

Centre of Research Excellence in Child Language

Health care use and costs associated with language impairment

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Overview

- Background & aims
- Health service use & predictors
- Does receiving feedback about child communication influence help seeking?
- Health care costs associated with language difficulties
- Conclusions

Background

- Parents play a major role in monitoring their child's development of communication skills
 - Help/advice may be sought from a number of sources, including maternal & child health nurses, speech pathologists (SPs), general practitioners, paediatricians etc
 - Identification of concerns & proactive help seeking by parents is important to ensure problems are identified & treated
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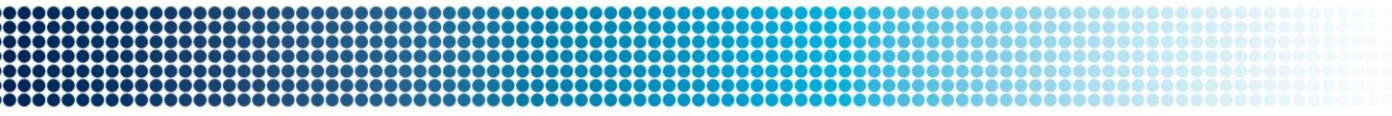
Background

Unknowns:

- How many children receive help for communication difficulties & what services are accessed?
- Which children receive help for communication difficulties?
- What are the health care costs associated with language difficulties?

Aims

- **Using three key MCRI studies, we aim to examine:**
 - Proportion of families who report receiving help/advice, & the sources of help/advice accessed from 1-5 years
 - Predictors of service use e.g. child, family & environmental variables, parental concern & children's communication abilities
 - The health care costs associated with language difficulties



Health service use & predictors

Methods

Early Language in Victoria Study (ELVS)

- Longitudinal, community-based study of children's language development established in 2002
- 1911 families were recruited at 8 month MCHN well-child visits (attended by >80% of families), across 6 local government areas
- Data collection at baseline (8 months) & then at 1, 2, 3, 4, 5 years

Outcome measure

‘In the last 12 months have you sought help or advice for your child’s speech or language?’

‘From whom did you seek help or advice (Speech Pathologist, Family Doctor, MCHN, Other)?’

Key findings – Skeat et al. 2010

Health service use from 8 months to 4 years

- Less than 1% received help in the previous 12 months by the time children were 1 year old - this increased to 16% at 4 years
 - 20% had received help at least once from 1-4 years. Of these:
 - 34% sought help for the first time between 3-4 years
 - Most common sources - speech pathologist (11.5%), followed by MCHN (7.7%) & other sources (7.0%)
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Key findings – Skeat et al. 2010

Predictors of health service use:

- Child age - increased with age
 - Parent concern - 3 to 7 times greater odds
 - Gender - girls had 30-56% reduced odds
 - Communication difficulty at previous birthday – 2 times greater odds
 - Articulation more likely than language
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Key findings – Skeat et al. 2010

Factors that were not consistently related:

- Twin birth
 - Birth order
 - Family history of language problems
 - Non-English speaking
 - Parent education
 - Maternal vocabulary
 - Parent mental health
 - Socio-economic status
 - Behavioural concerns
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Does receiving feedback about child communication influence help seeking?

Feedback

Parents of children at age 4 were given feedback:

- a) Within normal limits
- b) Little below expectations (standard score of 71-81 on CELF-P2 receptive and/or receptive scales)
- c) Below expectations (standard score ≤ 70 on CELF-P2)
- d) Warranted further assessment (standard score ≤ 85 on Goldman Fristoe Test of Articulation-2) and/or RA concern about speech

Recommended families seek help for children in (b), (c) or (d)

Service use

- At age 5, parents reported on help accessed during previous 12 months for speech, language & fluency
 - Sources: speech pathologist, paediatrician, GP, psychologist, ENT, hearing specialist, early intervention services, or other
 - **Specifically examined:**
 - Help from any professional source
 - Treatment by speech pathologists only
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Number of children with an impairment that received services

Communication impairment at 4 years	Any professional % (n/N)	Speech pathology % (n/N)
Expressive language	45 (38/84)	34 (30/88)
Receptive language	48 (49/102)	34 (36/107)
Speech	57 (39/68)	43 (31/73)
Stuttering	32 (9/28)	32 (9/28)
Any of the above impairments	45 (88/196)	34 (69/206)

Key findings – Skeat et al. 2013

- **Less than 50% of children who received feedback about expressive, receptive or stuttering impairments received help**
- 12% had communication needs & saw a professional (“**appropriate users**”)
- 69% did not have needs & did not see a professional (“**appropriate non-users**”)
- 14% had needs yet did not see a professional (“**under-servicing**”)
- 5.2% saw a professional although they had no identified needs (“**over-servicing**”)

Key findings – Skeat et al. 2013

Predictors of service use after taking into account need for services

- Gender: girls had 60% reduced odds
- Parent concern: 9.1 greater odds

Predictors of speech pathology treatment after taking into account need for services

- Parent concern: 12.7 greater odds

Health care costs associated with language difficulties

Methods

Longitudinal Study of Australian Children (LSAC)

- Nationally representative study of Australian children
 - 2 cohorts:
 - B cohort: recruited at 0-1 years (N~5000)
 - K cohort: recruited at 4-5 years (N~5000)
 - Three waves of data available for analysis
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Methods

- Health care costs data include:
 - Medicare benefits scheme (MBS)
 - Pharmaceutical benefits scheme (PBS)
 - **Total Medicare costs (MBS + PBS)**

- Available health care cost data:
 - B cohort from 0-5 years of age
 - K cohort from 4-9 years of age

Medicare

- Australian subsidized health care scheme
- **Aus Health care funding:** local & federal government (70%), insurance (13%) & out-of-pocket expenses (17%)
- **MBS:** subsidizes mainly non-hospital based medical practitioners also includes some allied health services
- **PBS:** pre-determined list of medications subsidized up to ~83% of the cost

Measures

Cohort	Age	Measure	Description
B	0-1	Communication & Symbolic Behavior Scales (CSBS)	Early communicative behaviours: social, speech & symbolic
B	2-3	MacArthur-Bates Communicative Development Inventory (CDI) – Words & Sentences	Vocabulary: use of 94 common words (yes/no)
B/K	4-9	Peabody Picture Vocabulary Test (PPVT - III)	Receptive vocabulary skills

Language difficulty = scores \leq 1.25 standard deviations below the mean

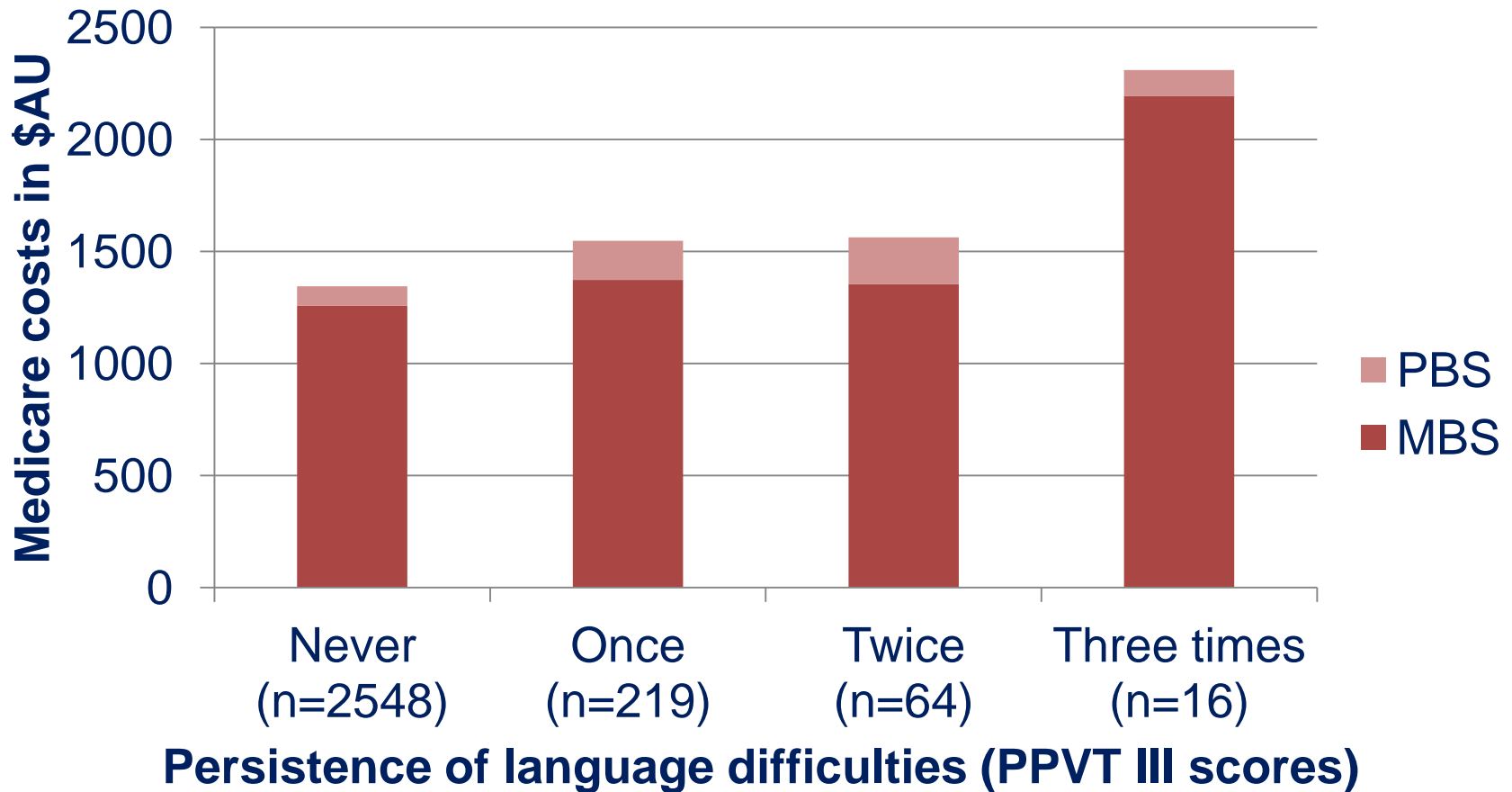
Two-year total Medicare costs

	Language difficulty Mean cost	No language difficulty Mean cost	Mean cost difference (95% CI)	p value
B cohort				
0-1 years	\$1193	\$993	\$199 (60 to 338)	0.005
2-3 years	\$674	\$545	\$129 (27 to 231)	0.01
4-5 years	\$763	\$561	\$202 (89 to 315)	0.001
K cohort				
4-5 years	\$553	\$471	\$82 (22 to 142)	0.008
6-7 years	\$464	\$422	\$42 (-25 to 110)	0.26
8-9 years	\$611	\$473	\$139 (31 to 246)	0.01

Two-year total population costs

	Mean cost difference	Prevalence of language difficulties	Population size	Estimated excess costs (\$ millions) (95% CI)
B cohort				
0-1 years	\$199	10%	59 396	\$11.8 (3.6, 20.0)
2-3 years	\$129	12%	67 570	\$8.7 (1.8, 15.6)
4-5 years	\$202	9%	49 847	\$10.1 (4.4, 15.7)
K cohort				
4-5 years	\$82	8%	43 345	\$3.6 (1.0, 6.2)
6-7 years	\$42	5%	26 874	\$11.3 (-6.7, 3.0)
8-9 years	\$139	6%	30 677	\$4.3 (1.0, 8.0)

4 year Medicare costs by the persistence of language difficulties



Conclusions

- Main predictors of help seeking were **parent concern**, child gender, communication status & child age
 - Substantial proportions of parents who:
 - Had concerns but did not seek help
 - **Received feedback about their children's communication & still did not seek help**
 - Greater support to get the right children to community services both when problems are suspected
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Conclusions

- Children with language difficulties have higher health care costs at most ages from 0-9 years of age
 - Persistent language difficulties incur higher costs than transient difficulties
 - Costs likely to be an underestimate of true need given that children with language difficulties may not be receiving help
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Key references

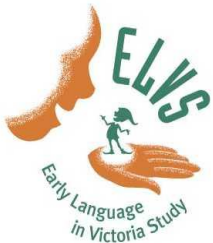
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