Productivity Commission Inquiry Submission

National Education Evidence Base

Centre for Community Child Health

25 May 2016

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About us

The Murdoch Childrens Research Institute (MCRI) is the largest child health research institute in Australia and the leading paediatric research institute in this field. MCRI's Population Health theme studies the health of communities and populations, including the determinants, distribution and management of health at the population level. Research at MCRI brings together the best clinical paediatric skills and knowledge in cross-disciplinary research teams working collaboratively to solve broader children's health problems. This 'bench to bedside to community' approach to child health research is unique in Australia.

MCRI welcomes the opportunity to make a submission to the Productivity Commission Inquiry into the National Education Evidence Base. This submission has been coordinated by the Centre for Community Child Health (CCCH), a research group within MCRI's Population Health theme. This research theme focuses on complex issues, in genetics, epidemiology and early determinants of health. The platforms used are local, national and global cohorts, clinical databases and gene/environment expertise. We have developed a significant reputation for the delivery of high quality research, evaluation and translation projects in health risk and protective factors, wellbeing and healthy development, education, service systems development and the policy implications and drivers for implementing reforms that will improve children and young people's outcomes and enable optimal health, learning, development and wellbeing. We have significant experience in the following:

- Planning and preliminary analysis
- Systematic literature reviews
- Descriptive data analysis
- Longitudinal data development and analysis
- Intervention trials
- Statistical analysis.

MCRI supports efforts to develop a national education evidence base and we would like to acknowledge the Commission's efforts in attaining a clear understanding of the main issues. We believe the progression of this Inquiry offers the potential to result in significant systemic improvements that will ultimately benefit all Australian children.

Scope of the evidence base: starting early

> *The Commission's Issues Paper asks whether the scope of the evidence base should include data on children younger than 4 years of age, and if so, whether it should cover all children, or only those attending early childhood education and care (ECEC) programs outside the home.*

The importance of early life programming on later child health and development inequities has become increasingly clear. Child health and developmental inequities are differential outcomes that are unjust, unnecessary, and preventable,[1] and exist in all western countries.[1,2] By the time Australian children start school, clear inequities in their development and wellbeing are already evident: in the 2012 Australian Early Development Census (AEDC), 6.5% of Australian school entrants living in the most advantaged areas were developmentally vulnerable on two or more domains of early childhood development (physical health and wellbeing, social competence, emotional maturity, language and cognitive skills, and communication skills and general knowledge), compared with 17.4% of children who lived in the most disadvantaged areas.[3] Of this group, approximately 10% will never catch up to their peers.

Inequities emerging in early childhood track forward into adulthood, contributing to differential trajectories of mortality and physical, social, and cognitive impairments.[4] Children from low socio-economic households experience greater disadvantage throughout their educative years and across their lifespan: 50% start secondary school without foundational literacy and numeracy skills; 44% do not attain Year 12 or equivalent by the age of 19 and 40% of 24 year olds are not in full time study or employment.[5]

The major causes of health and developmental inequities arise from social determinants - the 'conditions in which people are born, grow, live, work, and age.'[1] Public policy interventions can be effective platforms to address inequities in child development, including physical, social-emotional, and academic outcomes.

We know from the early childhood research that brain architecture develops through an ongoing process where complex skills are built on more basic skills laid down earlier in life – 'skill begets skill.'[6] As such, early childhood development powerfully contributes to an individual's later ability and outcomes, and also contributes to the productivity of society at large as our economy increasingly relies on an educated workforce.[6,7] The longer society waits to intervene the more costly intervention becomes, and the economic return on investment diminishes drastically.[8] We therefore need to understand what factors are influencing children's outcomes from pregnancy to the time that they transition into adulthood, in order to know when and how to intervene to optimise positive development.

We believe that the scope of the evidence base should include children younger than 4 years of age, and should include all children, regardless of whether or not they attended ECEC programs outside the home, left school before Year 12 or did not attend school for other reasons.

Contemporary education outcomes: data and research needs

> *The Commission's Issues Paper asks what education outcomes we see as being relevant to the education evidence base, and what data is needed to monitor progress, evaluate programs and policies and inform decision-making.*

Our view of contemporary education outcomes aligns with the key aims for education set out in the Early Years Learning Framework and in the National Curriculum, which include promoting critical and creative thinking, personal and social capability, and ethical and intercultural understanding in addition to traditional academic achievement. By taking an expanded view of what constitutes the evidence base for school and early childhood education, we believe it is necessary to incorporate broad measures of wellbeing and the child, family, community context, in order to understand how they influence educational pathways.

Specifically, we need data on the many determinants outside of the school setting, including information about family and community circumstance, student attributes like social-emotional wellbeing and information about participation in community services, including health and early childhood. This aligns with the importance of understanding the social determinants and their impact on inequities.

Academic, health and wellbeing outcomes for children are all heavily intertwined with many overlapping determinants; therefore improving outcomes for children – even just academic outcomes – requires an ecological approach that requires looking beyond school and beyond just a snapshot in time.

The data outlined above not only provides a powerful evidence base for understanding educational outcomes, it is also suitable for multipurpose use. **This maximises the return on investment of collecting and linking data sources.** We could therefore reframe the purpose of this data resource to more broadly be: *how are Australian children faring and what are the policy levers for change to improve outcomes?*

Under this reframe, we need to understand children's pathways through the critical periods of early childhood, the transition to school, the transition to secondary school, and post-school outcomes. In addition, we need to understand more about the services they are exposed to over time. This includes not only education data such as ECEC and the quality of the school environment, but also includes exposure to health and social services. Services and policies build on and reinforce or undermine one another over the long term of a child's development. In this way, education data can be maximised to (1) inform education policy, (2) understand children's health and developmental trajectories and (3) contribute to evaluation of a range of public policies over time.

To create the human capital for the next generation education outcomes cannot simply mean academic outcomes; and schools cannot only be about education.

Opportunities, and priorities for reform

> *The Commission's Issues Paper asks what issues and opportunities there are for access to, and consistency of, education-relevant data to support analysis and evidence-based policy development, and what reforms are most likely to be beneficial.*

To understand children's pathways and what factors influence children's outcomes, we need four key things:

1. High quality administrative data collections starting from pregnancy. These data collections need to be consistent over time, and encompass the scope outlined in 'Contemporary education outcomes: data and research needs'. It is also extremely valuable to have repeated assessments over time (e.g. NAPLAN conducted at multiple grade levels).

2. Linked data sets. We need the capacity to link data sets that capture health, education, wellbeing, family and community contexts. Figure 1 sets out how the universal (census) early years and school data sets could form the 'spine' into which all other available data sets at the local, state and national level are linked to provide comprehensive information about children's circumstances and outcomes at the micro (classroom e.g. English on line-Vic), meso (state level e.g. Kindergarten Checklist-Tas) and macro levels (national e.g. NAPLAN). These data could be linked with health and social administrative and survey data, and made available for researchers and policymakers to evaluate the impact of policies and changing child demographics over time.

3. A comprehensive research strategy. This strategy must address the agreed knowledge gaps, be policy-relevant and include both longitudinal and experimental studies. There is a dearth of randomised controlled trials (RCT) in education despite it being the single largest intervention children are exposed to outside their families. RCTs must form a core part of any agenda in education as they have in health if we are to truly intervene effectively (and cost effectively). It is possible. We have undertaken a RCT in 72 schools in Victoria utilising a mix of administrative and short individual assessments with a 90% retention rate. With an associated economic analysis the Classroom Promotion of Oral Language (Appendix 1) is one of the few of its kind internationally.

4. A commitment to data analysis, dissemination and use. Generating demand for powerful data and regard for analysis requires the building of strong relationships between researchers, practitioners, policy makers and services. To ensure that access to this data translates to its utilisation to contribute to quality improvement, we need to build appetite for the data and evidence, and have strong systems that facilitate appropriate use of data to improve outcomes.

More rigorous trials of education interventions and evaluation of policy impact on children's health, development, learning and wellbeing should be seen as an urgent and fundamental policy imperative. Building demand for and capacity to use data is essential for realising the potential benefits of a national education evidence base.

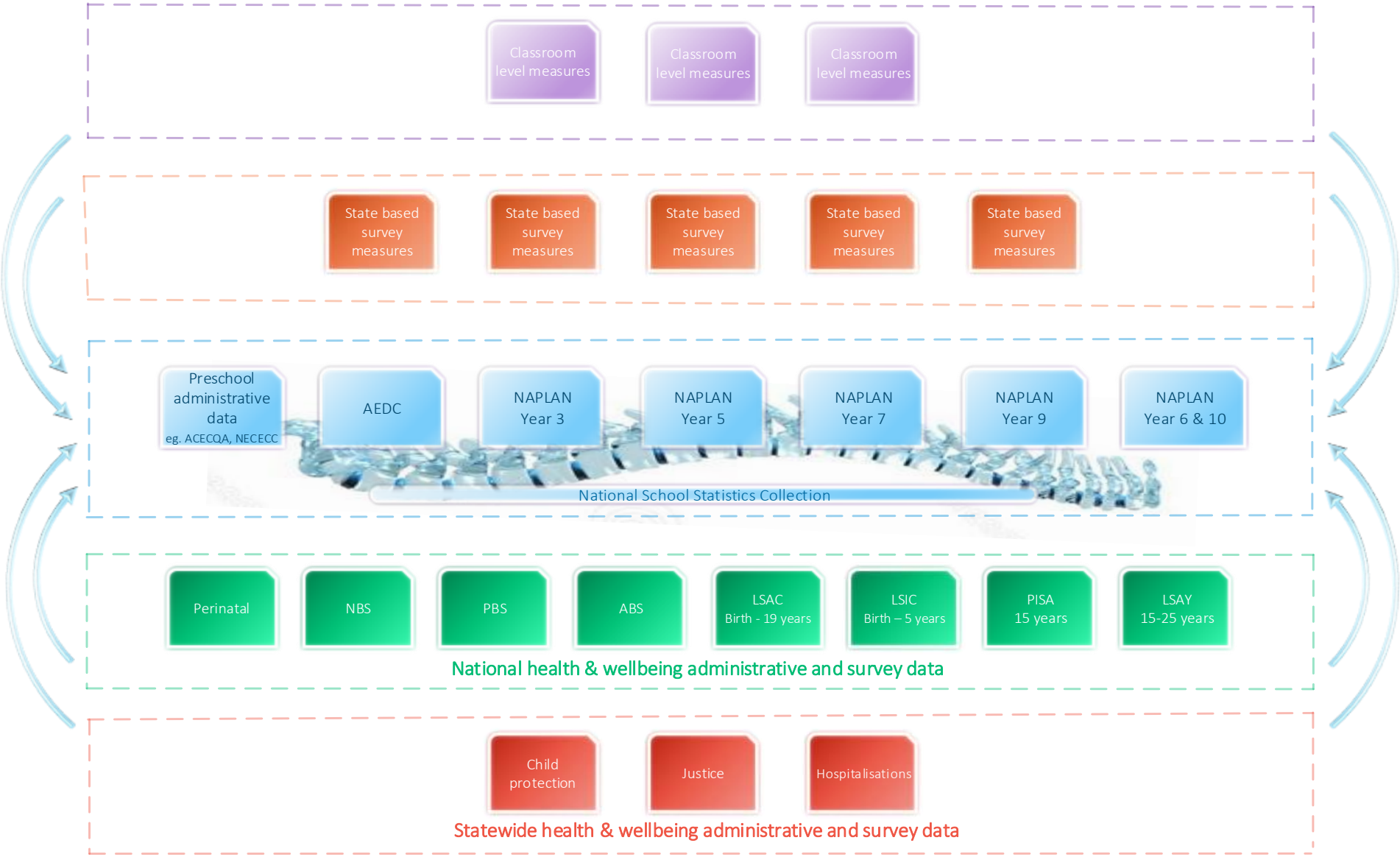

Figure 1: Education-anchored data system

Generation Victoria: an innovative new initiative using data to improve outcomes

Generation Victoria (Gen V) aims to capitalise on the potential of data linkage to solve four key issues (Appendix 2):

- Turn around the unprecedented rates of adult diseases.
- Reduce the burden of modern epidemics for children, such as school failure, depression, obesity, autism, asthma, and antisocial behaviours.
- Change the landscape of how large scale research happens, because traditional research methods are too cumbersome, isolated, short-term and costly to scale up to the level needed.
- Reap the full benefit of state investment into health and education services.

Gen V aims to engage Victorian researchers, policymakers and practitioners in the quest to find practical, testable and translatable solutions to issues for Victorian children in real time as they emerge. Gen V will:

- Embed a research capability into Victoria's unique fabric of health and education services, creating a data-active, self-learning state. This drives discovery, change and a lasting legacy.
- Start in pregnancy, as the first 1000 days are critical to a child's future. Gen V's statewide cradle-to-grave cohort can include every Victorian child and drives the whole of state data transformation.
- Create a generation of researchers, practitioners, and policymakers who speak each other's language, providing mutual benefit and lasting partnerships for change.
- Place Victoria at the forefront of Australian and international innovation in research and data, and its transformation into evidence-based programs and policies.

Gen V will facilitate important learnings on how to build experience with and trust in data linkage among those housing data. It will also facilitate solutions to technical issues, such as the potential to utilise unique child ID numbers to enable linking of data sources, particularly between 0-5 years to school years.

Gen V is a world-first initiative that will provide invaluable insights into how to use data to develop a dynamic platform geared towards solving pressing questions and improving children's health, development and wellbeing.

Summary

The education system provides a powerful universal platform for data collection. The current situation in Australia involves excellent but unconnected datasets, on which billions of dollars are spent annually. This Productivity Commission Inquiry provides a significant opportunity to draw together local, state and national data sets, using the education system as an anchor point.

We believe that the scope of the evidence base should include children younger than 4 years of age, and should include all children, regardless of whether or not they attended ECEC programs outside the home, left school before Year 12 or did not attend school for other reasons.

The broader definition of education outcomes that we take necessitates linkage with datasets outside of the education sector. **To create the human capital for the next generation education outcomes cannot simply mean academic outcomes; and schools cannot only be about education.**

To make this feasible, one option would be to take a staged approach by starting with a few data sources and then building up the breadth of data. At the same time, efforts must be made to grow the capacity and commitment to use evidence. **More rigorous trials of education interventions and evaluation of policy impact on children's health, development, learning and wellbeing should be seen as an urgent and fundamental policy imperative.**

The Generation Victoria (Gen V) project is an example of how we can change the landscape of how large scale research and evaluation could happen when capitalising on data linkage. **Gen V will provide invaluable insights into how to use data to develop a dynamic platform geared towards solving pressing questions and improving children's health, development and wellbeing.**

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Appendices

Appendix 1: Overview of Classroom Promotion of Oral Language trial

A study to investigate the impact of teacher led oral language promotion on child language, literacy and mental health.

The Classroom Promotion of Oral Language Trial (CPOL) is built on 3 areas of policy-relevant research; (1) the importance of the early years of school (Prep to Grade 3) as an opportunity to shift children's developmental pathways, (2) the importance of teacher quality for children's academic outcomes and (3) the intrinsic relationship between oral language skills and future literacy, numeracy and social development.

Early years of schooling:
It is well established that the early years of a child's life have a significant impact upon their entire life course. By the time children start primary school at around the age of 5, significant disparities in functioning are already evident across all developmental domains (CCCH & TICHR, 2007). Longitudinal research suggests that trajectories seem to be set very early in schooling with few developmental changes occurring regardless of socio-economic status (SES). Although there are a range of evidence-based approaches to address these disparities before children reach school, these opportunities also extend into the early years of schooling when brain development research tells us there is still sufficient malleability to make a substantive difference to educational and life outcomes. This time is also the first opportunity for a large-scale intervention being the first level of compulsory attendance associated with learning and development for all children.

Teacher quality and academic outcomes:
The Grattan Institute report into school education highlighted the importance of quality teaching on student performance, both in the short and long-term as well as in redressing inequalities in education as a function of SES (Jensen, 2010). In this way, *"the success of most school improvement initiatives depends on how they affect teachers and the quality of teaching"* (Munro, 2010, p.10). It therefore follows that classroom practice must be embedded in research evidence if we are to emulate the best schooling systems in the world. Any efforts to improve literacy outcomes for school-aged children must explicitly address the capacity-building of teachers.

Importance of oral language competence:
The ability to use oral language to communicate effectively is a key foundation for formal academic success as well as social and economic participation across the life-span (Munro, 2010). While learning to *speak* is a task for which humans are generally considered to be biologically well-prepared (Berko Gleason, 1993), learning how to *read and write* requires specific instruction in order for proficiency to be achieved. Oral language includes not only expressive vocabulary (i.e. words), but also the grammatical rules and complex conventions that are intrinsic to the social and contextual aspects of communication (Tomblin, 2005). The development of oral language competence is therefore crucial to literacy development (including the ability to read, decode and comprehend text). The ability to communicate and use language effectively impacts upon the capacity of children to learn, on their social behaviour in the classroom, and on their ability to develop competent literacy, numeracy and communication skills (Chan & Dally, 2000). Children who do not master the basics of literacy in the early years of school are often ambivalent towards school, face long-term struggles and a range of behavioural and adjustment difficulties (Snow, 2009). It is also troubling that inequities in the proportion of children with language and literacy difficulties exist when comparing communities of lower and higher SES. Hay & Fielding-Barnsley (2009) found that in Queensland, 25% of the children in schools in low SES regions achieved below basic level competency on language benchmarks for their age, compared with only 8% in schools in middle SES regions and 0% in schools in high SES regions. In light of the growing body of evidence that shows long-term effects of inadequate oral language development in the early years, efforts to redress such inequities must be undertaken.

The reported high rates of language and communication difficulties at school entry would suggest that this is both an area in need of great attention and an immediate opportunity to effect change. For

example, Reilly et al. (2010) reported that 17% of Melbourne four year olds display various language and communication difficulties, and the inaugural Australian Early Development Index (AEDI) in 2009 reported language and cognitive skill vulnerability in at least 16% of Victorian children. Alongside this research is a converging set of policy interests across health and education that include the COAG Early Childhood Development Strategy, the National Action Plan on Mental Health, the National Partnership Agreement on Literacy and Numeracy and the establishment of the Australian Institute for Teaching and School Leadership (AITSL).

Despite the clear importance of oral language competence within the classroom instructional context, and the clear policy interest, there have been no published rigorous trials of oral language promotion demonstrating sustained changes in child outcomes and/or teacher practice. Therefore, this project aims to (1) determine the effectiveness (and cost effectiveness) of a teacher-led whole-of-class approach to promoting oral language (delivered in the first two years of school) on the oral language, literacy development and mental health of children by Grade 3, (2) determine whether a specifically designed teacher professional development program focussed on a whole-of-class approach to promoting oral language can lead to sustained change in teacher practice and (3) gain an in-depth understanding of the teacher and school level factors that both promote and inhibit the success of a whole-of-class approach to promoting oral language.

The project will be undertaken by a team of experienced investigators from the health and education disciplines through a unique collaboration between the University of Melbourne, Murdoch Childrens Research Institute, The Royal Children's Hospital Education Institute, Monash University, the Catholic Education Commission of Victoria and the Victorian Government Department of Education and Early Childhood Development. Specific investigators include:

The University of Melbourne	Associate Professor Sharon Goldfeld, Associate Professor John Munro and Dr Patricia Eadie
Murdoch Childrens Research Institute	Professor Frank Oberklaid and Dr Kate Lee
The Royal Children's Hospital Education Institute	Tony Barnett and Dr Liza Hopkins
Latrobe University	Associate Professor Pamela Snow
Catholic Education Commission of Victoria (CECV)	Judy Connell and Brenda Andersen-Dalheim
Victorian Government Department of Education and Early Childhood Development (DEECD)	Helen Clarke
Deakin University	Associate Professor Lisa Gold

Methods:

Pilot data: CPOL builds upon a rigorous pilot project conducted by the Catholic Education Commission of Victoria during 2009-10 known as Oral Language Supporting Early Literacy (OLSEL). The findings of this pilot study indicated that gains can be made in the oral language and reading skills of children in disadvantaged schools in the early years (Snow, 2011).

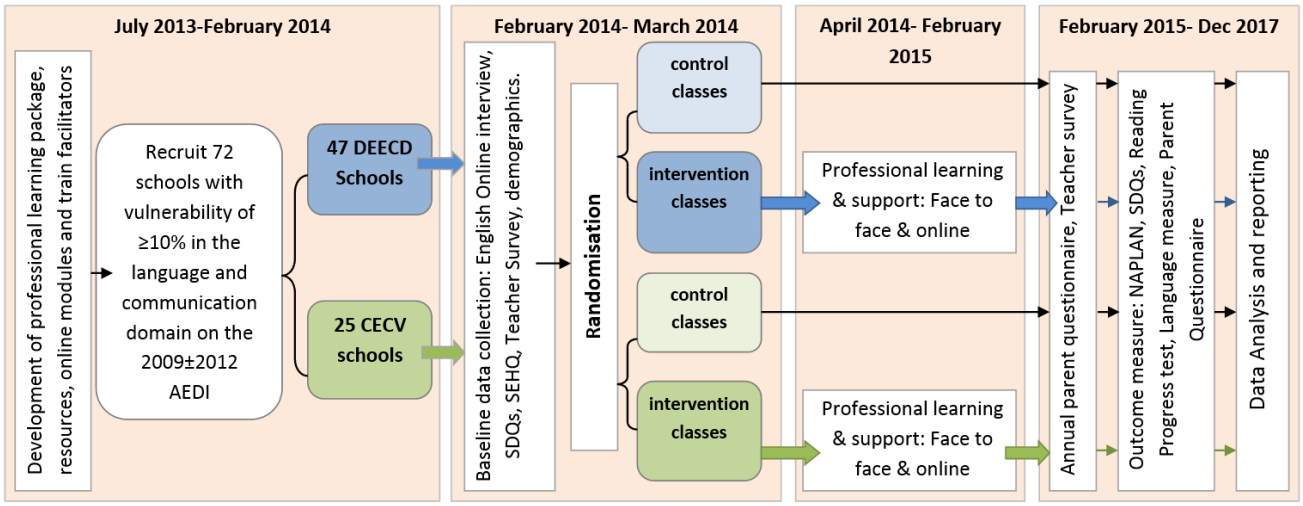
Design: CPOL is a cluster Randomised Controlled Trial (RCT) implemented over a 5-year study period. This is the most rigorous (yet still pragmatic) methodology available to determine the effectiveness of this intervention. Schools with greater than 10% of children developmentally vulnerable on the 2009 and/or 2012 AEDI results in the language and cognitive domains have been targeted for the study. We have estimated that approximately 33 clusters per arm, with an average of 17 children per cluster (i.e. class) will be required in order to measure a 23 point (0.3 standard deviation) difference in Year 3 National Assessment Program Literacy and Numeracy (NAPLAN) reading scores between control and intervention schools. Therefore in total 72 primary schools (one prep classroom per school) will be randomised across the Catholic and Government sectors across Victoria (see Figure 1). Schools will be stratified to ensure an adequate representation of metropolitan and rural study sites.

Practice intervention: The oral language promotion program builds on the OLSEL Pilot. The program includes both theoretical and practical aspects of promoting oral language competence within the classroom. The 2-year teacher professional practice intervention includes: (1) 4 face-to-face teacher professional development days delivered by language and literacy experts over one school year, (2) specialist teacher support within the school to build teacher capacity and facilitate change in teacher practice across two school years and (3) an online network of teachers creating a community-based approach to changing teaching practice.

Outcome measures: The primary outcome measures will be children's NAPLAN reading and numeracy test results, and the Strengths and Difficulties Questionnaire at Grade 3. Secondary outcomes, e.g. measures of impact on teacher practice and satisfaction will be developed. The cost-effectiveness of the program will also be established.

Project significance:
The policy timing of this proposal is critical as highlighted by the establishment of AITSL, a key component of the COAG National Partnership on Improving Teacher Quality. As a first, AITSL developed National Professional Standards for teachers include the key areas of professional knowledge, professional practice and professional engagement. It is imperative that evidence-based professional learning for teachers is developed to support their progress across the AITSL standards. The professional learning for teachers proposed under this initiative will directly support teachers to enhance proficiency particularly across Standard 1: Know students and how they learn, Standard 2: Know the content and how to teach it, and Standard 3: Plan for and implement effective teaching and learning. Building on this policy direction, this project will determine the effectiveness of this approach on *student learning* and *mental health outcomes*.

Figure 1: Project timeline and flow



Innovation
This study is highly innovative with novel approaches to professional development and to study design. It is the first of its kind to directly assess the pre and post teacher training effects on the children's literacy skills and mental health functioning.

The study team brings expertise in paediatric health, speech pathology, psychology, public health and education as well as an unrivalled network of schools in which to undertake the program in a rigorously controlled (cluster randomised) trial. Throughout the study, teachers will have ongoing support through the implementation of innovative online resources and forums, plus face-to-face support where needed to support the change in practice, which is not currently available. In addition to the classroom-based innovation is the design itself. There are almost no Randomised Controlled Trials of education-based interventions in the Australian (and indeed international literature), and certainly none that have included a cost effectiveness analysis. In order to facilitate further studies of this rigorous nature almost all data collection for the study will utilise existing administrative or class based data, thus minimising costs and teacher impost. Therefore, if successful, this study will (1) fundamentally change the approach to the teaching of language and literacy in the early years of schools (2) open the opportunities for similar trials to rigorously test the effectiveness of practice change within education and (3) provide opportunities to minimise the disadvantage for children that is associated with poorer language and literacy skills.

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Appendix 2: Overview of Generation Victoria

Generation Victoria

A world-leading opportunity for better lifelong health and learning

The need

Every parent wants the best for their child. Addressing the childhood roots of ill health and low economic productivity may be the best way to lessen the burden of ageing and increase the population's productivity to meet tomorrow's needs.

Generation Victoria has set out to solve four key issues:

1. Turn around the unprecedented rates of adult diseases (such as heart disease, diabetes, kidney failure, osteoporosis). Without action, the GDP health spend is predicted to top 13% by 2030.
2. Reduce the burden of modern epidemics for children, such as school failure, depression, obesity, autism, asthma, and antisocial behaviours. Today's children need:
   - Better treatments for modern childhood problems
   - Better services, that are equitable, consistent, effective, needed and affordable
   - Better preventive care, to ensure the best health and development for tomorrow's adults
   - Better predictive tools, so care can be tailored and targeted, and unnecessary care avoided.
3. Change the landscape of how large scale research happens, because traditional research methods are too cumbersome, short-term and costly to scale up to the level needed.
4. Reap the full benefit of Victoria's investment into its outstanding health and educational services. Our statewide data infrastructure is under-utilised for innovative solutions.

The vision

To create the world's most exciting children's health, development and wellbeing project to answer today's pressing policy and practice questions.

Gen V aims to engage Victorian researchers, policymakers and practitioners in the quest to find practical, testable and translatable solutions to issues for Victorian children in real time as they emerge. Gen V will:

- Embed a research capability into Victoria's unique fabric of health and education services, creating a data-active, self-learning state. This drives discovery, change and a lasting legacy.
- Start in pregnancy, as the first 1000 days are critical to a child's future. Gen V's statewide cradle-to-grave cohort can include every Victorian child and drives the whole of state data transformation.
- Create a generation of researchers, practitioners and policy-makers who speak each other's language, providing mutual benefit and lasting partnerships for change.
- Place Victoria at the forefront of Australian and international innovation in research and data, and its transformation into evidence-based programs and policies.

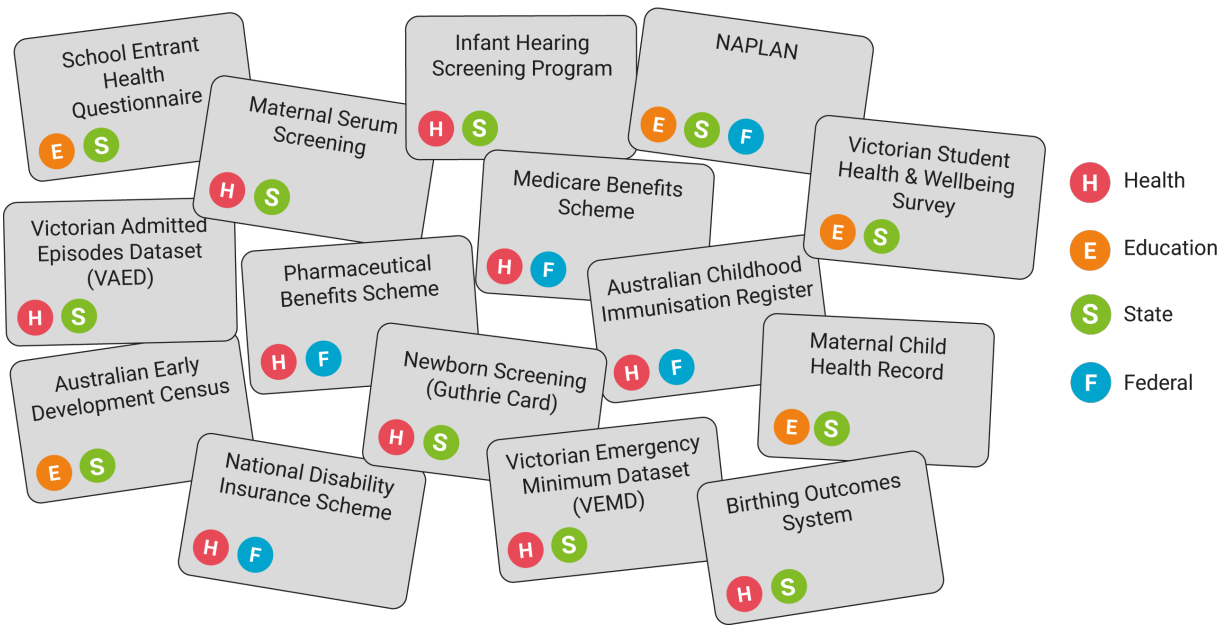
The resulting international research hub will benefit both children now and the adults they become.

Why here, why now?

These needs are urgent. Victoria has the capability right now to connect its investments into a whole-of-state, solution-focused platform, a skilled workforce, and world-leading research institutions. Gen V would put Victoria in the international spotlight for research power and innovation that deliver better outcomes.

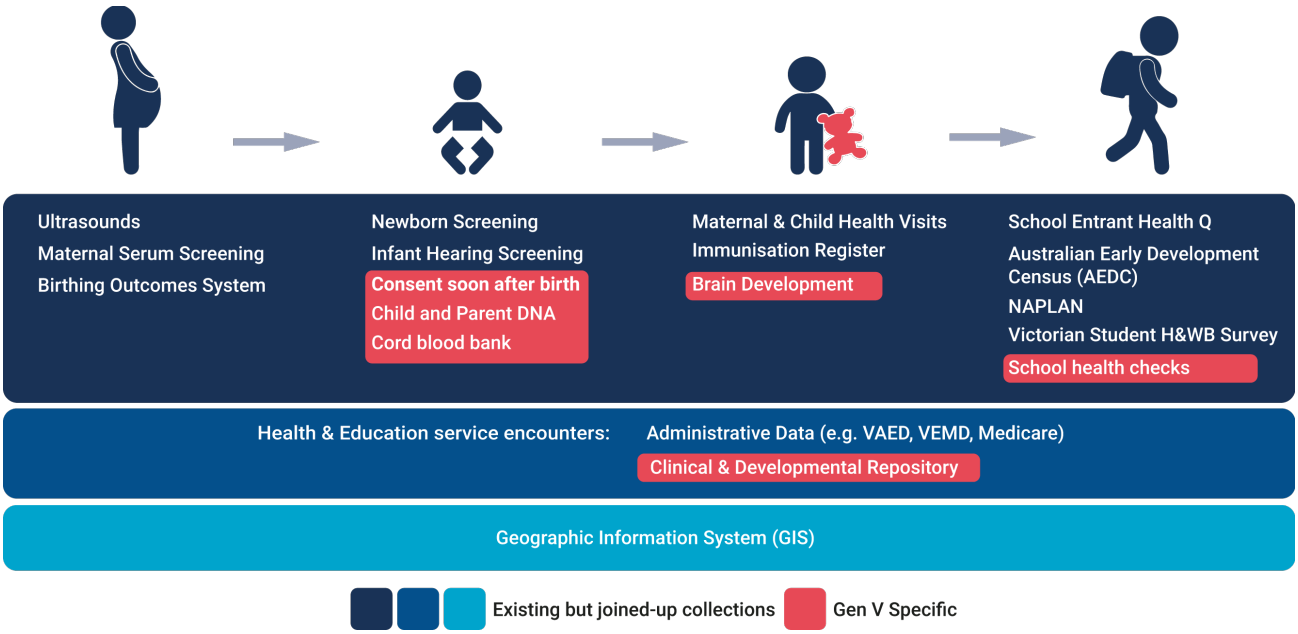
The current situation

Excellent but unconnected statewide services/datasets, on which billions of dollars are spent annually.



The Gen V proposition

A fundamental shift in how data are collected and used. It is built on Victoria's world-leading early childhood and health infrastructure and systems, which do not exist in many other OECD countries. Gen V adjusts, adds and enhances at key ages.



What is Gen V?

Generation Victoria is a world-first initiative that transforms all of Victoria into a dynamic platform geared to solve pressing questions and improve children's health, development and wellbeing.

Gen V consists of three major inter-related components:

- **Gen V 2020:** One of the world's largest birth cohorts, driving enhanced statewide data linkage that benefits all of Victoria.
- **Gen V Action Hubs:** Emerging avenues of research that embrace innovation, triggered by Gen V 2020 to answer questions that are currently out of reach.
- **Gen V Big Data:** Advanced processing and analytics, ensuring Gen V's legacy of data linkage and use is available to Victorian health and education systems into the future.

How will Gen V work?

Gen V's three components start with Gen V 2020, then grow side by side:

Gen V-2020 *At Gen V's heart is Gen V 2020, one of the world's largest birth cohorts and associated biobanks.* *It aims to follow over 100,000 Victorian babies from cradle to grave, and drive an enhanced statewide data linkage capability that benefits all of Victoria.*	Gen V is feasible and affordable, because it builds on data and biosamples that are already collected within Victoria's service system (such as the Maternal and Child Health Service). Gen V brings these together and adds vital information at key ages. Parents of all children born in 2019 and 2020 are invited to take part. As the Gen V 2020 children grow, so too does a vast, permanent repository of consented information. An anonymised core dataset is available via a straightforward licence, with more complex and/or sensitive data carefully safeguarded. For the first time, complete data spanning children's lives are used to the full to inform services and transform research.
Gen V Action Hubs *Gen V 2020 provides the framework for researchers and policy makers to answer questions that are currently out of reach.* *Its Action Hubs are emerging avenues of research that embrace new methods and technologies.*	Gen V is statewide, joining up every child's past and future, and is ideal to test new treatments and interventions. It springboards fertile research avenues, reducing costs and providing opportunities for innovation. We foresee eight Action Hubs: (1) Discovery research; (2) Population health & learning; (3) Place-based research; (4) Population trials; (5) Health services; (6) Clinical & registry trials; (7) Condition databanks; (8) Disaster impacts. The agenda for each is planned year on year by policy-service-consumer-research partnerships, drawing on the existing resource and shaping its future. The Hubs generate their own funding and investment.
Gen V Big Data *Gen V Big Data drives advanced processing and analytics to collate and use all data generated by Gen V 2020 and its Action Hubs.* *Its legacy of data linkage and use is available to Victorian health and education systems into the future.*	Gen V will create large and complex datasets to integrate with Victoria's developing data linkage capacity. They also create the mechanisms to collate the critical data for all subsequent Victorian births. Not all families will enter Gen V 2020, and not all data can enter the permanent dataset. In order for Gen V to be truly statewide, it will work with government, services and data custodians to overcome barriers and speed up data linkage processes. This will coordinate with Gen V 2020, focusing on datasets relevant to each age group as the children mature.

Gen V Action Hubs: Lasting benefits for Victoria

Many avenues can be explored simultaneously, flexibly and efficiently, reducing costs and providing a framework in which even marginalised groups can participate fully. It's a whole new approach to how data and research interface with the policy and practice world. The Figure shows each Action Hub's benefits.

Gen V's focus areas

Our five focus areas are chosen for their burden, cost and Victoria's acknowledged research leadership:

- **Wellbeing** (including mental health, vulnerability, disparities and exclusion)
- **Obesity** (including cardiovascular and metabolic health)
- **Allergy** (including food allergy, asthma and autoimmune disease)
- **Infection** (including inflammation and use of antibiotics)
- **Brain** (including neurodevelopment, educational attainment, special needs and disability)

Innovation, inclusion, efficiency

Gen V is driven by core principles that systematically create a powerful platform for research, practice and policy.

Innovations & efficiencies	**Impact & implications**
Health & education partnerships:	A new understanding of how health affects learning and how learning affects health
Inclusion:	Targeting everyone, Gen V includes the disadvantaged, remote and indigenous, its structures supporting involvement and re-entry
Statewide scope:	Big research is not small research multiplied: the statewide design eliminates multiple costs and provides multiple points of re-entry
Large numbers:	Gen V can study multiple pathways to common and uncommon outcomes, and develop individualised predictive tools
Low cost/high benefit:	Gen V is built on existing statewide services, infrastructure and powerful population health/education datasets
Multi-directional information flow:	Gen V catalyses changes that families, services, researchers, and government already want - research that 'gives back' *in order to* succeed
Versatility:	Supports multiple lines of enquiry, including research on vulnerable groups and population, place-based, intervention and health services research
Long horizons:	Outcomes can be studied over many years, because they are already collected within this joined-up infrastructure
Gen V adjusts, adds, enhances:	Minor changes have major impacts, overcoming road blocks

Contact

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