

Public Submission Cover Sheet

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Publication of Submissions

Please note all Public Submissions will be published unless otherwise selected below

- I do not want my submission published
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Submission Guidance

You are encouraged to address the following question:

In the context of the Sustainable Health Review Terms of Reference listed below, what is needed to develop a more sustainable, patient centred health system in WA?

- Leveraging existing investment in Primary, Secondary and Tertiary healthcare, as well as new initiatives to improve patient centred service delivery, pathways and transition;
- The mix of services provided across the system, including gaps in service provision, sub-acute, step-down, community and other out-of-hospital services across WA to deliver care in the most appropriate setting and to maximise health outcomes and value to the public;
- Ways to encourage and drive digital innovation, the use of new technology, research and data to support patient centred care and improved performance;
- Opportunities to drive partnerships across sectors and all levels of government to reduce duplication and to deliver integrated and coordinated care;
- Ways to drive improvements in safety and quality for patients, value and financial sustainability, including cost drivers, allocative and technical efficiencies;
- The key enablers of new efficiencies and change, including, research, productivity, teaching and training, culture, leadership development, procurement and improved performance monitoring;
- Any further opportunities concerning patient centred service delivery and the sustainability of the WA health system.

Submissions Response Field

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Sustainable Health: Early Childhood Intervention To Promote Community Health And Well Being And Economic Sustainability

Introduction

The Western Australian Government has noted that the WA health system is under increasing pressure from an ageing population, chronic disease and health inequity, and the health budget continues to rise. The Sustainable Health Review (SHR) has been launched in order to provide advice to Cabinet through the Minister for Health to guide the strategic direction of the WA health system in order to deliver patient centred, integrated, high quality, and financially sustainable healthcare across the State.

The crisis in WA Health arises from multiple pressures related to occurrence of disease and to health service delivery. Much of the energy of the Department of Health is focussed upon service delivery because of the immediate pressures related to demand. Successful public sector service delivery however runs the risk of attracting more consumers, and maintaining the pressure upon services and upon governments.

Opportunities exist for relatively low cost interventions that are proven to decrease disease prevalence and service demand and offer long-term community benefits. The focus of this submission is an approach to long-term disease prevention via these relatively low-cost interventions with demonstrated effectiveness.

Origins of adult disease

Lifestyle related diseases, the epidemic of so-called Non-Communicable Diseases (NCD) generate some of the major demands upon our health system. These NCD include obesity, metabolic syndrome, cardiovascular disease, osteoporosis, cancers and mental illness. Increasing evidence links the occurrence of these diseases to early life experiences including the period of a pregnancy before a baby is born 1-5. Naturalistic studies such as the follow-up of babies in-utero at the time of the Dutch "hoonger-winter" in 1945 has clearly demonstrated the long-term risks of obesity and cardiovascular disease, of malignancy, affective disorders, addiction and schizophrenia 6-8. The Chinese famine induced by the juxtaposition of social, political and environmental pressures during Mao's Great Leap Forward was also followed by surges in the prevalence of mental illness 9. These enhanced risks may be transmitted across several generations secondary to epigenetic changes 10.

Australian studies have demonstrated that breast feeding offers protection against later obesity, which is linked to the development of cardiovascular disease, metabolic syndrome and fatty liver disease 11-13.

It has been proposed that in-utero and early life environmental influences can re-program the genome via epigenetic modifications to increase the risk of a range of cancers 3,8,14.

The social environment influences the development of later disease. The greater the number of social risk factors such as parental incarceration, food and housing insecurity, alcohol and drug use and domestic violence in the first year of life is associated with the development of obesity and behavioural issues in middle childhood 15,16. Children with greater social disadvantage having greater risks as adults for death from cardiovascular disease 17,18.

It is now quite clear that many of the diseases threatening the sustainability of our health system have their origin in early childhood, during in-utero development or are secondary to adverse environmental influences in

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preceding generations.

Opportunities for intervention

The critical developmental periods of pregnancy and early childhood offer the potential to change lifetime trajectories of disease. Establishing dietary habits and other lifestyle habits that prevent obesity and promote healthier behaviours can mitigate against coronary artery disease, metabolic syndrome and fatty liver and modify genetic risk for cancers. Parenting approaches have the potential to promote development and modify mental health risks.

Interventions that work

Several groups have demonstrated in randomised controlled trials that interventions in the period critical for development and crucial to the initiation of many adult disease processes can have long-lasting and sustained beneficial effects.

Beginning in 1977 Olds et al initiated a series of partnerships and randomised trials in socially disadvantaged communities characterised by unemployment, low rates of completion of education, high rates of child abuse and neglect and generally poorer pregnancy and health outcomes. The interventions studied have focussed upon home visitation by nurses or health assistants who provided education and reinforcement regarding individual strengths. Olds first randomised controlled trial demonstrated positive changes in parenting behaviour, decreased child abuse, fewer demands upon health services 19. These studies have gone onto demonstrate improved parental relationship stability, decreased use of alcohol and other drugs, decreased welfare dependence, improved pregnancy outcomes, improved childhood educational outcomes, and decreased child mortality over a two decade period 20-23.

Two other groups have focussed upon preschool education as an intervention. The Perry Preschool Project ran from 1962, targeting infants who were socially disadvantaged and who on the basis of formal IQ testing were considered at high risk of school failure. The intervention focussed upon active learning involving problem solving and decision-making, supplemented with weekly home visiting. At follow-up to age 40 those who were randomised to the active treatment group were more likely to have completed high school, less likely to have experienced prison, were more likely to be employed and less likely to be dependant upon welfare 24.

The Carolina Abecedarian Project recruited socially disadvantaged children from four months of age to a randomised controlled trial of high quality, intensive early childhood education coupled with on-site health surveillance and advice. Cohort follow-up at regular intervals into their mid-thirties has demonstrated health benefits in the form of lower risk of obesity, hypertension, metabolic syndrome and depression, and lower rates of smoking and alcohol use, together with higher rates of completion of education, employment and income 24-26.

Targeted Interventions are Cost-Effective

Economic Nobel Laureate James Heckman has estimated that the net benefit-to-cost ratio of the Perry Preschool Project is 8.74 for the population group, taking into account the economic returns of employment, and decreased engagement with health and justice services 27. An updated assessment confirmed that the long-term rates of return on investment exceeded standard commercial rates 28. Investments from middle-school years on however never achieve a positive return 27.

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Interventions can be quite targeted, as the trials have been, and need not be directed at the whole population. A New Zealand population based study that enrolled infants and then followed them into adulthood, demonstrated that 20% of the population yielded 36% of the cohort's injury insurance-claims; 40% of excess obese-kilograms; 54% of cigarettes smoked; 57% of hospital nights; 66% of welfare benefits; 77% of fatherless childrearing; 78% of prescription fills; and 81% of criminal convictions²⁹. Furthermore these demands were predictable in that the children tended to have grown up in more socioeconomically deprived environments; experienced child maltreatment; scored poorly on childhood IQ tests; and exhibited low childhood self-control. The interventions undertaken by Olds, Heckman and Perry would have targeted these children.

Conclusion

The science of the health and economic benefits of early childhood interventions is becoming clear. In an age when our systems are under pressure, early childhood interventions focused upon parenting, healthy behaviours and child development offer an opportunity to enhance the lives of community members and to decrease the burdens of health and social disadvantage upon individuals and the system. This is an opportunity for long-term, proven preventive intervention at relatively low cost, and with an expectation of return upon investment in human capital, and of decreasing health expenditure in a high risk, high cost segment of our community..

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