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29 September 2023

To the Science Strategy and Priorities Taskforce,

The Murdoch Children's Research Institute (MCRI) and the Centre for Community Child Health (CCCH) welcome the opportunity to contribute to the refinement of the draft National Science and Research Priorities.

MCRI is one of the world's most impactful child health research institutes. It is home to more than 1,700 multi-disciplinary researchers and paediatric clinician scientists all working together to address the health of Australia's children. The breadth of research at MCRI spans discovery, clinical trials, intervention, public health, translation, and large-scale global implementation.

CCCH is one of Australia's leading research and policy centres focused on understanding and redressing childhood inequities. CCCH is a research group of MCRI, a department of The Royal Children's Hospital, and an affiliate of the University of Melbourne's Department of Paediatrics.

As national and international leaders in children's health and medical research, and based on our collective expertise and proximity to families and partners in children's health and wellbeing, we:

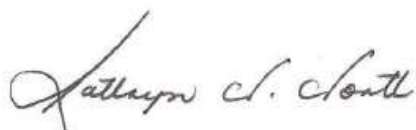
1. applaud the extensive consultation to date led by Australia's Chief Scientist Dr Cathy Foley, and the specific focus on Aboriginal and Torres Strait Islander peoples' perspectives on science and research.
2. concur that the draft priorities and objectives address the key current and future challenges facing Australia, particularly the intersection and interdependencies between supporting healthy and thriving communities (Priority 2) and building a stronger, more resilient nation (Priority 4).
3. call for more explicit reference to children, adolescents and families in the National Statement. This recommendation is particularly relevant to Priority 2: Supporting healthy and thriving communities and the broader theme of climate change.
4. endorse the commitment to measuring progress through the metrics established in conjunction with the Measuring What Matters Framework.

In the attached section, we provide more detailed feedback on Priority 2 objectives, aims and critical research paths. In parallel, we provide examples of how our organisations with our partners could implement the priorities locally and nationally. We also identify several mechanisms that would support implementation.

Together, we can effectively contribute to the implementation of the National Statement going forward. We are united by the vision for all children to live a fulfilled life focusing on prevention and early intervention.

Given that evidence-informed, early investments in children and young people provide the greatest outcomes for children and their families, we would like to extend an open invitation to provide a briefing on the latest evidence on this important topic.

Warmest regards,



Professor Kathryn North AC
Director, Murdoch Children's Research Institute



Professor Sharon Goldfeld
Director, Centre for Community Child Health

Priority 2 Objectives:

- Australia’s science and research will support healthy, thriving communities by improving physical, mental, and social wellbeing indicators in all corners of the country and at all stages of life.

Consistent with the UN’s Sustainable Development Goal 3 (SDG3) for 2030, a life course approach to this objective would provide a holistic view of the health and wellbeing of Australians at all ages.

Melbourne Children’s LifeCourse Initiative is one of the few centres worldwide with extensive population and clinical studies. It is positioned to address an array of questions central to early life health and development, and its progression throughout the lifespan.

The life stage (0-24 years) is characterised by rapid social-emotional, cognitive and physiological development that is crucial in laying the foundation for health and wellbeing into adulthood. It is also a time when the surrounding socio-ecological environment significantly impacts this developmental stage. These influences include parent/carer characteristics, family environment, community environment, and physical and built environment. Taken these factors into account, the wellbeing of children and young people is fundamentally different to the wellbeing of adults.

Too many children are born into a cycle of disadvantage that has a devastating impact on life trajectories. The science tells us that adverse early childhood experiences, such as growing up in poverty, neglect, and/or family violence, significantly affect children’s development and wellbeing across the life course.

Early, targeted support to disadvantaged families can help.

- We will be leaders in preventive health, empowering people to make choices in their care. Each Australian will be able to access the services and support they need.

We recommend utilising a “stack” of evidence-based strategies to respond to the needs of communities experiencing disadvantage, with no silver bullets, to help children thrive and families and communities prosper.

- We will be leaders in fit-for purpose data collection and access and trust to improve health and wellbeing.

By the time children start school, the rates of developmental vulnerability are three times higher in lower income areas. This has not changed since 2009. COVID-19 has worsened inequity, making this trend particularly pronounced amongst those living in disadvantage.

Despite this economic and moral imperative, conventional approaches to policy research, design and evaluation are often stymied by critical data gaps and fail to address the equity gap. This was noted in Treasury’s *Measuring What Matters* and the 2023-24 Budget measure to establish a new *Australian Centre for Evaluation* to see if government programs are delivering claimed outcomes.

We recommend the government establishes a national set of wellbeing indicators specifically for children and young people aged 0-24 years. This will ensure Australia’s wellbeing indicators accurately reflect the key developmental stages spanning infancy, childhood, adolescence and young adulthood.

A national set of wellbeing indicators for children and young people would acknowledge that the determinants and outcomes of positive wellbeing of children and young people is fundamentally different to adults. This approach also recognises the importance of building upon each life stage, which is not only consecutive but cumulative in wellbeing outcomes.

We recommend the need for more reliable data and monitoring of childhood poverty experienced amongst different demographics and communities. There is a lack of information on the experience of childhood poverty to a range of demographic groups and communities. More reliable data would enable more precision policy responses to preventing childhood poverty and lift children out of poverty.

We recommend the development of an annual national child mental health and wellbeing dataset. This will provide a more comprehensive understanding of child mental health and wellbeing. We will be able to identify which populations of children and families require more targeted support, make informed investment decisions in child mental health and wellbeing, and monitor whether improvements are being achieved. This includes being able to monitor impacts and outcomes of significant government commitments to child mental health.

Priority 2 objectives:

- Lead on preventive health
- Support healthy communities
- Ensure equitable access to care.

We believe these objectives, with their focus on prevention and early intervention, and drive to redress inequities, will deliver the greatest benefits to all children now and into the future.

Investing in the early years is integral to a preventative health approach and will deliver dividends to future generations. It will deliver multifactorial returns on investment and cost savings.

Inequities emerging in early childhood often continue into adulthood, contributing to unequal rates of educational attainment, poor mental and physical health and low income. In some cases, this experience is part of a persistent cycle of intergenerational disadvantage. To redress inequities, research tells us that efforts delivered during early childhood (pregnancy to eight years of age) deliver the greatest benefits. Addressing inequity means delivering high quality services to all those who will most benefit.

Poverty in the first 2000 days of life (conception to age 5 years) can have significant negative impacts on a child's lifelong health, development, wellbeing, and educational outcomes. Rather than just being a problem for the individual, the inequities driven by social determinants such as poverty harm society by increasing health service costs and reducing economic productivity.

In Australia, 1 in 6 children live in poverty and one quarter experience deprivation. Not only does poverty impact a child's development now, but it can also harm children's future health, learning, economic productivity and participation in society - further entrenching disadvantage.

We recommend the consideration of interventions, such as Restacking the Odds (RSTO), which aim to drive equitable outcomes by ensuring that children and families access high-quality, evidence-informed services where and when they need them. By supporting 'stacking' and the implementation of five evidence-based early years programs and services that are available in most communities (antenatal care; sustained nurse home visiting; early childhood education and care; targeted parenting programs; the early years of school), RSTO contributes to creating the conditions that enable all children to thrive.

Priority 2 Aims

- Australia's science and research will improve the physical, mental, and social wellbeing of all Australians by developing and adopting integrative, holistic approaches for health and disability (Lead on preventive health).

We know that society's major issues now are the 'modern epidemics' of allergy, obesity, diabetes, depression, anxiety, cardiovascular disease and cancer - all with their origins in early years. Now, one in 10 children lives with a food allergy and one in three are overweight. One in five disadvantaged children are developmentally vulnerable - with these children at greater risk of educational disengagement, future mental and physical health challenges, and unemployment - perpetuating the cycle of disadvantage that many Australian children and families experience.

The early years are the time when investment into prevention and early intervention is most effective and cost-effective.

- Australia's science and research will understand the diverse and unique social and environment drivers of health and wellbeing in Australian communities (Support healthy communities).

The Australian Government's investment in place-based initiatives such as *Stronger Places, Stronger People*, and *Connected Beginnings* recognises the community in which a child grows, plays, and learns impacts their mental health, wellbeing and development outcomes.

- Australians will have healthy brains and improved mental health throughout life (Support healthy communities).

Neurodevelopmental disorders are lifelong conditions that begin in childhood, they are caused by disruption to early brain development. Common examples include autism, ADHD, intellectual disability, epilepsy and cerebral palsy. These conditions are frequently associated with cognitive, behavioural, social and academic challenges. In Australia, over 2.5 million people have a neurodevelopmental disorder. The annual cost of autism, just one common neurodevelopmental disorder, is estimated to be \$10 billion in Australia, and rates of neurodevelopmental disorders are rising.

- Australia's science and research will develop and adopt tools and approaches to improve access to health and wellbeing services for all Australians. These will be appropriate for peoples' backgrounds and circumstances (Ensure equitable access to care).

We recommend utilising and generating research evidence to understand and support children and families most at risk of disengagement, social isolation, and poor developmental outcomes.

Priority 2 Critical Research

These critical areas of research will help achieve our aims:

- Technologies and techniques that will enable an affordable, inclusive, culturally appropriate, and integrated preventive health system for Australia - one that drives positive behaviour changes and leverages fit-for-purpose data and connections to Country, community, and built and natural environments.

More accurate, timely and longitudinal data are needed to help governments evaluate their policy effort, assess whether their spending translates into effective outcomes, and target future spending more efficiently.

For a more precise policy approach, we need to know which interventions work, for whom, when, and where. While Australia's existing national data assets include rich data, **none of these data assets can measure outcomes** at a scale required to measure which Commonwealth's policies have worked. Instead, proxy indicators are used to measure outcomes, which is ineffective and inefficient.

'New Generation' cohorts, such as Generation Victoria (GenV) provide innovative models to not only conduct population-level, concurrent observational studies, but also to evaluate interventions at scale. This consented cohort of children and their parents representing Australia's diversity contains information from some population groups missing in existing national data assets, for example those experiencing disadvantage, regional communities, refugees or those who speak a language other than English.

Only innovative cohorts and data assets such as GenV can be used:

- To understand life experiences of those experiencing disadvantage.
- To help understand how the Commonwealth's Early Years Strategy, Entrenched Disadvantaged Package and increase to Paid Parental Leave work to intervene early and better support the health, education, wellbeing and development of Australia's children.
- To better understand intergenerational equity issues eg poverty, education, chronic disease
- For observation or to trial an evidence-informed intervention in a shorter time and lower financial and family burden.

As the GenV cohort has already consented to their data being integrated with Commonwealth data, this speeds up use of this rich information. It is also efficient by collecting population data once but using it to answer many questions simultaneously.

MCRI is advanced in discussions with the Commonwealth regarding linkage to existing datasets. This will enable policymakers to better understand health and social issues affecting children and their parents (eg impact of children's participation in early childhood education and women's participation in education/workforce, intergenerational disadvantage), test policy interventions on a whole population or in a particular place and to provide baseline data in preparation for the next natural climate emergency or pandemic.

- Mechanisms of brain function and repair and how to address deterioration of brain function.

Neurodevelopmental disorders are difficult to diagnose early, and effective treatments are limited. We have limited understanding of what causes them, and we do not understand the mechanisms behind why they develop. Understanding cause and mechanisms will allow us to develop effective and targeted treatments.

This will improve children's lives and provide evidence to drive policy changes, giving all Australian families access to more accurate diagnosis and effective, personalised treatment.

Additionally, international research into childhood poverty has established that poverty negatively affects infant brain growth. This evidence reinforces the need for these aims to be addressed through an equity lens.

- Social and environmental drivers of ill health and poor mental health and the techniques and practices we can apply to enhance the wellbeing of all Australians at scale.

‘One question at a time’ research approaches are not delivering answers at the pace and breadth that are needed. Fast, large-scale, responsive and readily-applied, policy-driven research is needed to solve the many problems that children experience today and to prevent adverse outcomes as adults in the future.

Despite the immense value of existing longitudinal studies, traditional research designs are too cumbersome, expensive, piecemeal and inflexible to generate the necessary solutions at a pace and scale that can benefit the coming generation.

‘Next generation’ cohorts, such as GenV, are creating large, parallel whole-of-state child and parent cohorts for discovery and interventional research. These research programs provide opportunities test and develop techniques and practices that can enhance the wellbeing of diverse communities, at scale. They can generate translatable evidence (prediction, prevention, treatments, and services) to improve future wellbeing.

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