASSOCIATION FOR CHILD AND ADOLESCENT MENTAL HEALTH
Journal of Child Psychology and Psychiatry **:* (2017), pp **–** doi:10.1111/jcpp.12728

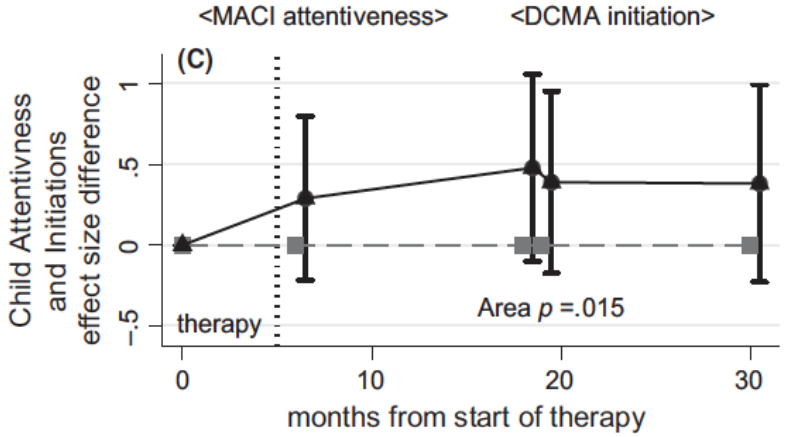
Randomised trial of a parent-mediated intervention for infants at high risk for autism: longitudinal outcomes to age 3 years

J. Green,[1,2] A. Pickles,[3,4] G. Pasco,[3,5] R. Bedford,[3] M.W. Wan,[6] M. Elsabbagh,[5,7] V. Slonims,[8] T. Gliga,[5] E.J.H. Jones,[5] C.H.M. Cheung,[5] T. Charman,[3] M.H. Johnson,[5] and The British Autism Study of Infant Siblings (BASIS) Team*

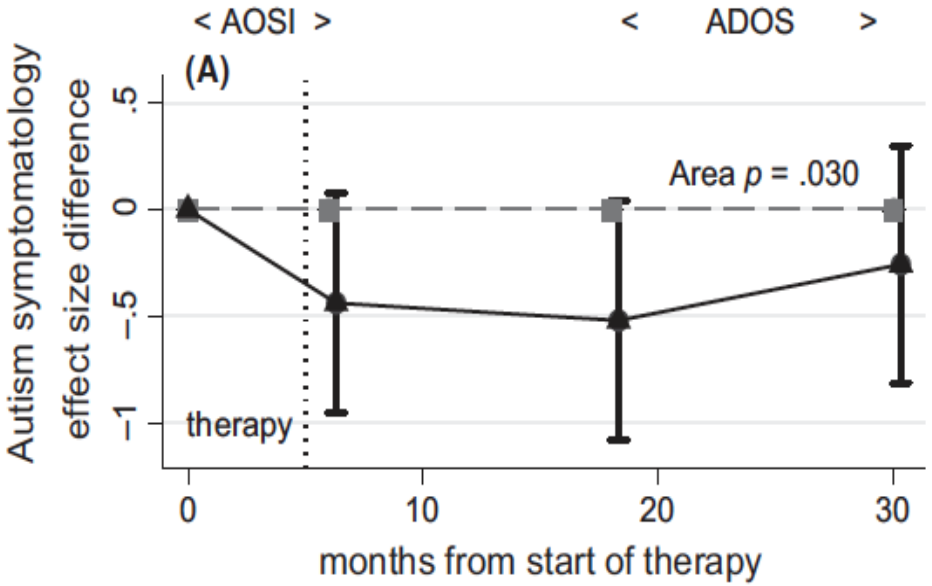
Parent dyadic response



Child dyadic response



Child AOSI/ADOS symptom change over time



No difference in clinical best estimate outcomes (small N)

Whitehouse et al Sept 2021 Australian replication of iBASIS with indicated sampling……

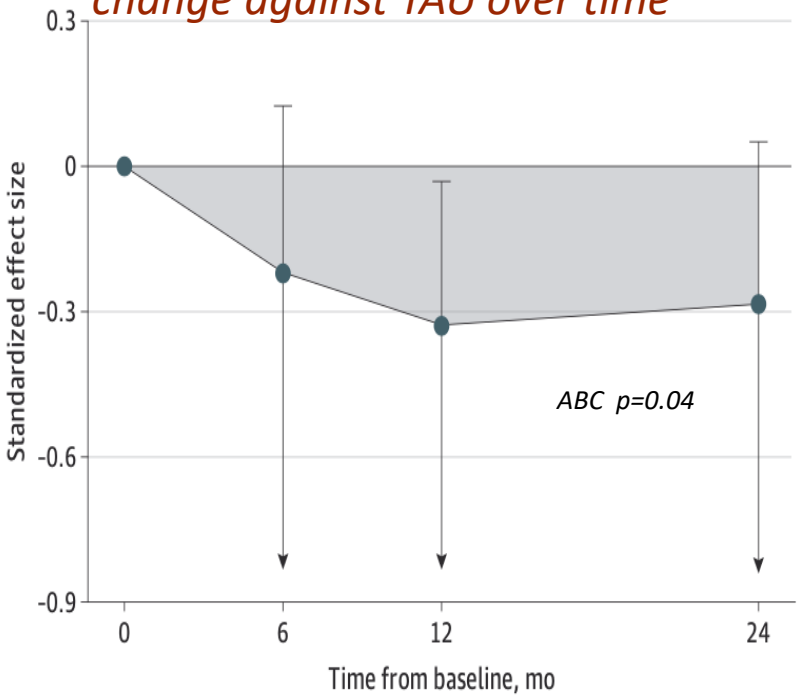
JAMA Pediatrics | Original Investigation

Effect of Preemptive Intervention on Developmental Outcomes Among Infants Showing Early Signs of Autism

A Randomized Clinical Trial of Outcomes to Diagnosis

N=103 babies from 12 months
identified with community concerns
and assessed on SACS
5 month intervention
3 year FU to diagnosis

Replication of AOSI/ADOS symptom change against TAU over time



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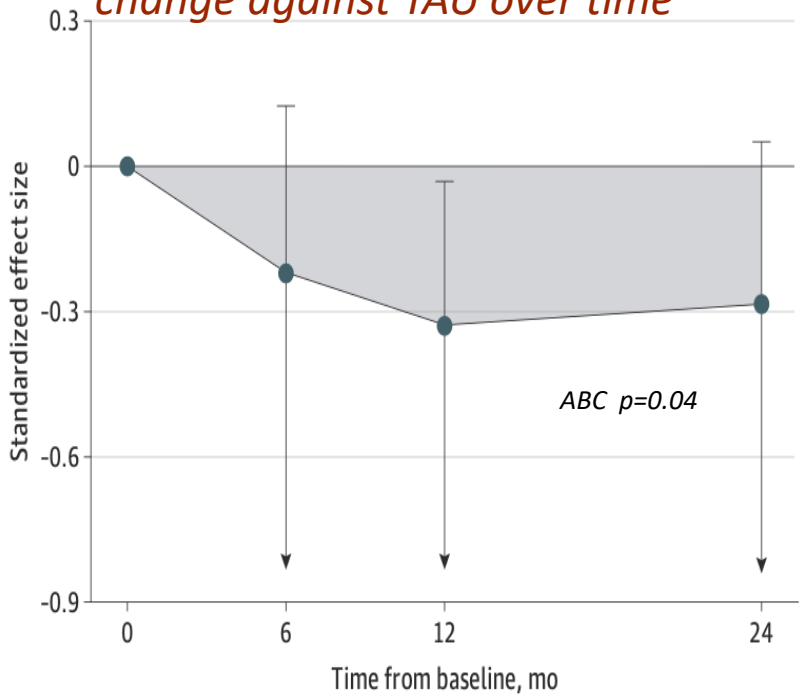


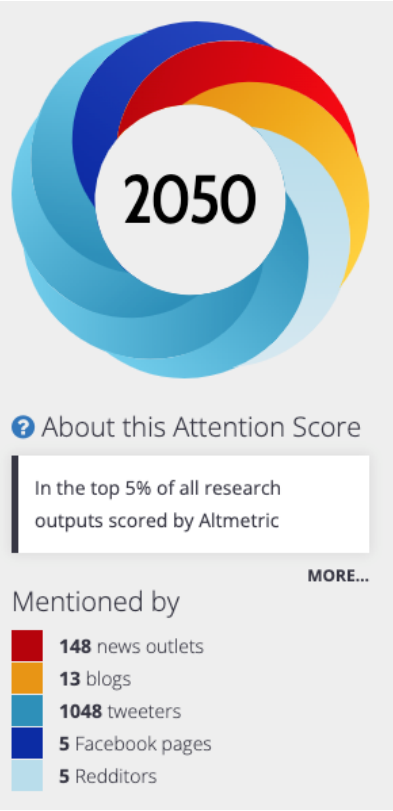
CBE Autism Diagnosis

- Independent blinded clinicians x2
- Access to all data, including ADOS, PCI, other measures
- Against individual DSM criteria
- Overall consensus classification

2/3 reduction in clinical Autism Diagnosis at 3yr (3/45 (6.7%) vs 9/44 (20.5%), OR 0.18 95%CI 0-0.68, p=0.02) **– NNT 7.2**

Communication and dialogue with the autistic community

- **Support for early neurodivergence not ‘eradication’**
- **The ADOS/Phenotype paradox**
- **The core nature of the neurodivergent phenotype**
- **Improvements in ADOS after intervention**



Parent and therapist interaction changes parent behaviour

Changed parental synchrony impacts child initiations in dyad

Changing initiations by child affects interaction with researcher in ADOS

Preschool Autism Communication Therapy (PACT)

- 6-12 month programme
- Developmentally staged from early communication pre-cursors
- Targeting parental awareness and accurate response to child communication signals
- **Video-feedback** to produce the intervention effect

Theoretical base

- *Atypical communication in autism*
  - Reduced shared attention and mutuality
  - Child communicative signals weak or infrequent
- *Imbalanced Parent-Child interaction*
  - Parent perplexity
  - Reduced 'meshing' - 'asynchrony'
  - 'Fill in the gaps' or withdraw
  - Increase adult initiations/non-reciprocal interactions
  - Reduced child opportunities for communication learning, relating
- *But positively* –
  - Attending to communication acts increases them
  - Expansion from child's base ('semantic contingency') increases communication
  - Children with autism need a high dose of this
- *Developmental hierarchy -* of pre-cursor skills for communication

The University of Manchester

Parent-mediated communication-focused treatment in children with autism (PACT): a randomised controlled trial

Jonathan Green, Tony Charman, Helen McConachie, Catherine Aldred, Vicky Slonims, Pat Howlin, Ann Le Couteur, Kathy Leadbitter, Kristelle Hudry, Sarah Byford, Barbara Barrett, Kathryn Temple, Wendy Macdonald, Andrew Pickles, and the PACT Consortium

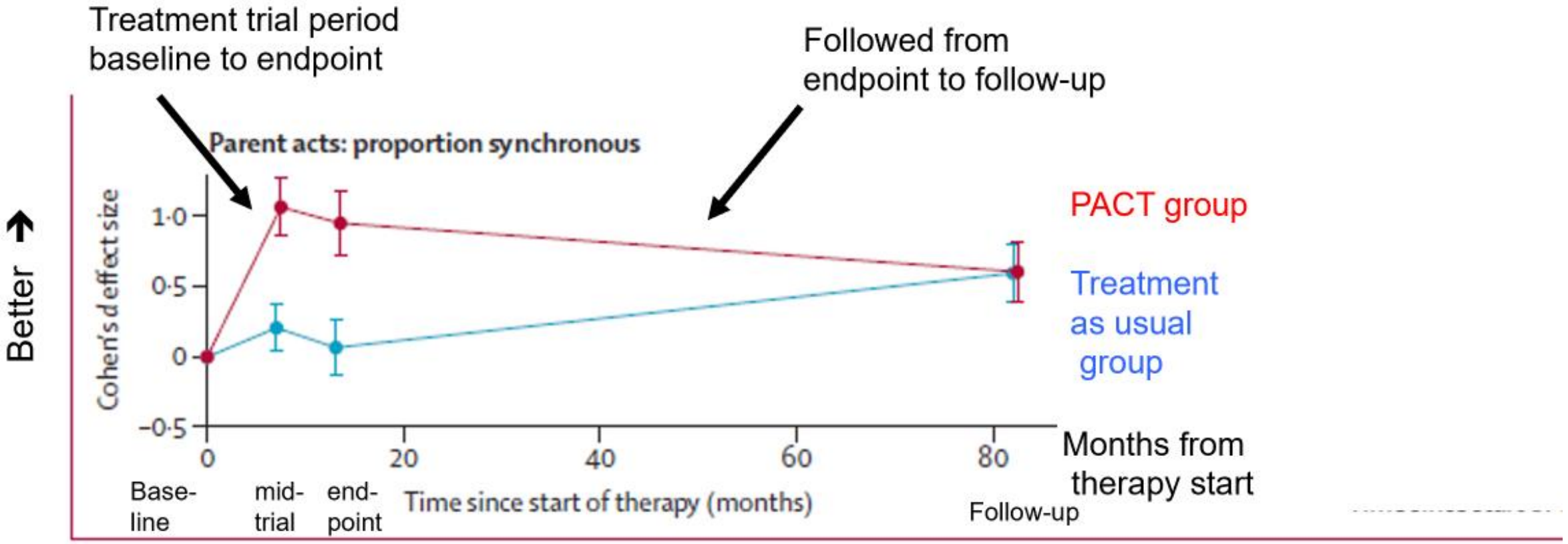
The Lancet (2010), 375, 9732; 2152-2160

Parent-mediated social communication therapy for young children with autism (PACT): long-term follow-up of a randomised controlled trial

Andrew Pickles, Ann Le Couteur, Kathy Leadbitter, Erica Salomone, Rachel Cole-Fletcher, Hannah Tobin, Isabel Gammer, Jessica Lowry, George Vamvakas, Sarah Byford, Catherine Aldred, Vicky Slonims, Helen McConachie, Patricia Howlin, Jeremy R Parr, Tony Charman, Jonathan Green

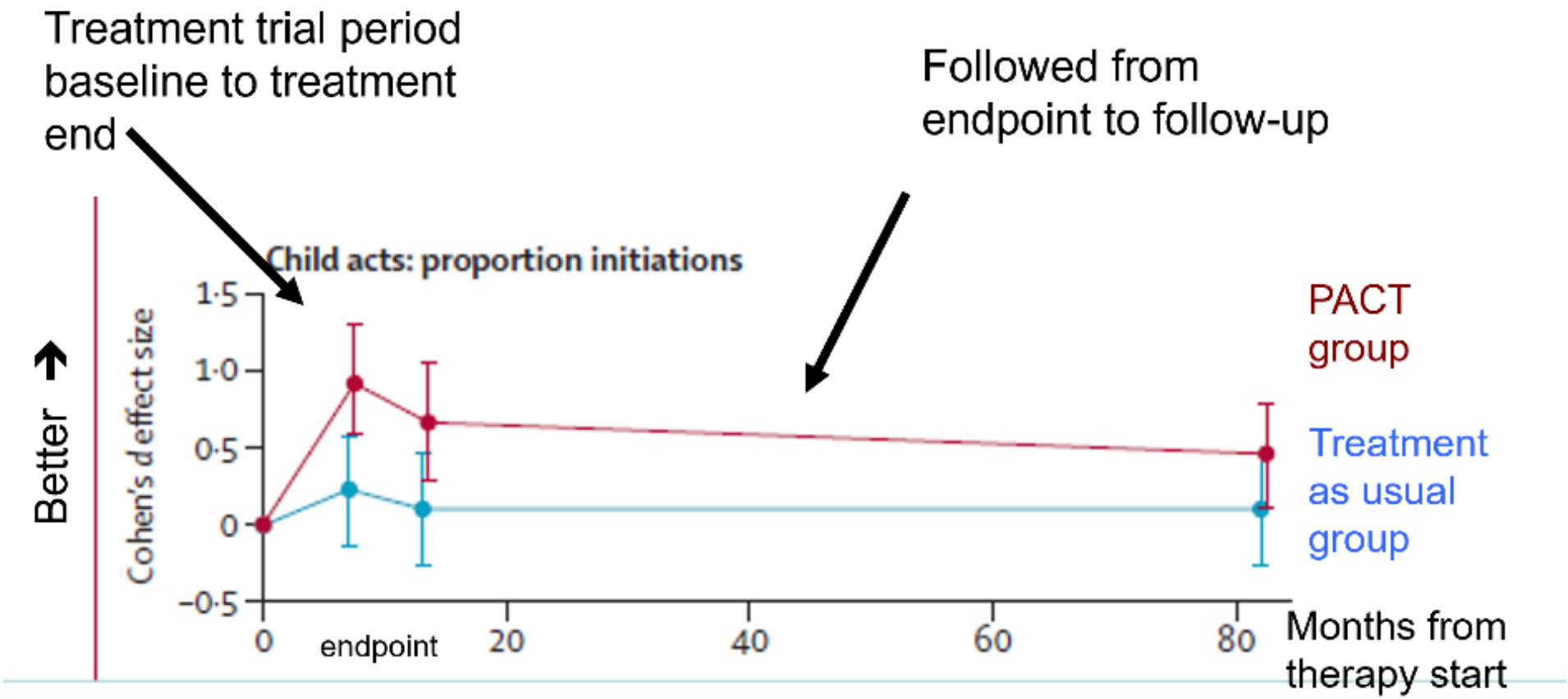
The Lancet (2016); 388: 2501-2509

Effect of Therapy on Targeted Parent Behaviour

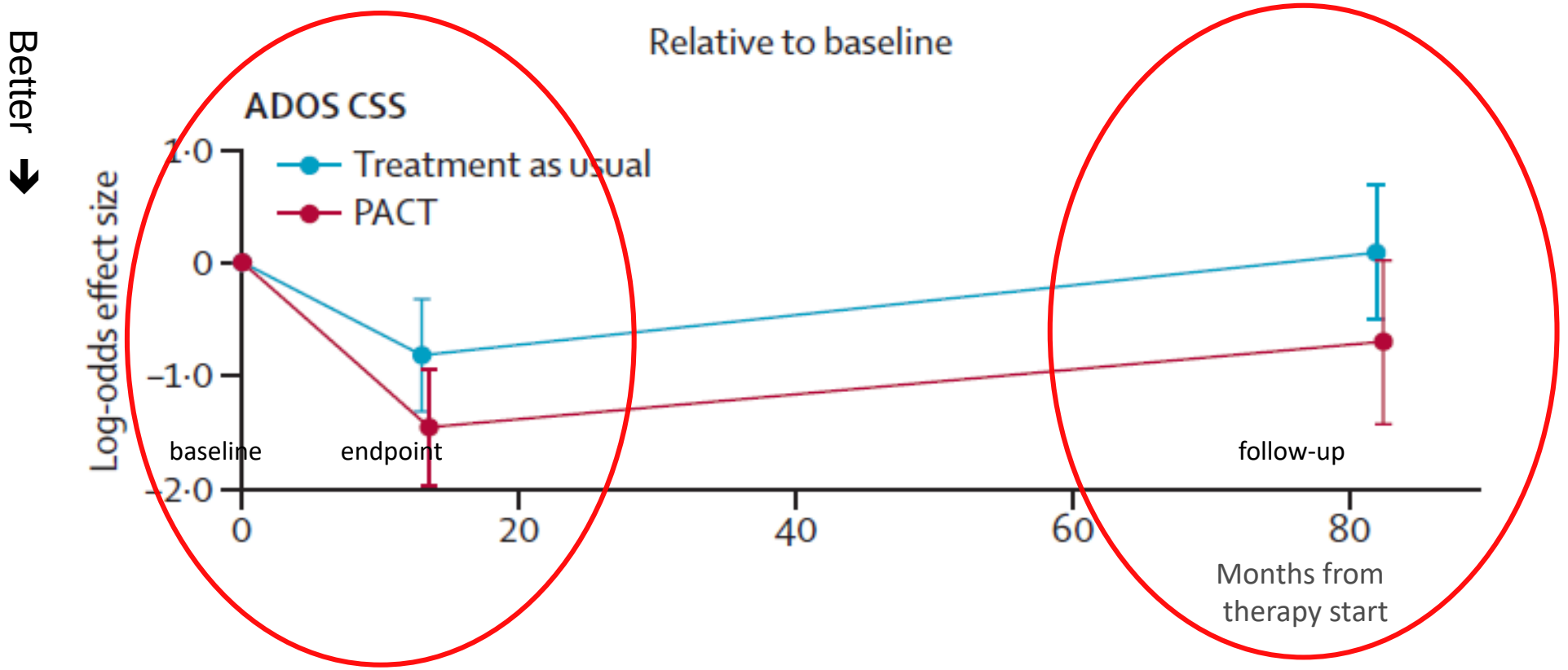


Effect of Therapy on Targeted Child Behaviour with Parent

Increase in social communication with parent persisted

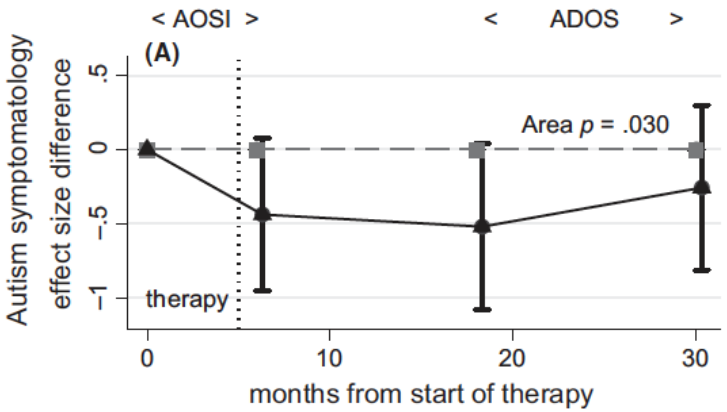


The Time Path of Autism Symptom Severity



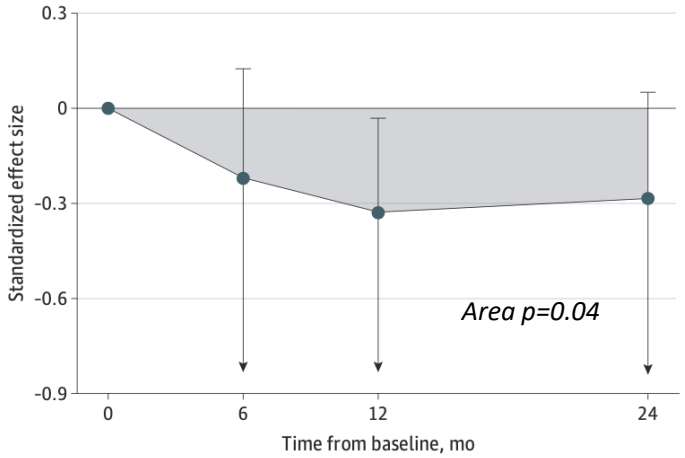
Parent *and teacher* outcome ratings support the blinded findings

Comparative effects on long-term outcome symptom severity across development and samples



Green et al (JCPP 2017). iBASIS N=54 – selective sampling from 9 months, FU to 3 years

(ABC Effect size 0.32, 95% CI 0.04, 0.60)

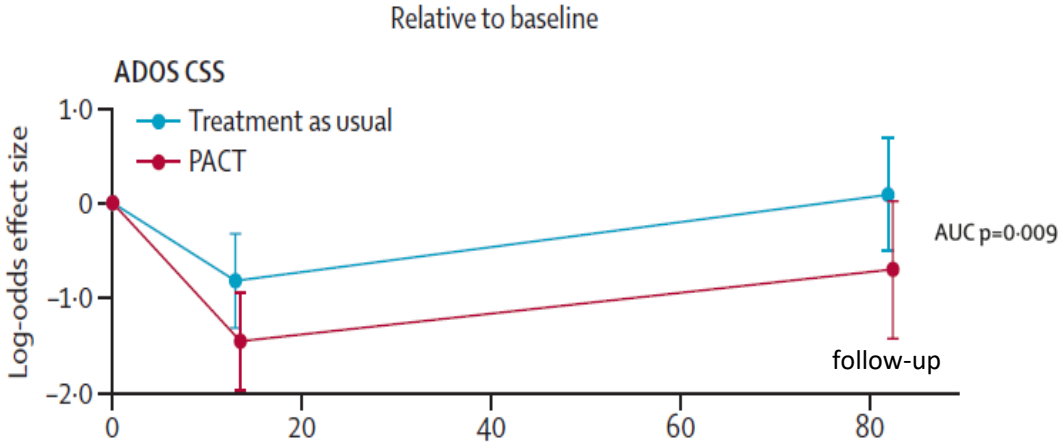


Whitehouse et al (JAMA-P 2021). iBASIS N=103 – indicated sampling from 12 months, FU to 3 years

(ABC Effect size 5.53, 95% CI, −, 0.28)

Pickles et al (Lancet 2016). PACT N=152 – post diagnosis pre-school, FU to 10.5 yrs

(ABC Effect size 0.55, 95%CI 0.14, 0.91)



Mechanism of the PACT results
Pickles et al 2016/Carruthers et al

Therapy increases parent synchronous response

Strong mediation

Increased child communication initiations in dyad

Very strong mediation

Improved autistic behaviours with researcher in ADOS

Endpoint

Mediation (unpublished)

3/6 yr follow up

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Follow up

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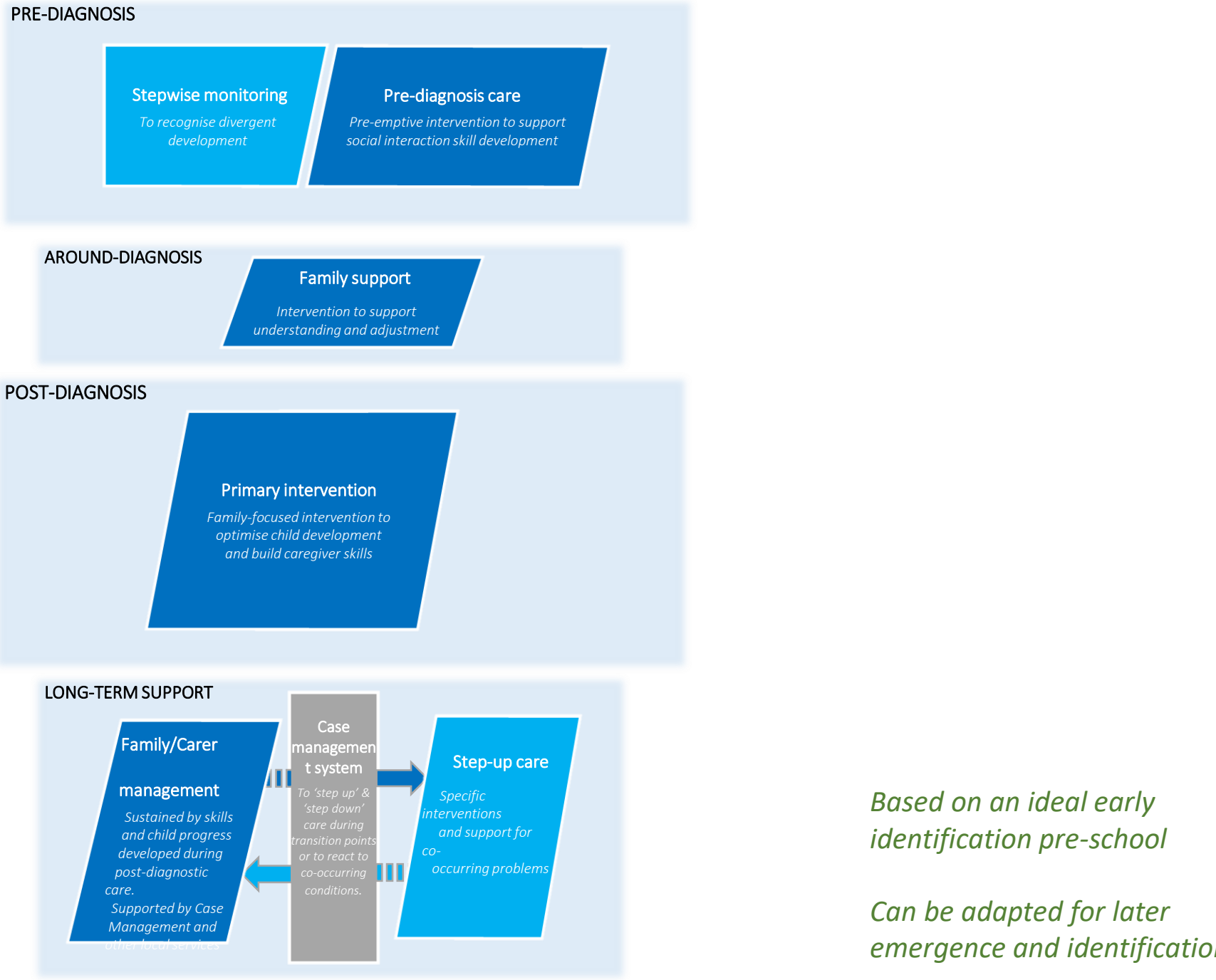
Health system innovation - Integrated care pathway

An integrated early care pathway

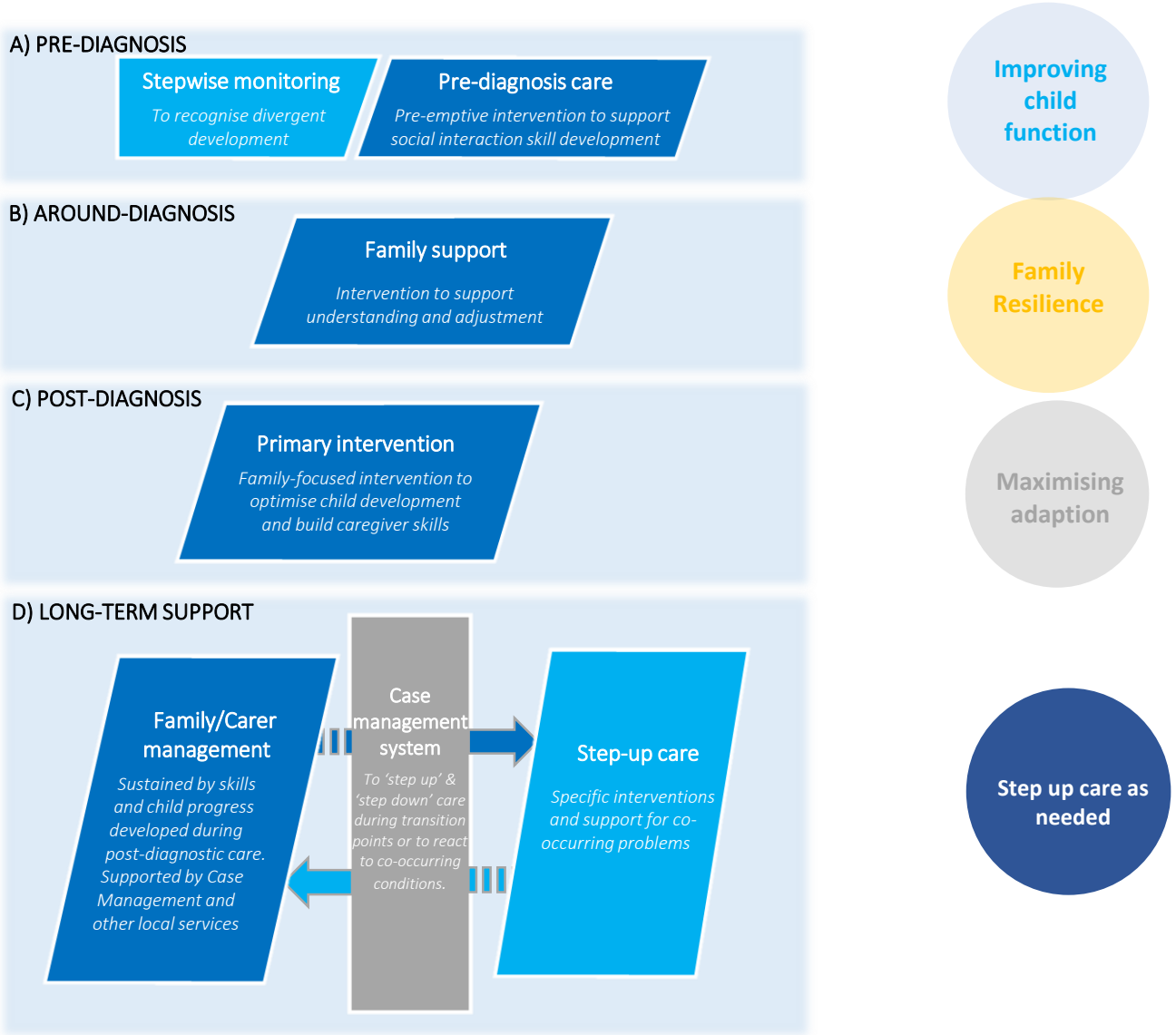
Green et al. Lancet Child and Adolescent Health, March 2022



Based on an ideal early identification pre-school

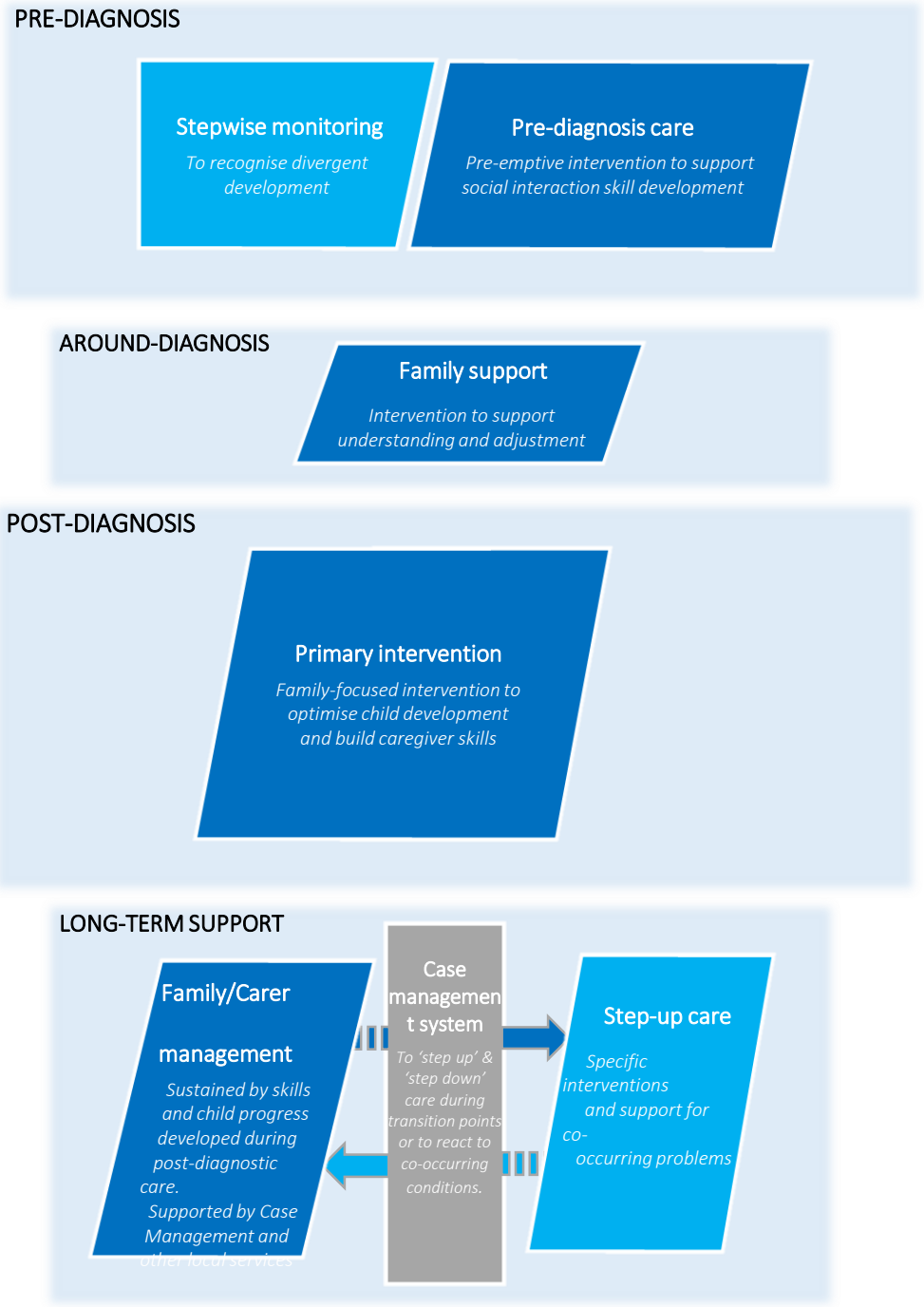
Can be adapted for later emergence and identification

A developmentally-phased pathway young autistic children



An integrated early care pathway

Green et al. Lancet Child and Adolescent Health, March 2022



SACS-R

iBASIS therapy

***PACT** (JASPER)*

Pilot implementation in UK 2022

Based on an ideal early identification pre-school

Can be adapted for later emergence and identification

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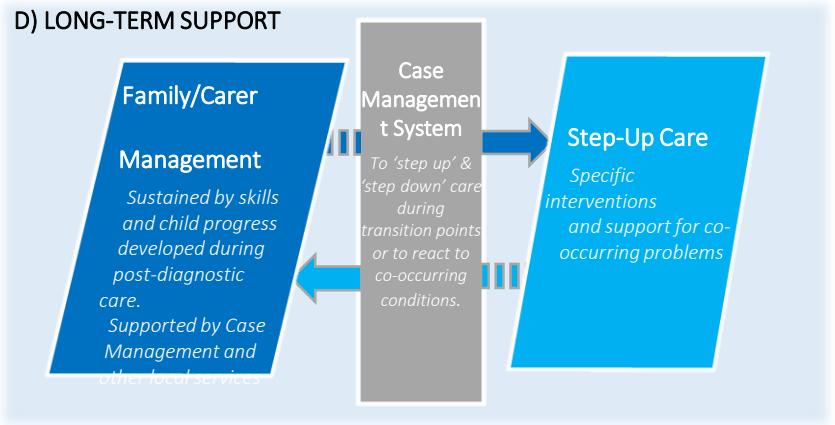
Longer term support

Key working and continuity in the context of family resilience

Co-occurring conditions arise consequent on autistic vulnerability

Step-up, step-down ***specialist care***

- Formulation of difficulties
- *Environmental modification*
  - Social and educational policy
- *Specific treatments for co-occurring conditions*
  - eg Anxiety, Depression, ADHD, OCD, behavioural challenges
  - We need more research on specificity of these for autistic children and YP
- Delivery by autism-specialist teams



Health system provision to make such a model possible

Integrated detection and response

Online registration, family inclusion, symptom monitoring, case management

Specialist step-up services within integrated autism teams in an area

Pathway Implementation in routine care

NHSE innovation funding - S Manchester and Cambridgeshire/Peterborough

Detection

- Cross agency; health visitors/nursery nurses/paediatric nurses – SACS-R
- Triage to:

Intervention

- iBASIS/PACT for autism or HL autism
- Speech and Language Therapy, Portage for other neurodisability conditions

Evaluation

- Real-time clinical casenote based

Policy development *(CAPE funding with NHSE)*

- Evaluation evidence
- Stakeholder group co-construction
- Evidence policy document

Intervention in the British Autism Study of Infant Siblings (iBASIS)

The University of Manchester

Jonathan Green, Ming Wai Wan, Samina Holsgrove, Janet McNally, Clare Harrop, Carol Taylor, Hannah Venton-Platz, Ami Brooks

Birkbeck UNIVERSITY OF LONDON

Mark Johnson, Mayada Elsabbagh, Emily Jones, Teea Gliga, Helen Maris, Helen Ribeiro, Kim Davies, Jeanne Guiraud, Janice Fernandes, Leslie Tucker

Guy's and St Thomas' NHS
NHS Foundation Trust

Vicky Slonims, Rhonda Booth

KING'S College LONDON

Andrew Pickles, Tony Charman, Greg Pasco, Rachael Bedford

Funding:

autiɂtica
Science in the Service of Autism

AUTISM SPEAKS
It's time to listen.

thewaterloofoundation

Background funding…

MRC Medical Research Council

E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

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Lydia White

MANCHESTER 1824
The University of Manchester

Guy's and St Thomas' NHS
NHS Foundation Trust

KING'S College LONDON

Newcastle University

DH Department of Health

MRC Medical Research Council

department for children, schools and families

Thank you!

More information (papers, videos, blogs, interviews, media):
Search **‘iBASIS’ or ‘PACT 7-11’ Manchester**

Training in PACT: **info@pacttraining.co.uk**

Training in iBASIS - from this autumn
jonathan.green@manchester.ac.uk

autistica

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MRC Medical Research Council

NHS National Institute for Health Research

Central Manchester University Hospitals NHS
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