What can Primary *Health* Care do to control the Diabetes Epidemic in Central Australia?

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Public Health Medical Officer
The Comprehensive Primary Health Care equation- David Sanders.

Primary Medical Care

plus

Public Health -old

plus

Public Health-new

Primary Health Care
PHC services, programs and advocacy to prevent and treat diabetes

1. Good antenatal care and home visitation to prevent low birth weight babies
2. Promote full brain development by age 5 in all children so they are more likely to attain year 12 and beyond and adopt a healthy lifestyle
3. Child health checks and early family intervention for overweight
4. Strategies to improve the social status of Aboriginal people and reduce economic inequality
5. Strategies to reduce alcohol consumption
6. The political economy of food
7. Early detection and good multidisciplinary management of diabetes
Prevention of Low Birth Weights

- Up to 20% of the mid life chronic disease burden is due to low birth weight babies
- Good antenatal care coupled with nurse home visitation reduces low birth weight babies
- Increased first trimester attendance and reduce smoking and drinking in pregnancy
Full brain development by age 5, completion of Year 12 and adoption of a healthy lifestyle

- Smoking rates are 50% lower for Aboriginal people who have completed year 12 (draft NATSIHRF 2010) and this is a proxy for other measures of a healthy, active lifestyle.

- People with degrees have lower mortality rates than those without - if everybody in England, aged 30 and over, had the mortality rate of graduates there would be 202,000 fewer premature deaths each year, accounting for 40 per cent of all deaths (Marmot et al 2010).

- Caldwells have demonstrated that maternal education is the most important determinant of the Life Expectancy of the child.

PHC interventions to promote full brain development (IQ) by age 5


2. Universal nurse led home visitation (RCTs/Olds)

3. Day care from age 1 to 3 for the most at risk children 6 hours per day 4 days per week with intentional, one on one interactions through learning games (RCTs/ Sparling)

4. Pre-school attendance from 3 to 5
Long-term Health Results for at risk Children with HV and Day care

- Fewer risky behaviors at age 18 (p<.05)
- Fewer symptoms of depression (p<.03) at age 21
- Healthier life styles. The odds of reporting an active lifestyle in young adulthood were 3.92 times greater compared to the control group: *if there was a medicine that produced this odds ratio everyone would be on it!*

% of children in Normal IQ Range (>84) by Age (longitudinal analysis)

Martin, Ramey, & Ramey. 1990. *American Journal of Public Health*
Stanford-Binet X Maternal Education

Educational Attainment: Percent College Attendance

At age 21, almost three times as many individuals in the treated group (39.5%) compared to the control group (13.7%) had attended, or were still attending, a 4-year university.

\[ \chi^2(1, N = 104) = 6.78, p < .01 \]

Core PHC and other early childhood services to prevent diabetes

- Universal nurse led home visitation, access to day care for the most at risk children from 1 to 3 and 2 years of pre-school need to become core services in all communities if we are going to promote optimal brain development, the attainment of Year 12 and beyond and more healthy, active lifestyles to reduce the unequal burden of Diabetes in Central Australia.
Child health checks and family intervention for overweight
Obesity in childhood and death before age 55

- Cohort study of 4857 American Indian children from 1945 assessing childhood risk factors and premature death
- Rates of death from endogenous causes among children in the highest quartile of BMI were more than double those among children in the lowest BMI quartile (incidence-rate ratio, 2.30; 95% confidence interval [CI], 1.46 to 3.62).
- Childhood obesity more significant than glucose intolerance and hypertension
- We need to act on childhood obesity

Childhood Obesity, other cardiovascular risk factors and premature death, New England Journal of Medicine, Vol 362, No 6, Feb 11, 2010
PHC interventions

- Need to recognise that obesity in childhood is a treatable chronic condition – there is no treatment protocol in CARPA.
- Refer to a multidisciplinary “Lifestyle Change Support program” for family assessment and treatment including a self management care plan.
- Action research required to assess the effectiveness of interventions.
Improve social status and reduced inequality to reduce obesity and diabetes

Marmot

Wilkinson
More Adults are Obese in More Unequal Rich Countries

Post-High School Education for Teen Mothers Whose Children Were in the Abecedarian Program

Ramey et al. 2000. *Applied Developmental Science*
Strategies to reduce alcohol consumption
Alcohol and Diabetes

- The calories in alcohol contribute to obesity and diabetes
- Diabetics who are alcohol dependent do not manage their diabetes well – alcohol treatment and abstinence is essential for effective diabetic treatment in these patients
- Alcohol causes family violence and child neglect which will impact on the brain development of children who are then more likely to not complete school and adopt an unhealthy “diabetogenic” lifestyle
Evidence based PHC interventions

- Intersectoral collaboration and advocacy for supply reduction measures especially around price and reduced take away hours
- Implementation of demand reduction measures through community based alcohol treatment services combining CBT and other therapies, pharmacotherapies and social support
The Political Economy of Food

1. Subsidise fresh fruit and vegies
2. Market gardens and community gardens
3. Tax fat
4. Reduce access to sugar drinks
Effective Multidisciplinary Management of Diabetes
<table>
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<tr>
<th><strong>1 percentage point reduction in HbA1c</strong></th>
<th><strong>25-30% reduction in microvascular complications</strong></th>
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<tr>
<th><strong>10 mm Hg reduction in blood pressure</strong></th>
<th><strong>37% reduction in microvascular complications; 44% reduction in strokes; 32% reduction in deaths</strong></th>
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<td>UKPDS 38. BMJ 1998; 317(7160):703-713</td>
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**Improved blood lipid control**

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<th><strong>39% reduction of coronary heart disease</strong></th>
<th><strong>43% reduction in death</strong></th>
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Self Management Care Plans

A review of the CCSM literature led to this conclusion:

“Interventions to enhance management by patients have been shown to be associated with important health outcomes, such as improved monitoring of a condition, fewer symptoms, enhanced physical functioning and psychological status, and reduced health care use”. [Clark NM. Management of chronic disease by patients. Annual Review of Public Health 2003;24:289-313 (302)]
Conclusion

- Comprehensive Primary Health Care can make a big difference to the diabetes epidemic in Central Australia

- Multidisciplinary, primary Care is only one part of this