Kimberley Aboriginal Health Planning Forum

Po Box 1377,
Broome, WA 6725
kahpf@kamsc.org.au

Protocol Review: Evidence used and rationale

Protocol name: Pre-pregnancy care

Rationale: The Maternal Child Health Life course perspective (Figure 1) has led to a paradigm shift in our thinking on how to achieve optimum maternal and child health. It acknowledges that maternal and child health is a continuum from infancy through childhood and adolescent to adulthood, and opportunities exist throughout this continuum to reduce at risk behaviours and improve health outcomes, both in the short and long term. The preconception period forms a part of this continuum and it is now recognised as one of the earliest sensitive windows of human development. Interventions during this stage not only has the potential to improve pregnancy outcomes but also health outcomes later in life for the unborn child.

Figure 1 Preconception care: Maximizing the gains for maternal and child health. World Health Organization, 2013.

Initial Working Group:
KAMS: Shueh Hwuei Lim (Locum GP), Emma Griffiths (GP and protocol co-ordinator)
WACHS KPHU: Melissa Williams (Maternal and child Health Coordinator)

Further review from: Dr Lydia Scott (physician team), Dr Renee Bauer (psychiatry team, Katy Crawford (sexual health project officer), Dr Jared Watts (obstetric & gynaecology team)

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Discussion points:

This protocol is intended to adapt existing guidelines to the Kimberley setting.

Key national guidelines to check before next review:

RACGP: Preventative activities prior to pregnancy (available: https://www.racgp.org.au/clinical-resources/clinical-guidelines/key-racgp-guidelines/view-all-racgp-guidelines/red-book/preventive-activities-prior-to-pregnancy)

RANZCOG: Pre-pregnancy counselling (available https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/Pre-pregnancy-Counselling-(C-Obs-3a)-review-July-2017_1.pdf?ext=.pdf)

CARPA: https://www.crh.org.au/the-manuals/minymaku-kutju-tjukurpa-women-s-business-manual-6th-edition

Young women and contraception:

This protocol initially included a statement about discussing and offering contraception to sexually active teenagers to prevent unplanned pregnancies. It was reported back to the writing group that this was insufficient to guide practitioners in discussing and managing contraception for women under the age of consent. This complex area can't be summarised in a short paragraph therefore we have removed the specific reference to young women. We suggest that the subcommittee could develop a position statement / resource page to address the topic separate from the Kimberley protocols if needed.

Medications in the preconception period:

Based on advice from the regional O&G:

- The recommendation to stop ACE-I in the preconception period was changed to a recommendation to stop ACE-I as soon as possible in pregnancy (ideally < 8 weeks). This is due to increasing evidence that the effects before 8 weeks are few, and the relative harm of extended period off an ACE-I when it is clinically indicated
- The recommendation to take folate for the first three months of pregnancy was changed to "at least the first three months" as it is now commonly continued for longer – at next protocol review this could be checked to see if more specific advice can be included

It was also questioned whether a multivitamin should be recommended in the preconception period. We believe there is insufficient evidence to recommend this as routine at present but it may need to be rechecked at next review

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Literature review:

Creating a culturally-appropriate Pre-pregnancy care protocol

Preconception care is defined as "the provision of biomedical, behavioural and social health interventions to women and couples before conception occurs" (4). It aims to improve their health status by screening and modifying risk factors that contribute to poor maternal and child health outcomes. Contrary to popular belief, it does not only include couples with a desire to conceive but also caters to couples seeking advice about family planning, contraception and infertility investigations.

Culturally appropriate preconception care is important in the Aboriginal population to close the gap in the difference in morbidity and mortality compared to their non-Aboriginal counterparts. There is a disproportionate burden of adverse perinatal outcomes for Aboriginal mothers and their babies. In Western Australia, an estimated 14.9% Aboriginal women give birth to babies below optimal birth weight (< 2500 grams) compared with 6.4% non-Aboriginal women. In 2006, the perinatal mortality was 24.9 per 1000 versus 8.9 per 1000 for non-Aboriginal (5). Aboriginal mothers giving birth in Western Australia also tend to be much younger and their children (0-5 years) have a poorer start to life than their non-Aboriginal counterparts (6). As birth outcomes influence developmental outcomes and health later in life, Aboriginal babies are affected both in the short term and long term (2, 3).

Reibel and Morrison recently published a report titled "Young Aboriginal Women's Voices on Pregnancy Care" which highlights the importance of including female Aboriginal elders, young Aboriginal women and Aboriginal Health Workers in designing educational tools and implementing health promotion activities in the communities (57). This will help create a culturally friendly model of care and educational tools that Aboriginal women can feel comfortable accessing and engaging with in the community. A community consultation was conducted with women in the Kutjungka region (Balgo, Billiluna and Mulan communities) to assess the local pre-pregnancy needs and culturally accepted management prior to development of this protocol and the accompanying educational flipchart.

Chronic disease and medication use

Among Aboriginal women of childbearing age, there is a higher burden of chronic diseases such as diabetes, cardiovascular disease, renal disease and rheumatic heart disease (RHD), compared with their non- Aboriginal counterparts (7) . These diseases are often undiagnosed, untreated or poorly controlled.

Aboriginal women in remote communities are fourteen times more likely to develop diabetes compared with non-Indigenous women (8). It is well documented that diabetes in pregnancy poses multiple risks to the developing foetus and can cause adverse outcomes for the mother and the newborn (9, 10). These adverse perinatal outcomes include congenital malformations, miscarriages/stillbirths, foetal macrosomia, shoulder dystocia, preterm birth and neonatal hypoglycaemia (11). There is a strong association between diabetes in pregnancy and obesity and type 2 diabetes in childhood and adolescence, and the literature has suggest that adequately treating maternal diabetes may reduce the risk of diabetes and obesity in the progeny (12, 13). This has important implications for the Aboriginal population and preconception care provides a window of opportunity to break the vicious cycle between diabetes in pregnancy, childhood obesity and the metabolic syndrome in adulthood. Preconception care is crucial in diabetics to assess glycaemic control and diabetic complications, provide education about the risks involved, engender a multi-disciplinary team approach to optimise glycaemic control prior to conception, and discuss contraception where glycaemic control is suboptimal.

Aboriginal people are up to eight times more likely than other Australians to be hospitalised for acute rheumatic fever and RHD, and nearly twenty times as likely to die from the disease (14). In RHD, circulatory changes which occur during pregnancy will exacerbate any pre-existing valvular disease, leading to higher morbidity and mortality in both mother and baby (14). Preconception care will enable early comprehensive assessment with echocardiography to assess the heart valves and left ventricular function, and plan a multi-disciplinary management involving the cardiologist and obstetrician.

Pre-existing renal disease, proteinuria, hypertension, diabetes and obesity are some of the risk factors for pre-eclampsia during pregnancy. Preconception assessment of blood pressure, body mass index, renal function, urine protein-creatinine ratio and glycaemic level will assist identification of these risk factors and enable early consultation with an obstetrician about commencing prophylactic low dose aspirin in pregnancy.

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While women attending preconception care reap the benefits of early, multi-disciplinary assessment and management of their chronic diseases, they will also have the opportunity to have their medications reviewed and teratogenic medications can be ceased or replaced.

Substance use

Smoking prevalence of pregnant Aboriginal and Torres Strait Islander women (49.3%) is quadruple that of pregnant women in the general population (12.1%) (15). Only 9.6% of Aboriginal and Torres Strait Islander women who smoke quit in pregnancy compared with 18.4% of pregnant smokers generally (15). Foetal and childhood exposure to tobacco smoke is linked to congenital malformations, miscarriage, stillbirth, intra-uterine growth restriction, preterm birth, dose-dependent reduction in birth weights, sudden infant death syndrome (SIDS), respiratory problems, glue ears, cognitive-behavioural problems and early smoking initiation (16-18). A systematic review of pregnant Aboriginal and Torres Strait Islander women revealed complex factors that foster maternal smoking which includes stress, family influences and socio-cultural norms (19). Quitting is perceived as difficult and smoking often justified in the face of challenging life circumstances. Aboriginal and Torres Strait Islander women have limited knowledge about tobacco harm and treatment options such as nicotine replacement therapy (NRT) (19). Preconception care provides an early opportunity to screen women on their tobacco use, provide smoking cessation counselling and offer NRT. Gould et al provides a pragmatic, culturally-competent approach in screening, smoking cessation counselling and initiation of nicotine replacement therapy in pregnant Aboriginal and Torres Strait Islander women which can be effectively utilised in preconception care (20).

Alcohol is a known teratogen that readily crosses the placenta and maternal alcohol use has been associated with miscarriages, congenital malformations, intra-uterine growth restriction and postnatal growth impairment (21-23). Regular heavy drinking (≥4 standard drinks in one sitting at least once weekly) and binge drinking (≥6 standard drinks in one sitting), in the first trimester of pregnancy, is strongly associated with foetal alcohol spectrum disorder (24). Although a higher proportion of Aboriginal women than non-Aboriginal women abstain from alcohol, Aboriginal women are more likely to drink at high risk levels. Fourteen per cent of Aboriginal and Torres Strait Islander women reported that they drank at high-risk levels at least once a week, compared with 5% of non-Aboriginal and Torres Strait Islander women (25). Often alcohol use begin in adolescence, and most young women continue to be exposed to the harmful effects of alcohol without realising that they are pregnant, putting the foetus at risk during the critical organogenesis period and resulting in long term effects on the child's physical and mental development.

A review of 22 programs in the United States found that pre-natal health screening of all women to identify those who have alcohol-related issues, followed by brief, empathetic interventions and motivational interviewing by health professionals, was effective in getting women to stop or reduce their alcohol intake during pregnancy (26). Preconception care provides a similar approach at a more critical time prior to organogenesis. Strong Spirit, Strong Future is a Western Australian Indigenous-specific education campaign aim at increasing awareness of the harmful effects of alcohol in pregnancy to prevent the occurrence of foetal alcohol spectrum disorder (26). This campaign provides a useful, culturally-specific framework in screening, harm minimisation, brief intervention and motivational interviewing to assist Aboriginal women give up alcohol, ideally implemented in the preconception period.

Physical activity, nutrition and obesity

A higher proportion of Aboriginal and Torres Strait Islander women are either underweight or overweight during pregnancy (27). Assessing diet, physical activity levels, weight, height and body mass index (BMI) during preconception care will enable early discussion about a balanced healthy diet, safe and adequate amounts of exercise and appropriate weight gain in pregnancy. The additional incentives of normalising weight prior to conception includes improved glycaemic control for diabetics and consequently, eliminate the need to deliver in tertiary hospitals, often far away from their families and homes. Weight loss and exercise have also been shown to improve ovulation rates and live birth rates in overweight or obese women with infertility secondary to polycystic ovarian syndrome (28).

Folate and iron supplementation

Folic acid intake has been shown to decrease the occurrence and recurrence of neural tube defects (29, 30). Folate deficiency may be more pronounced amongst Aboriginal and Torres Strait Islander women in remote communities with their limited access to fresh fruits and vegetables. Yet, there are lower rates of folic acid supplementation in the preconception period and in early pregnancy (31). A systematic review has shown that preconception folic acid supplementation is effective in preventing up to 69% of recurrent neural tube defects (32). It is recommended that folic acid should be taken for a minimum of one month before conception and for the first three months of pregnancy with a

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recommended dose of at least 0.4mg to prevent neural tube defects (33). A higher dose of 5mg daily should be used where there is an increased risk of neural tube defects (e.g. anti-epileptic medication use, pre-pregnancy diabetes, previous child or family history of neural tube defects) (33).

Anaemia is an important public health issue, with Aboriginal and Torres Strait Islander people almost twice as likely as non- Aboriginal and Torres Strait Islander people to be at risk (34). The risk of anaemia was higher for remote Aboriginal and Torres Strait Islander communities (10.1%) compared with non-remote areas (6.9%), with iron deficiency from poor nutrition and poor access to healthy foods commonly implicated as a cause (35). Iron deficiency anaemia is associated with impaired cognitive development in pre-school children, and reduced work productivity and increased cognitive and behavioural problems in adults (36, 37). Iron deficiency anaemia in pregnant women has been associated with increased risks of prematurity, low birth weight and maternal morbidity (38). Preconception care will enable screening for iron deficiency anaemia and early supplementation, in conjunction with providing education on foods rich in iron and complications of iron deficiency anaemia.

STIs, other infections and vaccinations

The Aboriginal and Torres Strait Islander population has a higher rate of sexually transmitted infections (STIs) (15, 39) compared with the non-Indigenous population. STIs such as chlamydia and gonorrhoea increase the risk of pelvic inflammatory diseases, infertility, ectopic pregnancies, miscarriages, premature rupture of membranes, preterm birth and low birth weight babies (40). The resurgence of syphilis in remote Aboriginal communities brings with it cases of congenital syphilis which can result in foetal death in utero, premature birth, low birth weight, perinatal death and physical malformations (39). When HIV is diagnosed before a pregnancy and appropriate steps are taken, the risk of mother-to-child transmission can be lowered to less than 2% (41). Emphasis on the need for safe sex, screening and treatment can be carried out during preconception care.

Apart from STIs, there are other infections such as rubella, varicella, tetanus, measles and mumps which can cause serious complications in the foetus and newborn, and can be easily prevented if the mother has adequate immunity (33). All women considering a pregnancy should have their vaccination status ascertained and maintained as per recommendations published in the Australian Immunisation Handbook. Certain live vaccines such as rubella and varicella should be given prior to conception and pregnancy should be avoided at least 28 days after these vaccinations.

Psychological health and family violence

While it is important to address the physical health in preconception care, assessment of the woman's psychological health and living situation must not be neglected. Aboriginal women experience higher rates of psychosocial stresses, anxiety, depression and family violence (27, 42). The reasons for these are complex, which include historical displacement from their families and land, geographical and social isolation, unemployment/financial disadvantage, overcrowding and substance use. The literatures have shown that women with pre-existing depression and anxiety disorders are at high risk for recurrence or exacerbation of their psychiatric symptoms during their pregnancy and in the postnatal period (43-46). Women who reported poor mental health before pregnancy were 40% more likely to have a pregnancy complication and nearly twice as likely to deliver a low birth weight baby (47). The increased level of maternal cortisol secondary to depression, anxiety and stress can threaten the developing foetal nervous system, which may result not only in poorer birth outcomes but also long term effects on the child such as poorer learning outcomes and adolescent mental health issues (48, 49). Violence against girls and women results in adverse physical, psychological and reproductive consequences, as well as increased risk for preterm birth and low birth weight infants (50). Preconception care provides an early avenue to assess both protective and risk factors contributing to the woman's mental health, her relationship with her partner and allow early intervention to ensure her safety, strengthen her resilience and prevent any psychiatric complications during the antenatal and postnatal period. Avni-Barron et al provides a useful framework to help women with depressive and anxiety disorders plan preventive strategies prior to conception (51). The Kimberley Mums Mood Scale is another culturally sensitive, locally developed and validated tool for screening of perinatal depression/anxiety, which can be used as a guide to assessing the psychological health of Aboriginal and Torres Strait Islander women prior to conception.

Reproductive planning, birth spacing and preventing teenage pregnancies

The Western Australian Mothers and Babies 2010 report showed that in 2009, the teenage birth rate for Aboriginal mothers was more than six times the rate found among their non-Aboriginal counterparts (52). Pregnancy in teenage years confers greater risk to both the mother and the newborn, including anaemia, preterm birth and stillbirths, since teenage girls are not physically mature themselves (53). Teenage girls are also two to five times more likely to die from

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pregnancy-related causes than women aged 20-29 years old (54). Approximately 287,000 women die each year from causes related to pregnancy and childbirth. Of the total number of pregnancies worldwide each year, about 40% are unintended (55). About one in five pregnancies will end in abortion, nearly half of which are unsafe and cause 47, 000 maternal deaths (56). Fundamental to preconception care is empowering girls and women to make reproductive planning choices, prevent unplanned teenage pregnancies and promote appropriate birth spacing through correct and consistent use of contraception.

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