Slide 1

Let's Learn Language
Language for Learning

Melissa Wake
Centre for Community Child Health &
Murdoch Childrens Research Institute

Slide 2

Critical period in communication development

| 0 | 1 | 2 | 3 | 4 | 5 | 6 years |

Diagnosis of speech / language disorders

Intervention resources

re-target resources - universal promotion, prevention & early intervention

Shore 1997

Slide 3

Critical period in communication development

| 0 | 1 | 2 | 3 | 4 | 5 | 6 years |

Diagnosis of speech / language disorders

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re-target resources - universal promotion, prevention & early intervention

Shore 1997

Slide 4

Prevalence

25%	**15-20%**	**5-8%**	**15%**
Parent Concern	Late Talkers	Language Delay	Reading Problems
12mth	**2 yrs**	**4yrs**	**7yrs**

Slide 5

Mrazek & Haggerty: prevention/treatment spectrum

Slide 6

Research Team
- Melissa Wake *Paediatrician*
- Sheena Reilly *Speech Pathologist*
- Sharon Goldfeld *Paediatrician*
- Luigi Girolametto *Speech Pathologist*
- Obioha Ukoumunne *Statistician*
- Lisa Gold *Health Economist*
- Sherryn Tobin *Project Manager*
- Penny Levickis *Postgraduate Scholar*
- Dr Jemma Skeat *Postdoc Researcher*

Thank you to:
- M&CH nurses
- NHMRC Strategic Award
- Our wonderful research assistants

Let's Learn Language

US Preventive Services Task Force 2006

- Systematic RV of screening for speech and language delay in preschool children
- Recommendations:
  - Larger trials (n>50 in each arm)
  - Longer term follow up (>12 months)
  - Studies in children <2 years
  - '…the balance of benefits and harms of brief, formal screening instruments…for…language delay in the primary care setting'

Aims

- Does primary-care based, universally-accessible prevention improve
  - language
  - behavior

  in slow-to-talk toddlers at 2 & 3 years?

- Randomised trial nested within a population language survey

Population survey

Routine 12 month nurse visit (n=1451) May-Sept 07
  - 3 local councils (low, mid, high ses)
  - nurses targeted and sequentially recruited all children

- Exclusion criteria
  - cognitive delay
  - major medical conditions, autism
  - parent English too low for brief written questionnaires

- At 18 months (n=1138, 94%)
  - 100-word spoken vocabulary list (MCDI, adapted for UK Sure Start)
  - Child Behavior Checklist/1.5-5 (externalising, internalising)

Randomised trial

- 301 (26% of 1138):
  - expressive vocab ≤20th centile
- Cluster-randomised
  - intervention (n=158)
  - controls (n=143)
- Intervention
  - 'You Make the Difference®' The Hanen Centre, Toronto
- Social-interactionist theory of language acquisition
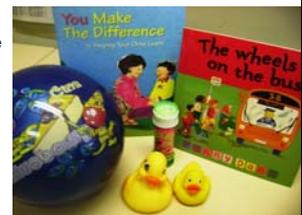
Language promotion

- Weekly parent groups
  - 6 weeks, 2 hour sessions
- Responsive interaction strategies
  - child-centered
  - interaction-promoting
  - language-modeling
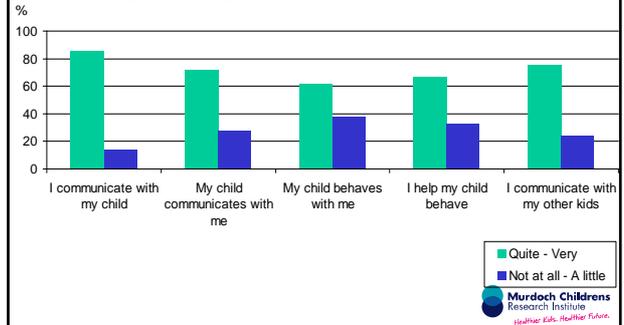- Support parents to foster child's language, social and literacy skills

Bubbles…

Results

- Retention high
  - 92.4% intervention
  - 96.5% control
- 115 (72.8%) intervention families attended
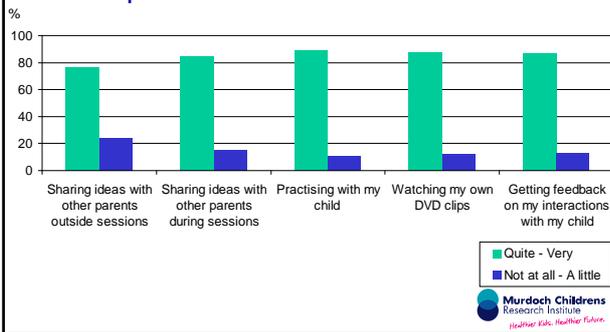- On average, attended 4.5 of the 6 sessions

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Results: intervention parents

"The program changed how…"

Legend:
- Quite - Very
- Not at all - A little

Categories: I communicate with my child; My child communicates with me; My child behaves with me; I help my child behave; I communicate with my other kids

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Results: intervention parents

What did parents find useful?

Legend:
- Quite - Very
- Not at all - A little

Categories: Sharing ideas with other parents outside sessions; Sharing ideas with other parents during sessions; Practising with my child; Watching my own DVD clips; Getting feedback on my interactions with my child

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Program Feedback

Parent feedback has been extremely positive

"Why is this not recommended by health centres? A fabulous initiative to help eliminate illiteracy, as this is the start of language development. Was a good experience for both myself and my child and gave me an insight into child parent communication in a way I had never experienced before"

"Learning about the 3A way, taking more time to watch and listen to my daughter. Talking to other mums in the group. Not to be so busy. Imitate/ Interpret. Focussing my attention on language and how to interact/play with my child to encourage her language. Watching the video and understanding the impact of the 3A way can have on your child."

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Language & behaviour at 2 years

Outcome	Mean (SD)		Mean difference (I - C)	p
	Intervention	Control		
Language				
PLS Expressive	90 (13)	90 (11)	1.0	0.5
PLS Receptive	89 (15)	89 (14)	1.1	0.6
MCDI Vocabulary	35 (22)	34 (23)	2.6	0.3
Behavior				
Externalising	12 (8)	12 (7)	1.1	0.3
Internalising	6 (5)	5 (4)	0.8	0.2

Adjusted for demographic characteristics
MCH centre = cluster

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Language & behaviour at 3 years

Outcome	Mean (SD)		Mean difference (I - C)	p
	Intervention	Control		
Language				
PLS Expressive	98 (16)	101 (14)	-2.4	0.2
PLS Receptive	96 (18)	97 (15)	-0.3	0.9
MCDI Vocabulary	54 (28)	41 (25)	4.1	0.2
EVT	101 (16)	101 (12)	-0.5	0.8
Behavior				
Externalising	11 (8)	11 (7)	-0.1	0.9
Internalising	6 (6)	6 (5)	-0.1	0.9

Adjusted for demographic characteristics
MCH centre = cluster

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Strengths & limitations

- Strengths
  - addressed US Preventive Services Taskforce evidence gap
  - high uptake across whole ses spectrum
    - screening, program attendance, retention
  - parents extremely positive
  - high 'face validity'
  - no evidence of control contamination

- Limitations
  - low spoken vocab at age 18 months did not predict low language at age 3 years
  - other possible limitations (eg duration, content) seem irrelevant

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Interpretation

- Universally-available, brief, targeted language promotion programs for slow-to-talk toddlers
  - **ineffective** at this age, if screen is for spoken vocabulary
  - **?effective** at this age, with different screen – but what?
  - **?effective** at older ages – convincing work awaits
- Urgent need for intensive, large-scale early childhood longitudinal studies to pinpoint accurate markers of trajectories to low language
- What, if any, is the role of 'universalized' language interventions?
- Population-based targeted interventions should not be implemented until shown to be effective in rigorous trials

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Understanding maternal behaviours that promote early language acquisition

- Responsive language input:
  - may benefit language acquisition
  - strongly predicts language in small, non-representative samples
  - ?relevance at population level for slow-to-talk children
- Let's Learn Language sub-study:
  - how much and which maternal responsive language behaviours predict receptive and expressive language at ages 2 & 3 years?
  - 225 mother-toddler dyads: 15 minute free-play sessions
  - Observer XT coding system

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Responsive Language Input: parenting behaviours that are contingent upon the child's prior behaviour or prompt responses to child-initiated topics; language input matches the child's topic of interest

Responsive Language Behaviours:

1. Imitations	C: "Ball"	P: "Ball"
2. Interpretations	C: "Bi fir ti"	P: "She's a bit thirsty"
3. Labelling	C: Playing with a toy horse	P: "That's a horse"
4. Expansions	C: "Ball"	P: "It's a red ball"
5. Supportive Directives	C: Playing with doll	P: "Feed the doll"
6. Questions	C: Child is holding a horse	P: "What's that?"

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Next steps

- Follow children to 4 and beyond
- Value of global rating
- Explore causal pathways

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Prevalence

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Acknowledgements

- Chief Investigators:
  Melissa Wake, Sheena Reilly, James Law, Lisa Gold, Obioha Ukoumunne, Sharon Goldfeld, Naomi Zens, Jemma Skeat
- Project Manager: Sherryn Tobin
- Research Assistants and other staff involved:
  Penny Levickis, Jane Sheehan, Hannah Bryson, Lisa Quinn, Elizabeth Varelias, Laura Punaro, Peta Newell, Leah Zelenich, Liz Varelias, Rebecca Nadalin, Jon Quach, Libby Smith, Erica Gardiner, Catherine Bolzonello, Ruth Nicholls, and many lovely and helpful interns
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Rationale for L4L

- For population language outcomes to improve, treatment needs to be: consistent, effective, sufficient and systematically delivered
- Program needs to be: standardised, replicable, guided by protocols and be able to be delivered by a range of professions that characterize early childhood services
- Programs needs to be flexible enough for children with diverse cognitive and language profiles

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Hypotheses

1. At 5 and 6 years, better outcomes on:
   - Expressive/receptive language
     - Including narrative, phonological skills, vocabulary
   - Other secondary outcomes:
     - Social skills and relationships
     - Emotional and behavioural well-being
     - Early literacy
     - Health-related quality of life
     - School readiness (measured by the AEDI)
2. The intervention will be acceptable & cost-effective

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Participants

- 4 year-old children
  - Let's Learn Language (n = 1090)
  - Let's Read (n = 584)
- Assessed individually at 4 years:
  - CELF-P2
  - Kaufmann Brief Intelligence Test – Matrices
  - Sutherland Phonological Awareness Test
  - Parent questionnaires (ASQ, CCC-2, HUI)

- Eligible for trial: CELF-P2 > -1.25 SD (< 82)

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Intervention

- 3 Blocks of Intervention
  - 6 sessions each block
  - One session per week
  - Each session 60 min of individual therapy
  - Parents & children participate in each session
- 6 week break after each block
- Total = 30 weeks between ages 4 and 5 years

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Intervention Contents:

The key components:
1. Expressive and receptive language skills in:
   - Morpho-syntax
   - Semantics
   - Print referencing
   - Narratives
   - Phonological awareness
   - Letter knowledge skills
2. Parent training
3. 5 tasks per session:
   - Four 'fixed' - literacy and narrative skills
   - One 'variable' - language area specific to child

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Intervention components

Fixed:
- Phonological awareness
- Alphabet Action
- Homework
- Narratives
- Print referencing
- Letter knowledge

Variable
- Oral language skills
- Morpho-Syntax
  - Verb forms, sentence structure
  - Prepositions
  - Pronouns
- Semantics
  - Vocabulary expansion
  - Categorisations

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Sessions Overview

Session 1:
1. Rapport & questions
2. Assessment & Screening
3. Parent training:
   - Shared book reading (Target: Print Referencing)
   - Language Stimulation

Sessions 2 - 6:
1. Alphabet Action (5 min)
2. Letter Knowledge (LK) and Phonological Awareness (PA) Training (15 min)
3. Language Specific Target (20 min)
4. Shared book reading w/ therapy assistant (15 min)
5. Handover to parent / homework (5 min)

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Individual adaptation

- Each child has own booklet
  - Determine language specific targets
  - Updated following each session
  - Keeps track of child's performance
  - Prepare next session and targets
- Language specific targets ('variable' part)
  - Based on CELF-P2 & observations
  - Targets vary for each block
  - Levels are adaptable to child's skills

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Homework

1. Shared book reading with specific targets:
   - Print referencing (Block 1)
   - Story grammar (Block 2)
   - Letter knowledge (Block 3)
2. Language specific target with language stimulation

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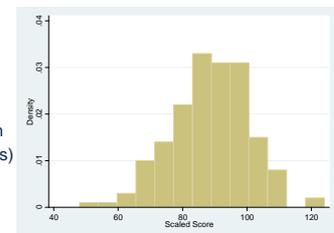Research Institute
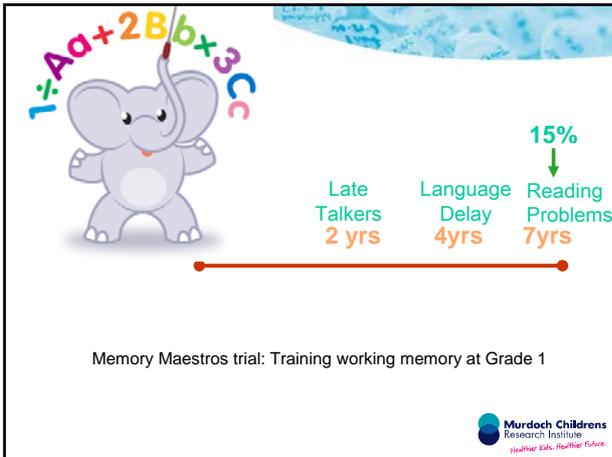Healthier Kids. Healthier Future.

Training for RAs

- 2 day workshop on child language development and disorders, assessment battery
- 1 day workshop on intervention program
- 2 hrs of individual training
- ½ day workshop on clinical skills
- Training DVDs for each session
- Senior SP observes some sessions
- Observation of session by senior SP on request
- Individual appointment times to discuss cases

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Progress

- 200 children – 90% retention at 5 years
- High uptake
  - All received intervention
  - (mean 17 of 19 sessions)
- Parents very positive

CELF-P2 at 5: Core

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Late Talkers
2 yrs

Language Delay
4yrs

15%
Reading Problems
7yrs

Memory Maestros trial: Training working memory at Grade 1

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Summary

Key messages
- Language delay is far more fluid than previously thought
- Parents embrace prevention and intervention
- Population-based interventions are very feasible

Implications
- "However beautiful the strategy, you should occasionally look at the results" (Churchill)
- Invest in practical research or you will waste your money!
  - Who is heading for trouble vs who will do fine?
  - What interventions really make a difference?
- Many options available – know the evidence and be creative!

Next steps
- Continually synthesise existing and new evidence
- Work closely with policy – commission & decommission

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Questions?

Thank you!

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