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The growing threat of non-communicable disease to pregnancy health

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BACKGROUND

For the past three decades, global maternal and child health efforts have focused on ensuring adequate nutrition for pregnant women, access to essential medicines, skilled health providers, safe facilities for birthing, and treating conditions such as prematurity, which remains the leading cause of newborn death. As a result, maternal deaths have fallen by almost 45% since 1990 and the mortality of those aged under five years has more than halved. But, this global progress stands to be undermined by the rapidly rising prevalence of obesity and related non-communicable diseases (NCDs), such as diabetes and chronic hypertension, amongst the obstetric population.

In the same 25 years since 1990, the global prevalence of obesity has more than doubled and it is young women of childbearing age who are bearing the greatest burden. Recent data suggests that between 1975 and 2014 the age-standardised global prevalence of obesity increased from 6.4% (95% credible confidence interval (CI): 5.1-7.8) to 14.9% (CI: 13.6-16.1) in women, with the average body-mass index (BMI) increasing by 0.5 kg/m² per decade. Over the same period, diabetes rose from 5.0% (CI: 2.9-7.9) to 7.9% (CI: 6.4-9.7) among women. Recent global prevalence data for raised blood pressure appears to tell a different story, falling from 26.1% (CI: 21.7-31.1) in 1975 to 20.1% (17.8-22.5) in 2014. However, examination of this data by age and world region shows that the global prevalence data is masking worrying increases in the prevalence of hypertension among women, particularly those of childbearing age, in Sub-Saharan Africa, South Asia and Oceania.

As the hypertension data suggests, the global burden of NCD is disproportionately concentrated in low- and middle-income countries, with almost three quarters of the 56 million global deaths from NCD occurring in these nations. The Pacific Island nations have been consistently highlighted as the world region most afflicted. NCDs now account for 70% or more of all deaths in the Pacific Islands, with life expectancy actually falling in Tonga as a result. The increase in NCD burden seen in the Pacific can be attributed to urbanisation, lifestyle changes associated with rapid economic development such as greater uptake of smoking and alcohol consumption, changes in diet and physical activity, and rising obesity. Women are especially prone to NCDs as they generally have a higher likelihood of poverty, lack of education, and physical inactivity compared with men and often experience more barriers to health care.

Once thought of as diseases of affluence or old-age, NCDs now contribute significantly to morbidity among those of productive and reproductive age in the Pacific. Almost half of NCD deaths occur before the age of 70; as such, NCDs are becoming a prominent problem for pregnant women. Given that many Pacific women of childbearing age have little contact with the health care system between school-age and when they become pregnant, it is often during routine antenatal care or even at the time of birth that NCDs are first recognised. This requires that midwives, community nurses, traditional birth attendants, and obstetricians are able to deal with the challenges that a pregnancy complicated by NCDs brings.
One in four maternal deaths are now caused by pre-existing medical conditions such as diabetes, chronic hypertension, and obesity. The health impacts can be exacerbated by pregnancy. Obesity puts a pregnant woman at risk of early pregnancy loss, preterm birth, stillbirth, gestational diabetes and pre-eclampsia, as well as increasing the likelihood that her infant will be macrosomic or born with a congenital malformation. Similarly, uncontrolled or undiagnosed diabetes in pregnancy or the development of gestational diabetes is associated with an increased risk of other pregnancy complications such as pre-eclampsia, and impacts the infant by increasing the risk of preterm birth, respiratory distress syndrome and hypoglycemia. Diabetes in pregnancy is also associated with the delivery of large for gestational age infants, which can result in life threatening obstructed labour. Finally, chronic hypertension can result in pre-eclampsia, foetal growth restriction, placental abruption, and preterm birth. All of these conditions increase the likelihood that a caesarean section delivery may be necessary.

As well as the myriad perinatal complications associated with obesity, diabetes, or hypertension during pregnancy, longer term risks to the health of the mother and child are well recognised. Gestational weight gain exacerbates postpartum obesity, hypertension, and risk of diabetes in the mother, while her child is also susceptible to later obesity and metabolic dysregulation. If the same mother becomes pregnant again, her risk of perinatal mortality is higher, while her child may go on to continue an intergenerational cycle of NCDs when they conceive their own children.

In developed country settings, such as Australia, New Zealand, or the United States, obstetrics and gynaecology practice is already adapting to the new reality of rising NCD prevalence. Dedicated fellowships now train clinicians to treat women who are obese or have diabetes when they become pregnant and specialist clinics are available with the resources, equipment, and expertise to deal with these high-risk patients and their complex health needs and challenging deliveries. In the Pacific, many nations are still dealing with more fundamental issues: trained health care professional shortages, increasing early access to antenatal care, providing safe places for delivery and neonatal care, and improving infection control. But there is an urgent need to simultaneously adapt to and begin to successfully manage the increasing burden of NCDs among pregnant women.

More primary research and greater disease surveillance are needed to understand the current burden of NCDs among pregnant women in the Pacific and to identify sub-sectors of the reproductive age population who are most at risk. Preconception care, at the stage of family planning, should include preventative measures including counseling on weight, nutrition, and physical activity, that may be taken to mitigate risk. Early detection and treatment during pregnancy are essential, meaning that it is important to provide all practitioners tasked with maternal-child health care – from traditional birth attendants to specialist obstetricians – with some level of education about the risks of NCDs to pregnant women and how to detect them; preferably using low-cost strategies appropriate for use in rural, low-resource settings. Public health campaigns and health messaging should continue to target early enrollment into antenatal care to enable early NCD screening and to promote the importance of attending multiple antenatal care appointments during pregnancy for continuity of care. Universal and consistent access to essential medicines for NCDs and implementation of standardised screening protocols should be a priority for clinical providers. Finally, a system of postpartum follow up is needed, providing further screening and longer term care. A pragmatic solution to preventing the adverse health consequences of NCDs in pregnancy would be to promote interventions across three windows of opportunity – preconception, during pregnancy, and postpartum – and to focus on strengthening health systems to provide appropriate pathways of care.

New infrastructure for these activities is not necessary; many can take place within existing health care systems, and indeed the integration of NCD care and antenatal services may have several benefits. Previous programs in low and middle income countries have been successful in integrating infectious disease care (HIV/AIDS, TB, Malaria and STI care) into antenatal care and family planning services. Several of the lessons learned from these programs can be applied to integration of NCD care: point-of-care screening and diagnosis, task shifting, adapting existing protocols, and patient-centered care. As well as being an efficient use of existing resources, the major benefit of integrating NCD diagnosis and care into the existing antenatal care infrastructure is that the antenatal care structure is designed for long term follow up. If NCDs can be detected early, treatment implemented and adherence monitored, and adoption of healthful behaviors promoted and...
reinforced – then there is the potential to influence the long-term health of both mother and baby and indeed, future generations.

Improving maternal child health is a prominent goal of a Pacific-wide health strategy. NCDs in pregnancy represent a significant challenge to the long-term health and development of women and children in Pacific nations and if left unchecked will begin to undermine significant progress in the reduction of maternal and neonatal mortality. With the knowledge that NCDs are becoming increasingly burdensome in the Pacific region, the potential to influence the long-term strategy for managing these diseases.

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Pregnancy outcomes in women with heart disease at the Colonial War Memorial Hospital, Suva, Fiji.

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ABSTRACT

Background: Cardiac disease in pregnancy is the third most common cause of maternal mortality in Fiji. The aim of this study was to determine the characteristics of pregnant women with heart disease presenting to the Colonial War Memorial Hospital (CWMH).

Method: A retrospective review of case notes of all pregnant women identified with heart disease who birthed in the hospital between January 2011 and December 2013 (36 months).

Findings: Of the 24,844 livebirths in CWMH during the study period, 153 women, aged 15 to 43 years of age, were confirmed with a cardiac lesion, which gives a prevalence rate of 6.2 per 1,000 livebirths. Rheumatic heart disease was the commonest cardiac lesion (112, 90%) followed by congenital heart disease (6, 5%) and hypertensive cardiomyopathy (3, 2%). Most of the cardiac lesions (120, 73%) were detected during pregnancy.

There was a higher rate of intervention, morbidity and mortality associated with a cardiac lesion. The rate of instrumental deliveries, caesarean sections and admissions to intensive care were 3.5, 1.5 and 44 times higher compared to pregnant women without a heart lesion. The case-fatality rate was 2.0%.

Conclusion: Women with a cardiac lesion in pregnancy had more interventions, higher morbidity and mortality compared to women without a cardiac lesion. Early diagnosis and evaluation of cardiac function were essential for better maternal outcomes. All pregnant women should be screened with an echocardiogram to improve early detection of cardiac lesions.

Key Words: Cardiac disease, pregnancy, Pacific, Fiji, rheumatic heart disease

BACKGROUND

Congenital and valvular heart diseases in pregnancy have continued to be a leading cause of maternal and neonatal morbidity and mortality worldwide.1,2,3 Complications were observed in 18% and 17% of women and neonates of women with heart disease compared to 7% and 0% in women without heart disease.4 The complications in women vary from arrhythmias to heart failure to death whereas for neonates, they can vary from miscarriage to premature birth to neonatal death.

The seriousness of complications can be predicted by the level of maternal risk which is dependent on the cardiac disease diagnosis and condition.1

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Several predictors of cardiovascular events in pregnancy have been developed which include the prospective CARPREG study from Canada by Siu et al.6 and the retrospective study of women with congenital heart disease by the ZAHARA investigators from Europe.5

The CARPREG predictor score has been the most utilised of the risk scores which is based on identified predictors had a high agreement between the expected and observed rate of clinical events. The ZAHARA score had not been validated elsewhere and both the ZAHARA and the CARPREG risk scores are population dependent.6 In addition, 74% of the CARPREG and 100% of the ZAHARA participants had congenital heart disease and their findings may not be generalizable to populations with a high rate of acquired heart disease, such as those in developing countries.

The burden of cardiac disease in pregnancy is higher in developing countries and disadvantaged populations in developed countries where rheumatic heart disease (RHD) is more prevalent and access to health care is limited.7,8,9 There remain a large degree of under-diagnosis in developing countries where access to echocardiographic examinations is not consistently available. In the Pacific, studies have estimated the prevalence of subclinical RHD is 8.6–77.8 per 1,000 in school children using echocardiography.10, 11, 12 Only one study in the Pacific has estimated the prevalence of clinically significant RHD. Relying on amalgamating records from multiple sources and capture-recapture methods, this study estimated a prevalence of 6.5 per 1,000 women.13 Cardiac related diseases were responsible for five of nine indirect causes of maternal deaths in Fiji between 2008 and 2012.14

While cardiac disease is an important cause of maternal morbidity and mortality in Fiji, very little is known about the women and their presentation in pregnancy. The aim of this study is to determine the demographic, clinical details and maternal and neonatal outcomes of the women presenting with cardiac disease to the obstetric department at the Colonial War Memorial Hospital (CWMH) between January 1st 2011 to December 31st 2013.

METHODS:

Retrospective case-notes review of all women who birthed at CWMH from January 1st 2011 through to December 31st 2013 with a diagnosis of cardiac disease.

Women with cardiac disease were identified using the PATIS Patient Information System, maternity registration book, Intensive Care Unit admissions register and the echocardiogram booking register.

The study variables collected were relevant socio-demographic, clinical, and laboratory details from the antenatal clinic and maternal and fetal outcomes at delivery. The variables were entered and collated into an Excel spreadsheet. Each pregnancy was treated as an independent event. Statistical analysis was performed using SPSS (IBM SPSS Version 23). Maternal outcomes were compared to the average rate of outcomes in the general obstetric population seen at CWMH in the same period.

Ethical approval was obtained from the Medical Sciences Research Committee, College Health Research Ethics Committee and the Ministry of Health Research and Ethics Committee (reference number 2014.117.CEN). The study was approved as a research project for the degree of Master of Medicine in Obstetrics and Gynaecology at the Fiji National University.

FINDINGS:

There were 24,844 livebirths (LB) at CWMH January 2011 to December 2013 and 153 women had a diagnosis of cardiac disease which gave a prevalence rate of 6.2 per 1,000 LB.

Characteristics of the women

Of the 153 women, only 124 (81%) case notes could be located and retrieved. Seven women birthed twice during the study time. More than three quarters (84%) of the women were between the ages of 20 to 39 years of age at the time of delivery. For the 124 pregnancy events, the average gestational week at booking was 27.1 weeks and ranged from 6 – 38 weeks. A relationship was found between gravidity and gestation at booking \( (X^2(9, N = 124) = 19.19, p = 0.019) \) with primigravida women booking earlier (Table 1).

Types and severity of cardiac disease

The commonest cardiac disease diagnosis made was RHD (112, 90%) (Table 2). There were six women with congenital heart disease – two atrial septal defects, two ventricular septal defects, one...
Table 1: Characteristics of the women with cardiac disease

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>&lt;20</td>
<td>6 (5)</td>
</tr>
<tr>
<td>20-29</td>
<td>69 (56)</td>
</tr>
<tr>
<td>30-39</td>
<td>36 (29)</td>
</tr>
<tr>
<td>40-49</td>
<td>12 (10)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Mean age</td>
<td>25.5</td>
</tr>
<tr>
<td>Mode</td>
<td>22</td>
</tr>
<tr>
<td>Age range</td>
<td>15 – 43</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
</tr>
<tr>
<td>Fijian of Indian origin</td>
<td>107 (86)</td>
</tr>
<tr>
<td>Fijian of Other origin</td>
<td>15 (12)</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>77 (62)</td>
</tr>
<tr>
<td>Partnered</td>
<td>25 (20)</td>
</tr>
<tr>
<td>Single/Separated</td>
<td>20 (16)</td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>30 (24)</td>
</tr>
<tr>
<td>No</td>
<td>92 (74)</td>
</tr>
<tr>
<td>Not documented</td>
<td>2 (2)</td>
</tr>
<tr>
<td>Smoking status</td>
<td></td>
</tr>
<tr>
<td>Smoker</td>
<td>71 (58)</td>
</tr>
<tr>
<td>Non-smoker</td>
<td>42 (34)</td>
</tr>
<tr>
<td>Unknown</td>
<td>9 (8)</td>
</tr>
<tr>
<td>Gravidity</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>41 (33)</td>
</tr>
<tr>
<td>2</td>
<td>39 (32)</td>
</tr>
<tr>
<td>3 or more</td>
<td>44 (36)</td>
</tr>
<tr>
<td>Gestation at booking</td>
<td></td>
</tr>
<tr>
<td>1st trimester</td>
<td>21 (20)</td>
</tr>
<tr>
<td>2nd trimester</td>
<td>74 (71)</td>
</tr>
<tr>
<td>3rd trimester</td>
<td>9 (9)</td>
</tr>
</tbody>
</table>

Maternal and neonatal outcomes

The maternal outcomes are listed in Table 3, comparing the outcome of women with cardiac lesions with those without. Most of the 33 women delivered by caesarean section were for obstetric indications.

There were 119 (96%) LB in the women with cardiac disease. There were six intensive care admission. There was no neonatal death. Five (5%) of the women had early fetal loss.
Table 3: Maternal outcome comparisons

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Number (%) with cardiac lesion (N=124)</th>
<th>% women without cardiac lesion (N=24,691)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preterm Labour</td>
<td>11 (9)</td>
<td>Not available</td>
</tr>
<tr>
<td>Assisted Vaginal Delivery</td>
<td>11 (9)</td>
<td>3</td>
</tr>
<tr>
<td>Caesarean section</td>
<td>33 (27)</td>
<td>17</td>
</tr>
<tr>
<td>Fetal distress</td>
<td>5 (4)</td>
<td>Not available</td>
</tr>
<tr>
<td>Post-partum haemorrhage</td>
<td>3 (2)</td>
<td>2</td>
</tr>
<tr>
<td>Intensive care admission</td>
<td>6 (5)</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Exacerbating factors

Thirty-two (26%) women had exacerbating factors during the pregnancy. The most common was anaemia (18, 56%) and pneumonia (7, 22%). Heart failure was diagnosed in 28 (23%) women with a cardiac condition. Sixteen (57%) occurred in the antenatal period and 12 (43%) were diagnosed in the puerperium. The 28 women with heart failure had initial echocardiograms showing nine (31%) mild, nine (31%) moderate and 10 (35%) severe disease.

There were three maternal deaths. The women were stable in the antenatal period but decompensated during labour and the postpartum period. Two of the women had undiagnosed severe mitral stenosis and one had cardiac failure from cardiomyopathy as a result of pre-eclampsia. Two of the women booked in the first trimester. The Maternal Mortality Ratio of the general obstetric population was 44 per 100,000 LB during the study period.

DISCUSSION:

The prevalence of cardiac disease in pregnancy in CWMH is 0.62% or 6.2 per 1,000 LB which is comparable to the global rates of 0.5-2%. A recent prospective study in Fiji using echocardiography screening in school students found a definite RHD prevalence of 8.4 per 1,000 LB. A 2011 study found a prevalence rate of 55.2 per 1,000 LB in Lautoka school children, however, this may be falsely high considering the recent clarifications in echocardiographic screening criteria and use of guidelines. The prevalence of congenital heart disease in this population was low compared to populations in developed countries.

Thirty-four (27%) women were known to have cardiac disease before pregnancy and would have benefited from attending a preconception clinic where risks were assessed and quantified and family counseling provided. Seventy (56%) women in our study initiated pregnancy care after 20 weeks gestation especially when they have had babies before. Antenatal education is needed to encourage all women, especially those with increasing parities, to book early. This could potentially involve community nurses, women’s groups and church organisations.

Smoking increases the risks of adverse pregnancy outcomes. The majority (58%) of women in this group smoked making it necessary to review the effectiveness of smoking cessation initiatives.

We found that the initial severity of cardiac disease is not a reliable predictor of cardiac complications in pregnancy with 18 women with mild to moderate valvular disease developing heart failure. This is consistent with the findings of other studies.

Nine women had previous cardiac surgery and four of them had metallic valves and anticoagulation. Of the four women, one had an early pregnancy loss and one had a fetal death. The use of anticoagulation is a predictor of neonatal complications.

The percentage of women with exacerbating factors (26%) and heart failure (22%) was higher than that reported by Drenthen et al. of 13% and 8% respectively. We found that a good predictor of poor outcome was when the women developed exacerbating factors. These would develop late however and may precede heart failure. As expected, the development of heart failure increased the risk of maternal death.

Our study confirmed the higher rate of interventions in labour required by women with cardiac disease. There was a high intervention rate in instrumental (3.5x higher) and caesarean section (1.5x higher) deliveries and very high use of the intensive care facilities (44x higher). Maternal deaths were high in this group compared to the low-risk population - and may have been even higher without the appropriate care.

CONCLUSION

The high rate of RHD that was undiagnosed pre-pregnancy require better prevention strategies and screening systems in high schools to identify those at risk and treatment with antibiotics initiated. Appropriate pre-pregnancy counseling...
and early antenatal booking are essential to assess heart function, severity of disease and initiate interventions to minimise exacerbating factors and complications such as heart failure.

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Maternal health promotion in Samoa: views of pregnant mothers.

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ABSTRACT:

Background: Child health and maternal health are priority areas for Samoa. Good maternal health is critical for the welfare and survival of the household especially for children who rely on their mothers for their basic needs. We aimed to identify positive and effective mechanisms of advice and support that would improve the experiences of pregnancy for mothers, and improve health outcomes for mothers and babies.

Methods: A qualitative approach was used with five focus group discussions with pregnant women (N=32). All the focus groups were held in five different medical clinics: four in Upolu and one in Savai’i. Interviews were transcribed and translated from Samoan to English and accompanying notes taken. Data were analysed using thematic analysis. Key themes which emerged provided categories which assisted in sorting of more comments to provide understanding and context to the participants’ views.

Findings: Pregnant women cited physical symptoms, a lack of knowledge or understanding of pregnancy, relationship issues, barriers to accessing health care and stress as the main issues. Travelling long distances by boat and buses for scans and appointments was challenging for most. Waiting times in clinics were long, with little information available in Samoan on television screens or in pamphlets. Many women felt they couldn’t ask questions of the midwives/doctors and often the most prominent issues for women were in relation to relationships and mental wellbeing.

Conclusions: A lack of funding and transportation were identified as barriers to implementing a sustainable programme to help pregnant women. Clinics should be set up closer to where their clients live in order to minimise travel. The waiting times in clinics could be utilised to have pregnancy information displayed via videos along with pamphlets with the proviso they be in plain Samoan.

Key Words: maternal health, child health, Pacific, Samoa, pregnant women, qualitative

BACKGROUND

It is widely anticipated, that Sustainable Development Goal number three (health and wellbeing for all) will ensure that maternal and child health remains a priority. Good maternal health is critical for the welfare and survival of the household, especially for children who rely on their mothers for their basic needs. Since Samoa became a signatory to the Millennium Declaration, there has been a steady overall progress across all these goals.1 In 2011, Samoa is one of the four Pacific countries to achieve the targets of the Millennium Goals alongside Niue, the Cook Islands and Palau.2

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In both Demographic Health Surveys in 2009 and 2014, 93 percent (93%) of women who had a child five years preceding the survey had received antenatal care during their most recent pregnancy from a trained health provider (i.e., doctor, nurse, midwife or nurse aid). Antenatal visits have also increased from 58 percent (58%) of women having four or more antenatal visit in 2009 to 73 percent (73%) in 2014. The proportion of women who did not access any antenatal support in the duration of their most recent pregnancy also decreased from four percent (4%) in 2009 to three percent (3%) in 2014. However, it was evident that women with higher levels of education and with higher wealth index were more likely to use antenatal care services.

The same surveys also showed that women were receiving antenatal care much later in their pregnancy. Data from surveys in 2009 and 2014 showed little difference in access to antenatal care in their first trimester between 2009 (13%) and 2014 (12%). The majority of women (78%) attended their first antenatal visit during their second trimester and six percent (6%) went during their eighth month of pregnancy or later. These figures show that a significant proportion of women are missing out on vital information and services that could prevent complications during pregnancy and enhance the wellbeing of their families.

Overall, there has been a steady progress towards reducing maternal mortality rate (Millennium Development Goal (MDG) number five) since 2005. Over the period of 2002-2006, the maternal mortality rate (MMR) was recorded at 46 per 100,000 live births. In 2015, the MMR was at 51 per 100,000 live births, indicating some reduction from the baseline of 74 per 100,000 live births but still short of the MDG target of 24 per 100,000 live births.

The Ministry of Health aims to decrease the maternal mortality rate and improve overall maternal health outcomes. One strategy implemented was to recognise the valuable contribution of traditional birth attendants by providing ongoing training on maternal health services. In 2002, this partnership has translated to 330 mothers attended by traditional birth attendants, about 9% of total births for the year.

As Samoa moves forward to attaining the Sustainable Development Goals (SDG), the nation can build on previous gains and success resulting from efforts to achieve the MDGs. Achieving continued progress seems to have been largely impeded by limited access to reproductive health, as indicated by low contraceptive use (29%) and increasing birth rate among adolescents. Samoa’s fertility rate is the highest compared to other Pacific countries at 5.1 children per woman and adolescent fertility rate (for women aged 15 to 19) also remains high at 44 per 1,000 in 2009 and 56 per 1,000 in 2014. More research is needed to explain the increase in teenage pregnancies, although low contraceptive use is likely to be a major contributing factor.

Health officials and community representatives agree that awareness campaigns are essential not only to increase contraceptive use, but also in educating expectant mothers of pregnancy risks and general awareness on safe pregnancy practices. Partnerships with community-based organisations could also potentially be utilised in raising community awareness. Samoan Women’s Health Committees have historically made a very real improvement in maternal and child health, but their involvement in this area has waned over the years due to changes in their links with the health sector.

This paper presents an analysis of Samoan mothers and pregnant women’s experiences, expectations and aspirations for their pregnancy to identify how best to improve health outcomes for mothers and babies.

METHODS

Study design

A series of focus groups were conducted in October 2015 and February 2016 in Samoa. Focus groups were selected as an appropriate method to explore unsolicited perspectives on maternal health information needs and knowledge. The development of the interview protocol was conducted following a detailed literature review and an initial scoping exercise (workshop) with key stakeholders in Samoa in 2014. Protocol development, consultations and interviews were led and conducted by Samoan health professionals. Stakeholder engagement was a critical facet of this project to ensure effective translation of results into consideration for policy and practice.

Ethics approval was granted from both The University of Auckland Human Participants Ethics Committee on the 19th of August 2015 (reference no. 015289) and The Ministry of Health Samoa research ethics committee on the 19th of June 2015.
Sampling and recruitment

Stakeholders were also consulted for guidance on sampling to ensure an equitable representation of women from both rural and urban settings in both Upolu and Savai’i. Mothers from a range of age groups and parity/gravida (number of pregnancies/live births) were also purposively sampled. Stakeholders (midwives from various clinics on both Islands) took the lead to invite mothers from within their clinic to participate in a focus group interview. Each participant was given a participant information sheet and consent form with verbal explanations from the research team in either Samoan or English, as preferred by the interviewees. All focus groups were held in five clinics across the Upolu and Savai’i, including the central hospital antenatal clinic in Apia.

Data collection

Interviews were on average of 90 minutes duration and were recorded by a digital audio device and subsequently transcribed. A general set of questions were used as a guide for prompting discussions about mothers understanding of health, any concerns they have, and their information and/or help seeking behaviours. The topics discussed during the focus groups included, but were not strictly limited to the following: What does it mean to be 'healthy' during pregnancy; Who/what do you seek advice and support from during pregnancy/parenting (and when and/or where)? Why do you seek advice and support this way? What stops you from seeking advice and support from this source? Or any other way? Have you received advice through media or distributed resources? If so, can you describe them? How did you find the information? If you didn't follow the advice, why? Who do you approach when you are worried, anxious, feeling sad (if anyone)? Notes taken during the focus group discussion were included in the final analysis.

Data Analysis

Two research team workshops were held to carry out an inductive thematic analysis of the findings using the transcriptions and notes taken from the discussions. Key themes which emerged provided categories which assisted with the sorting of comments to provide a greater understanding of which themes were the most commonly discussed and in what context.

FINDINGS

In total six of focus groups were conducted, involving 32 women. Our analysis determined that four persistent themes emerged from the analysis of the focus group data; common understanding of a ‘healthy pregnancy’; mental health and stress; accessing pregnancy services; and sourcing information.

Common understanding of a ‘healthy pregnancy’

Pregnant mothers’ current understanding of a healthy pregnancy reflects both implicit and/or experiential knowledge and health promotion messages which culminated in a general awareness of what is a healthy pregnancy. This advice was often very general with mothers referring to the importance of good nutrition, keeping active and not smoking or drinking alcohol. Maintaining good physical health was a general theme across the focus groups with mothers referring to the consequence of the mother's health and behaviours on that of the baby’s. The most commonly mentioned advice was in relation to good nutrition:

- We should eat foods that will ensure the good health of your baby.
- There are foods that she can’t eat, and foods she can eat.
- Right now I feel strong, I feel able to do chores, and to eat well. I don’t really have an appetite for chips or soft drinks. I can feel baby moving all the time.

Good nutrition advice included not eating fatty foods or sugary foods (or consuming sugary drinks) and choosing healthier options such as vegetables and soups.

- Make the effort to walk and to eat the right foods.
- I’m strong when I move around, when I sit my body feels weak when I don’t move around. Everything is right when I work and move around.
- It is good to listen to the doctors/midwives advice regarding not smoking and not drinking alcohol which affect the unborn baby.

Keeping germ-free and avoiding chemicals/toxins was mentioned in one focus group with one mother citing her occupation as a hairdresser as a potential risk to her unborn baby. Other factors, including spacing were also
cited as important to a healthy pregnancy. Mothers in two out of five groups also referred to the importance of spacing children:

- **Mental health and stress**

By discussing the mothers pressing thoughts and concerns, a picture was built of other factors that impacted on the women's health and wellbeing. Consistently across all focus groups, references were made to relationships with their partners or other family members, and how these relationships often presented challenges for them during their pregnancy. Sometimes the pregnancy itself prompted shifts in expectations on the mother and/or their partner. Mothers also placed a strong emphasis on the need to remain stress-free and keeping a positive frame of mind despite any issues they encounter. Relationship with the husband was consistently considered both a stressor and important to healthy pregnancy and wellbeing.

- I should protect the relationship between me and my husband, me and my children... but more importantly me and my husband.

In a few cases, the women's sharing alluded to a harmful relationship although no-one admitted to being abused physically, even though they talked about ‘other women’ they knew being in abusive relationships. There are significant implications for maternal health promotion and support that clearly acknowledges and addresses the importance of mental health and wellbeing that is sometimes synonymous with a woman's experiences of close relationships either with their partner or family. In some cases, the women's partner was her greatest source of strength, trusting him with her concerns and sharing responsibilities together, further reiterating the importance of healthy relationships during pregnancy.

- Living free from stress/problems within the family, not only for myself but also my children ... that they will live safe and happy.

Interestingly, relationship issues and concerns were more prevalent in discussions than any references to socioeconomic determinants. Some mothers did refer to issues such as stress which came from trying to provide for their family, but often these were mentioned in reference to their relationship with others. Mothers who had other children talked about trying to pay them enough attention and to care for them while pregnant with another child, while other mothers talked about the need to continue to work during pregnancy either paid work or chores they were expected to carry out. The need for greater appreciation of the importance of pregnancy and the role that families and communities can play in positively supporting a pregnant woman is a potential prevention programme for maternal and subsequently infant and child health.

This understanding was occasionally synonymous with religious and/or spiritual beliefs that prayer or offering up their issues and concerns to God was an important way of remaining healthy during pregnancy. When probed further however, some details became hazy and there was a lack of understanding of the physiological reasons behind the messages – this was also evident in some of the questions the mothers posed throughout the research. A few women also referred to the importance of righteous living within the family, hinting at a belief that doing the right thing will prevent negative outcomes for them and/or their baby.

- It is important not be stressed ... live righteously within your family.

- One should live with good hygiene and try and do chores so that nothing bad happens to me.

Women shared a range of issues and concerns which they had during their pregnancy. The most pervasive of these were the awareness of unusual or unexpected physical symptoms, a lack of knowledge or understanding, barriers to accessing health care or scans and finally, but importantly, the impact of stress (on the health of the baby and themselves).

Physical symptoms included pain, fatigue and a general feeling being unwell (nausea and morning sickness). Not knowing the cause of discomfort or pain was a concern for some. As one woman explained:

- ... I feel pain in my body. I just take my tablets: Panadol. But I still feel dizzy. I came to the doctors (midwives) and they say take tablets. But I still get dizzy...

Several mothers had unanswered questions or conflicting messages about pregnancy and health. For example, what kinds of massage could be permitted during pregnancy? Another mother talked about a lack of understanding of...
certain traditional practices that they were advised to adhere to.

Other practices for me within my family, are related to things that I use ... for example, things that I eat with, I shouldn’t eat with a fork ... but I wonder why? As pregnancy is new to me.

Most mothers cited another trusted female as their preferred source of pregnancy advice. Some also turned to their partner or other family members to discuss their concerns or issues.

My dad, my mum, when my brother is at home, they can be stressful. There’s only one person I share with and that’s my sister. Only my sister.

Accessing pregnancy services

Some women experienced issues with seeing their midwives due to challenges with travel. In Savai’i for instance, mothers do not have access to radiology services and therefore are required to travel to Upolu for their periodic milestone scans. It was notable here that some women who had travelled to New Zealand or Australia for previous pregnancies were aware of the option of scanning. Others were less aware of the need for and importance of scanning. However, consistently, the issue of access for rural and Savai’i based women was discussed.

When it’s time for a scan. There are no scans here. Women get transferred to Apia to do their scans. You can work out how far it is for her to travel to get a scan.

Access to antenatal care was also discussed in terms of waiting times to see a midwife. Some mothers talked about arriving early in the morning and waiting for several hours before they are seen.

The usual issue here at the clinic. Sometimes we are prevented from seeing a doctor/midwife – need more doctors/midwives so that appointments can progress faster. We shouldn’t have to sit and wait for long periods. It’s also difficult to travel around on buses and boats.

Sourcing information

The majority of information currently available to pregnant mothers is provided through clinics either through one-on-one engagement with their midwife/health professional, available brochures or in one instance, group education sessions. Other mothers mentioned the importance of seeing a ‘foma’i’ which translates as ‘doctor’, which in Samoa can mean any health professional including their midwife, or ‘fa’atosaga’.

Once a mother knows she is pregnant, she should first see her doctor/midwife, who provides advice on each issue related to the health and wellbeing of a pregnant mother.

Others admitted that they did not proactively seek advice from their midwives unless it was imparted:

They don’t ask, we don’t tell. No offence – so what’s the point of sharing?

Maternal health promotion within the clinical setting is limited by the prioritisation of clinical checks such as weights, blood pressure, blood tests and scans. All mothers appreciated the clinical aspect of their visitation and if they are within healthy ranges for their checks and tests, they believed they were healthy. However the research provided qualitative information about questions and concerns among the mothers and their limited understanding of what, and in particular, why, certain behaviours were considered harmful or put them at risk. Most mothers also trusted information from their midwives/health professionals however wanted them to impart more advice about their pregnancy:

I only get info about what baby looks like when I get scans – don’t know about mothers but I would like to get more information. Rather than me asking, I’d like for my midwife to tell me what stage my baby’s development is. I don’t ask those sorts of questions of my midwife, but I would like for them to do it as routine practice.

One clinic was more extensive in its maternal health promotion, delivering group sessions at the clinics one morning a week, and also carrying out home/village visits to pregnant mothers and their families, delivering home promotion messages outside of the clinic setting. Both these sessions were perceived as valuable from the viewpoint that many of the mothers who attend have the opportunity to ask questions and discuss any concerns they may have. A couple of mothers, who have experienced pregnancy and childbirth in New Zealand, made some comparisons with what was available to them in Samoa:
My first child was born in NZ – the service available in NZ is very different from Samoa. ...I wish there was a specialist – one-on-one doctor I can check. I would like to see a private specialist – they exist here but not enough. A book that I received in my first pregnancy in NZ would be useful here.

Exploring the potential for video and digital health promotion was overwhelmingly endorsed by pregnant mothers.

There's a great need for a screen that shows pregnancy health programmes.

In terms of online and digital support, a small minority of mothers went online to find information about pregnancy but not everyone saw social media and the internet as sources of maternal health information, even though there was a rise of technology.

I hardly use the internet. The only thing – God willing – I want to know is to look upon my baby when they are born.

Other health promotion advice is available through brief advertisements on national television stations and radio stations. The mothers did have concerns about the Zika virus as there were regular advertisements on warnings about the impact of Zika on pregnancy and the harmful effect on baby. While these channels are effective in terms of reach and raising awareness, they probably posed more questions for the mother than they did practical solutions. It is therefore essential to provide two-way channels for communicating information and enabling discussion with mothers to fully understanding the implications of the messages on them and their baby.

**DISCUSSION**

Pregnant mothers’ current understanding of health promotion messages indicates a basic level of awareness of key pregnancy health advice. This advice was often general with mothers referring to the importance of good nutrition, keeping active and not smoking or drinking alcohol. Mothers also placed a strong emphasis on the need to remain stress-free and keeping a positive frame of mind despite any issues they encounter. This understanding was occasionally synonymous with religious and/or spiritual beliefs that prayer or offering up their issues and concerns to God was an important way of remaining healthy during pregnancy. When probed further however, some details became hazy and there was a lack of understanding of the physiological reasons behind the messages – this was also evident in some of the questions the mothers posed throughout the research.

Furthermore, some mothers talked about the difficulty of adhering to the key messages citing examples of internal and external struggles. These findings indicate a need for health promotion that goes beyond simple imparting of key messages to an approach that provides opportunities for the mother to ask questions and have discussions about what the messages mean for them and how they can implement them in their daily lives. Identifying ways of supporting pregnancy health and wellbeing requires reaching beyond and around the mother to others who are in a position to support her in ensuring a healthy pregnancy.

In this work we identified that knowledge and understanding of maternal health information and advice had been gained predominantly through interactions with other female family members, friends or people from within their community, including midwives or maternal health specialists. Women with other children also called on their experiences from previous pregnancies. A few mothers were proactive in reading brochures or limited printed material however only three out of 32 mothers sought advice online. This reflects a greater degree of face-to-face interaction with people they trust for information and advice over official health promotion material.

The analysis of the data gathered from group interviews with pregnant women in Samoa revealed several key areas warranting further attention. Firstly, women are actively engaged in their pregnancies and look for support, whether it be via family, health professionals or via media sources. Women do experience a degree of concern and anxiety about their pregnancy, which is exacerbated by periods of or persistent stress (including marital). Ideas for improving maternal health promotion and support were less about introducing new concepts and more about building on current strengths, providing further training for allied health workforce and community champions and making outreach programmes scalable across more villages/communities.

In order to build on the inherent interest among pregnant women to maintain or become healthy during their pregnancy, information (print resources) may need to be translated into the Samoan language using non-medicalised...
terminology. In addition, opportunities such as waiting times at clinics can be opportunities to engage women and their families in video-based information (or digital media) or support group session on clinic days while they wait for their appointment. Opportunities for group discussions and asking questions of a facilitator who is both an expert and someone they can trust was seen as beneficial to addressing mothers concerns and for providing practical solutions and support for general maternal health promotion advice.

This study has several limitations. It was a qualitative study which was designed to identify how women conceptualise and experience pregnancy, their knowledge and information needs. Given the interviews were conducted by midwives, known to some of the participants, there is always a risk of social desirability responses. Furthermore, participant's answers may have depended on how they felt emotionally at the time, giving positive answers when feeling happy and more negative ones when feeling sad or irritated. Although the views of partners and/or fathers would be invaluable to the overall understanding of effective pregnancy health and wellbeing approaches, the limitations of funding and time meant that they were excluded for this research. The views of partners and/or fathers and other caregivers will be considered for future research. Finally, the women's discussions were in Samoan and were later translated into English, so it is possible that some meaning was lost in translation.

A strength of the study was that it gave opportunity for the mothers to ask questions of the facilitators about their pregnancy because they became more confident as the focus group progressed. A few questions had stemmed from previously traumatic experiences for themselves or someone they knew in the community. The asking of questions by the mothers was reflective of their desire to seek answers or clarification and to discuss their concerns with a trusted expert. Also, the focus group locations were geographically spread out (extending to Savai‘i) so the study is more likely to capture any regional differences in opinions that may not have been apparent if constrained just to Upolu.

A recent metareview of 98 systematic reviews on facilitators and barriers to quality of care for maternal and newborn health reported that the facilitators were: respect, confidentiality, comfort and support during care provision, engaging users in decision making, continuity of care and effective audit and feedback mechanisms. Key barriers were: language barriers in information and communication, power differential between users and providers, health systems not accounting for user satisfaction, variable standard of implementation of standard guidelines, shortage of resources in health facilities and lack of studies accessing the role of leadership in quality of care.

Another review reported that the major barriers for maternal satisfaction included: distance and transport connectivity, clean toilets, availability of medication and equipment, waiting time before admission, preference for a female providers and respectful behaviour by doctors, nurses and support staff.

Samoan pregnant women are not unlike other women around the world and face similar barriers to accessing health care. A secure trustworthy environment could be created (antenatal classes) where women could ask about urgent questions about their pregnancy.

Anecdotal evidence suggests that the main reason the pregnant women were motivated to get a scan was to know the gender of the baby. This assertion could be confirmed in future research.

CONCLUSION

Building on current health promotion approaches and capitalising on opportunities such as clinic waiting times to share and promote relevant, supportive and practical information may help to leverage support for pregnant mothers. Recognising the importance of lived realities of the mothers and the significance of relationships and mental wellbeing are key to improving engagement with mothers and their families as well as ensuring overall health and wellbeing of pregnant women and their children.

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REFERENCES


Continuing professional development and challenges facing newly graduated midwives in Papua New Guinea.

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ABSTRACT:

Background: The Maternal Mortality Ratio (MMR) in Papua New Guinea (PNG) in 2008 was estimated at more than 700 deaths per 100,000 live births. In recognition of the high MMR, a Ministerial Taskforce was established in 2009 with recommendations to urgently address the workforce capacity in regard to maternal and child health services. In 2010, a new competency-based Bachelor of Midwifery curriculum was introduced into four universities in PNG and an increase in the numbers of midwifery students took place over a four year period.

Aim: The aim of this study was to explore the experiences of Papua New Guinean midwifery graduates from the 2012 and 2013 Bachelor of Midwifery cohorts. These graduates were among the first to complete the revised national midwifery curriculum designed to improve the knowledge and skills of a registered midwife graduate.

Methods: A descriptive exploratory study was undertaken to explore the experiences of 174 graduates in the first two years post-graduation. All graduates who were able to be contacted were provided with information about the study, consented and were interviewed either face-to-face or by phone/email. Quantitative data were analysed using simple descriptive statistics in SPSS and qualitative data underwent content analysis and coding by the research team.

Findings: Almost all (90%) graduates contacted were working as midwives with 39% working in rural and remote locations across PNG. Midwifery education prepared graduates well for their work as midwives, but many commented that the course needed to be longer to improve feelings of competence. Professional support during their graduate year varied depending on location and motivation of supervisors. Many graduates, particularly those in rural areas, expressed the desire to work under clinical supervision in a hospital setting for a period of 6-12 months at the end of their training to become more skilled and confident prior to seeking employment.

Conclusion: Most midwifery graduates from the new curriculum found employment as midwives. Only a minority of graduates have had opportunities for continued professional development or support from a mentor of senior colleague. Regular, ongoing professional development and supervision needs to be initiated for the provision of skilled and evidence based care. Support and incentives for staff to work in rural and remote areas should be considered.

Key Words: midwifery, midwifery education, education, continuing, new graduate experiences

BACKGROUND

Papua New Guinea (PNG) lies north of Australia and is the largest of the Pacific nations, with a population of over 7 million people with the majority (more than 80%) living in rural, remote, mountainous and island communities. Approximately 250,000 babies are born each year and there is a critical shortage of midwives. In 2009, it was estimated that there were 292 registered midwives in PNG, with 44% of these due to retire in the following decade. Of these, only 152 were thought to be practicing midwifery. Registration and regulation processes in PNG have improved considerably in
the last decade, yet it is still unclear as to how many midwives are practising.⁶ Current estimates put the number of registered midwives at 765, although they may not all be practising midwifery. The majority of health workers in rural areas are Community Health Workers (CHW) but some health centres also have registered nurses. Community Health Workers and registered nurses often provide maternity services due to the lack of midwives.

Maternal and newborn health key indicators in PNG deteriorated between 1996 and 2008. In 2008, the Maternal Mortality Ratio (MMR) was estimated to be 773 per 100,000 births,⁴ second only to Afghanistan in the Asia-Pacific region (National Department of Health, 2009). In 2009, a Ministerial Taskforce was established to address the poor state of maternal health. The Taskforce made strong recommendations to address the need to increase capacity in emergency obstetric care and access to family planning services.⁵ The Taskforce realised that services needed to be accessible for women and recommended the strengthening of maternal health services at the district level with a goal of one registered midwife at every health centre by 2020.

Prior to the Taskforce’s recognition of the urgent need for increased numbers of midwives, a review of the midwifery education standards and programs in PNG was undertaken.⁶ The review made a number of recommendations to improve midwifery education. These included increasing the length of the pre-registration midwifery programs to 12 months; increasing emergency management content; modernising teaching and learning approaches; aligning programs with the International Confederation of Midwives Education Standards; and, improving regulation and registration processes.⁶ These recommendations informed the development and implementation of a competency-based curriculum framework designed to improve underpinning knowledge and skills of midwives with an ultimate goal of improving maternal and newborn health. Four schools of midwifery commenced the new curriculum in 2010.⁷

Between 2012-2015, 394 midwives were educated under the new curriculum and these now represent 56% of the estimated current midwifery workforce.⁷ All midwives who successfully completed their education through programs utilising the new curricula were formally registered.⁸ This level of registration is significant as prior to the introduction of the new curriculum many midwifery graduates did not, or were not able to, register with the PNG Nursing Council.

These new midwifery graduates are now practising across the country mostly in midwifery roles. Of the 174 graduates who studied in 2012 and 2013, 72 (41%) were working in the rural areas.⁹ Previous research has examined this cohort’s motivations to study midwifery. It was found that a major motivation was to address the high maternal mortality in their communities by increasing their midwifery skills and knowledge.¹⁰ After graduation, this cohort of midwives reported increased skill acquisition and confidence; confidence to be leaders in maternal and newborn care services; and, a commitment to the provision of respectful care to women.⁹ What was not examined in these previous studies was the availability of, and the differing levels of support accessible to the new graduates. Further to this, it was not known what continuing professional development opportunities were provided to graduate midwives, some of whom were practising as the sole maternity practitioner in rural areas. Therefore, the aim of this research was to examine the experiences of new graduate midwives in relation to their professional support available, access to continuing professional development and major challenges in their first two years of midwifery practice.

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METHODS

Design
A descriptive exploratory methodology was used. Descriptive exploratory methodology is particularly useful in answering research questions that are concerned with people's response to an event or how they feel about a particular event. A questionnaire was used to collect relevant information from the midwives. The questionnaire was either self-administered, or, where it was not possible to meet face-to-face with the midwife, the questionnaire was administered and answers recorded over the phone.

Ethical approval
Permission to conduct this research was obtained from the PNG Medical Research Advisory Committee and ratified by the university’s Human Research Ethics Committee (MRAC No. 11.36 - 2011-2013).

Recruitment process
A total of 181 midwifery students commenced their training in the four PNG midwifery schools in 2012 and 2013. Of these, 174 graduated (4% attrition rate) at the end of the 12-month program. Attempts to contact all 174 midwifery graduates were made either by telephone or email, although electronic and telecommunication in PNG can be extremely challenging. The PNG research team travelled to smaller townships and assisted in locating graduates using local knowledge and networks. In total, 98% (n=170) of graduates’ locations were confirmed although not all could be contacted.

Once contacted, participants were provided with information about the research and consent was obtained. An opportunity was provided for questions about the research and the participants were reassured that results would be de-identified and would remain confidential. During the research design process, all necessary forms and questionnaires were developed for use in the PNG context. Members of the research team were PNG nationals and ensured that the participant information sheet, the consent form and the survey questionnaire were developed using culturally appropriate terms and questions thus ensuring a culturally respectful and acceptable approach.

Response rate
Of the 174 graduates, 138 (79%) were contacted and all consented to be part of the study. None of the graduates contacted refused to take place. Graduates came from each of the four midwifery training schools and data were collected from November 2014 to April 2015. A sensitive cultural approach was maintained to gain trust of graduates that ensured the graduate felt safe to share all relevant information. The researchers were all familiar with the system of maternity care and midwifery education in PNG and thus were able to demonstrate an understanding of, and respect for, cultural requirements.

Data collection processes
Two PNG researchers and one international member of the team were able to travel to five provincial towns and cities where clusters of graduates were located. Fifty-five (40%) written surveys were completed. The remaining 83 (60%) surveys were completed by telephone. Members of the research team conducted the telephone interviews and all were briefed in the method and content of the survey to ensure consistency among researchers. The survey questions were read out over the phone by the researcher and responses were recorded verbatim on the survey form.

Data analysis
All survey responses were initially entered into Excel spread sheets. Quantitative data was uploaded into SPSS and analysed using simple descriptive statistics. Qualitative data underwent content analysis and coding by the research team. Content analysis was repeated by small teams within the research team for cross validation.

FINDINGS
Almost all respondents (89%; n=123) were working as midwives with more than one third (39%; n=54) based in rural areas. Rural graduates generally worked as the only midwife and/or as the officer-in-charge in their facility or the sister-in-charge of the labour ward. New graduates were given significant responsibilities for complex care often with little support available to them. The majority of those working in rural areas spent more than 50% of their time caring for childbearing women and their...
families. The remainder of their time was spent doing general nursing duties.

A desire to serve the PNG rural majority population was identified by a number of graduates who were working in challenging locations. Many (47%; n=65) respondents expressed an understanding of the dire need of women in all areas to have quality midwifery care. One rural midwife explained:

“These are our people. We need to go and help our own people. A lot of women are dying out here”

Other respondents (33%; n=45) reported efforts to improve outcomes for childbearing women and their babies, often with minimal resources or support. Figure 1 explains the changes one graduate is making in her remote location.

**Professional support**

Graduates were asked about the availability of professional support in their workplace to help them develop their clinical skills. Almost two-thirds of graduates (87, 63%) had someone assisting them develop their skills. This was most often a more experienced midwife (50%; n=69); a medical doctor (17%; n=24); and, sometimes both (22%; n=30). Unfortunately, 50 graduates (37%) stated that no-one was available to support them and to assist with their ongoing professional development as a midwife.

The ongoing professional support received by the graduates was categorised in order of frequency of comments (Table 1). The majority of responses related to clinical assistance and supervision given in the development of skills, particularly for complicated births.

A number (12%; n=17) commented on the support of a mentor who particularly encouraged them to not only develop their clinical skills but also to use share new skills and knowledge with other health workers.

Graduates commented that being supported to practice to their full scope of practice gave them confidence in their own ability. Others identified that senior clinicians were helpful and supportive and were able to give them advice or answer their questions, either in person or over the phone.

**Figure 1:** The story of the experiences faced by one new graduate based in a rural area

Rachel* works at a remote Health Sub-Centre and is the only midwife and works with one Community Health Worker (CHW). She volunteered to go to this remote place to help the mothers there who were having to pay a considerable amount to travel to another health centre to give birth. When Rachel arrived in her current location, there were no maternal health services available. She began working with the community to increase awareness about the importance of antenatal care, supervised births and family planning. She teaches local volunteers about safe motherhood. Rachel commenced antenatal clinics and a couple of months later she opened a labour room and began to assist women in labour and at birth.

Since Rachel arrived, she has worked tirelessly with the local women and the community to improve care during pregnancy and birth. She reports more women are coming for antenatal care and most are coming to the health centre to give birth. “Sometimes they deliver at other health centres, but they come to me for antenatal clinic (ANC) because of the care they receive”. Women are beginning to see the benefit of family planning and are accessing these services as well. Rachel has been able to initiate improvements despite community and personal difficulties. She reports feeling isolated as a new graduate midwife posted in a remote setting with no supervision or support readily available. Communication was challenging as she did not speak the local language. She also experienced a number of challenges in relation to resources; limited health equipment, a lack of staffing and even water supplies were limited at times. Rachel stated that “for the first few months, I was lost”.

Although challenging she feels that facing her hardships have made her stronger as a midwife. “I can do procedures that I had never done. I have confidence to care for women and to call for help/advice when I need it”. This is helping her to improve maternal health in her area – preventing maternal deaths and saving lives.

*Name changed. Story told with permission
Table 1: Type of professional support received

<table>
<thead>
<tr>
<th>Type of support received</th>
<th>Number of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical assistance, supervision or advice re complicated births</td>
<td>46</td>
</tr>
<tr>
<td>Mentor / Encourage / Develop my confidence</td>
<td>17</td>
</tr>
<tr>
<td>Answer questions/advice/teach</td>
<td>12</td>
</tr>
<tr>
<td>I was the only midwife / no one provided support</td>
<td>11</td>
</tr>
<tr>
<td>Give me a hard time (other midwives)</td>
<td>2</td>
</tr>
<tr>
<td>I teach older midwives</td>
<td>2</td>
</tr>
<tr>
<td>Advice over phone</td>
<td>4</td>
</tr>
<tr>
<td>Help with preparing lessons (educator)</td>
<td>1</td>
</tr>
<tr>
<td>How to use limited resources</td>
<td>1</td>
</tr>
<tr>
<td>Midwives not allowed to do advanced skills that they were taught</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total responses</strong></td>
<td><strong>97</strong></td>
</tr>
</tbody>
</table>

*Note: Graduates could state more than one form of support was received*

Graduates felt that the support they received from senior midwives and doctors was vital in order for them to practice what they had learned. Many graduates found it challenging when they returned after their training to their respective places of employment and were not able to implement the evidence-based practice they had learned. However, 86% (n=119) of respondents stated that they were able to practice the evidence-based skills that they were taught during their midwifery program. Just over 20% (n=30) of respondents felt that it was their responsibility to teach others. Graduates reported that once they had role modelled the new skills and evidence-based practice they had learned, most staff were supportive of changes to practice. Conversely, fewer graduates (18%; n=25) experienced opposition from other colleagues when introducing evidence-based practice. Respondents commented that other staff, particularly midwives were not happy to change and a lack of support made this more difficult. Graduates stated that:

> “We do it (evidence-based practice) only when we are not busy. We introduce women to the environment and greet them. We use the lithotomy position, not other positions - I was told by the supervisor and the Community Health Worker to do this. Maybe because we are not considering the woman. I do not feel good about it.”

“Our senior midwives are set on doing things the old way and when we want to change their mindset, it’s hard”

A desire to work to the full scope of practice as a midwife

While those in rural areas often worked alone and used their newly developed midwifery skills, others in provincial urban hospitals reported that they could not practice skills they were taught such as manual removal of the placenta or vacuum assisted birth as the obstetricians performed those skills.

Some graduates (n=28, 20%) felt that they would have benefitted from further clinical practice in urban hospitals before returning to the rural areas to so as to become more confident with advanced clinical skills. In response to how well graduates felt prepared to work in rural/remote areas on graduation, they stated:

> “I feel that I need to work close to doctors/consultants and gain more experience before I go out to the very remote areas to help the mothers and babies out there”

> “Spend longer at a hospital setting 6-12 months before going back to a rural area”

> “If I gain more practice and become confident then I thought of going out to the rural facilities and work”

There was a need for clarity and consensus concerning the role of a midwife. A written scope of practice was seen as necessary guide for both the education a midwife receives and midwifery practice after graduation.

Experiences with having designated positions for midwives

Registered midwives are classified as a ‘specialist nurse’ in PNG and all graduates are registered nurses before undertaking their midwifery training. The Ministry of Health determines how many midwifery positions can be filled at each health facility. Some (7%; n=10) graduates were unable to secure a midwifery
position and were employed in a registered nurse position. This meant that they were not classified as a midwife and were not paid at the higher rate for their post graduate qualifications. Despite not being recognised and remunerated for the appropriate award classification, these graduates were performing the role of a midwife. Graduates were disheartened that they were not being rewarded with the title of midwife and paid the wage they deserved.

There was consensus among the graduates that incentives were needed to attract midwives to rural and remote areas. They felt that essential midwifery equipment should be available to enable them to provide quality midwifery care. Graduates expressed the need for “midwife only” designated positions in rural areas and also expressed the need for incentives to encourage midwives to go to areas of need:

“Provide transport, housing and incentives for midwives so that they could go out to rural areas”

“After graduation, all students need to go to a rural area, with the equipment needed for a midwife e.g. vacuum kit. All health centres must have a midwife if you are going to help women stop dying”

“Students should sign an agreement that they will go to the rural areas”

A need for practical resources

A lack of resources and equipment meant that graduates were not able to apply the knowledge they had gained in their training. For example, one graduate reported that her health centre did not have supplies of oxytocin for up to three months, and although she had learned how to manage third stage physiologically, without oxytocin, she felt that in the event of a postpartum haemorrhage, appropriate first-line emergency management would be compromised. Others found it difficult to maintain cleanliness and appropriate levels of hygiene when there was inadequate water supply in the labour ward. Without the necessary equipment and resources, the graduates could not apply the evidence-based practices they had learned in their training. One graduate explained:

“We are mentally prepared to work with whatever resources available, but sometimes my care can be hindered by the health care system of the country”.

Another limited resource was staff housing, particularly in locations which were in desperate need of midwives. Some of the graduates were not able to return to their original place of employment, or continue in a rural area because of a lack of staff housing. One midwife was volunteering at an aid post close to her home because there was no staff housing at the health centre where she hoped to be employed.

Continuing Professional Development

Graduates were asked if they had undertaken any continuing professional development since graduation. This included either attending courses or receiving in-service training. The midwives were also asked to indicate the topic of professional development activity they attended (Table 2). More than half (58%; n=80) had received no further professional development or education since graduating. One graduate commented that her supervisor told her she did not need any further training as she had just graduated. Only 48 (35%) stated that they had updates relevant to midwifery practice. The remainder of graduates had received updates in general nursing, management or preceptorship.

The limited continuing professional development opportunities were particularly evident in rural areas. Graduates in urban provincial hospitals reported that there were in-service sessions and case discussions available.

Table 1: Training activities since graduation

<table>
<thead>
<tr>
<th>What training activities have you been involved in?</th>
<th>Number (%) of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>80 (58) of all surveyed</td>
</tr>
<tr>
<td>Midwifery related – includes EOC*, EmONC**, neonatal, family planning/sexual health</td>
<td>37 (48) of all positive responses</td>
</tr>
<tr>
<td>General topics – includes T.B., Cancer, General Nursing</td>
<td>14 (18)</td>
</tr>
<tr>
<td>Prevention of Parent to Child Transmission of HIV/AIDS and HIV training</td>
<td>11 (14)</td>
</tr>
<tr>
<td>Preceptor / Education skills</td>
<td>10 (13)</td>
</tr>
<tr>
<td>Management skills</td>
<td>3 (4)</td>
</tr>
<tr>
<td>Paediatric</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Self-improvement/ reading</td>
<td>1 (1)</td>
</tr>
</tbody>
</table>

*EOC - Essential Obstetric Care
**EmONC - Emergency Obstetric and Newborn Care
However, there were few or no opportunities for short courses or more formal learning. The ability to access and attend formal learning opportunities was often restricted by funding and transport issues. Many graduates expressed the desire to study midwifery at a master’s level but this program is not available in PNG.

There were 32 comments concerning the need for continuing professional development and support for both graduates and experienced staff. These responses identified the need for career pathways for midwifery graduates. Many expressed the need for a formal graduate support program.

This included suggestions such as the provision of an initial 6-12 month internship at a larger hospital prior to employment in a rural or remote health service; supportive supervisory visits to new graduates working in rural services; annual Emergency Obstetric and Neonatal Course (EmONC) training; and, further formal education opportunities.

DISCUSSION

This research highlights the challenges facing newly graduated midwives in a low income setting such as Papua New Guinea. In their initial years of practice, graduates were confronted with a lack of professional support; difficulties implementing the evidence-based practice they had learned; challenges working to their full scope of practice; and, problems with a lack of resources such as equipment, medications, running water and housing availability. In addition, limited opportunities for continuing professional development, both formal and informal, meant that the skills and knowledge learned in their midwifery education could not be applied and developed. In particular, more than half (58%; n=80) of graduates reported having no professional development activities since completion of their studies.

A review of barriers to the provision of quality midwifery care in low and middle income countries identified the lack of access to continuing professional development as a barrier to quality care.\textsuperscript{12} Continuing professional development is recognised as an essential component of being a health professional and is a mandated requirement in many regulated professions such as midwifery, nursing, medicine and allied health in countries including Australia.\textsuperscript{13} The International Confederation of Midwives identify continuing education/professional development as an important component of the Global Standards for Midwifery Regulation and support the inclusion of continuing professional development in midwifery regulation practices.\textsuperscript{14,15} Continuing professional development contributes to maintaining and increasing competence in practice professions and as such is regulated in many countries.\textsuperscript{16}

In addition to international recommendations for continuing professional development, many countries also provide a supported new graduate program for health graduates. Graduate support programs are common in high income countries and the evaluation of such programs indicates that the support has resulted in more confident and competent midwives.\textsuperscript{17-20} These programs often involve rotations to various areas of a maternity unit, supported study days, mentorship and an opportunity for graduates to practise and consolidate their skills in a supported environment.\textsuperscript{21} However, such programs are uncommon in literature from Low and Middle Income Countries (LMIC). Research in Sierra Leone demonstrated that informal support for midwifery staff encouraged mentoring and professional development.\textsuperscript{22} No studies could be found that particularly supported new midwifery graduates in LMIC.

Given the advanced skills and responsibilities required of midwives in most LMIC it would seem crucial that professional support is provided to support midwives to practice to their full potential. The International Confederation of Midwives recognise that new graduate midwives should enter the profession with a defined set of basic or core competencies for practice and then, depending on the context they work in, midwives will in time develop or be supported to develop additional more complex skills.\textsuperscript{23}

Ongoing supervision, support and professional development of midwives needs to be carefully considered. Accessing formal continuing professional development opportunities, which are often only available in urban centres is challenging in a low resource environment.\textsuperscript{24} Arranging for midwives to attend a course in person is expensive, with long distances to be travelled in order to attend.\textsuperscript{25} Creative ways of receiving continuing professional development, such as distance and online learning needs to be explored to cater to the needs of isolated
midwifery graduates who work in rural and remote areas. An online system of professional development opportunities has been instigated successfully in several African nations. It is interesting to note the different messages that were obtained about the optimum method of learning. Nurses and midwives seem to prefer reading matter in PDF format rather than at face-to-face courses. As local contexts of practice and infrastructure requirements differ from country to country it would be necessary to examine the most appropriate and manageable mode for provision of continuing professional development in Papua New Guinea. Regulatory and professional bodies would be well positioned to coordinate and monitor opportunities for professional development.

Providing continuing professional development that relies solely on the provision of self-directed reading materials is not recognised as best-practice in terms of educational techniques. Interactive learning that includes reflection on practice has been recognised as effective in supporting moderate changes in practice, whereas didactic teaching is unlikely to influence professional practice. Interactive web based learning material may assist practice-based training, but is more difficult to support technically in LMIC due to lack of infrastructure and funding. A case study from South Africa explored the use of mobile phones in informal learning and concluded that delivery of learning through mobile phone platform can assist with developing problem solving skills; reflective practice activities; provide emotional support and promote belongingness; and, life-long learning. There is potential to utilise mobile phone technology for both graduate support programs and ongoing professional development in Papua New Guinea.

In addition to the provision of continuing professional development, graduates identified professional support as important in the development of confidence and competence especially in these early years after graduation. Graduates would have appreciated both face-to-face supervision and telephone contact with senior colleagues. The need for support for new graduates is important as is the need for deployment soon after graduation. The State of the World’s Midwifery (SoWMy2014) Report highlighted the need to improve deployment processes to enable the early building of confidence and competence. More than half of the countries examined in SoWMy2014 reported issues with delayed commencement into the workforce and it is likely that during this delay, skills, knowledge and confidence are lost.

Much work has already occurred in relation to strengthening the PNG Nursing Council as is evident in the 100% registration rates of the graduates in this study. Many organisations and reports support the improvements in regulation and the positive impact a strong regulatory system has on health care outcomes. A poorly functioning regulatory system is recognised as a barrier to the provision of quality midwifery care. Strengthening these important tenants of the midwifery profession will protect both the midwives working in the system and the women and families who access maternity care.

CONCLUSION

Nearly all of the midwifery graduates from the 2012 and 2013 cohort were working as midwives with 39% of them based in rural areas. Rural graduates generally worked as the only midwife. The midwives provided complex care with little support in their first year following midwifery registration and some were not able to practice all they had learned. There needs to be clarity concerning the scope of practice of midwives in all locations. The majority of graduates had no opportunity to participate in professional development related to midwifery since graduating.

Many graduates showed an in-depth understanding of the dire need of women in Papua New Guinea to have skilled midwives at birth and had made significant personal sacrifices in order to help women. Practical support in terms of suitable housing in both rural and urban areas and incentives to work in remote locations needs to be provided to improve the geographical spread of midwives across PNG. Supervision and mentoring from senior clinicians was highly valued and is commended. Graduates expressed the desire to work with senior clinicians in urban areas to gain confidence prior to providing midwifery care in remote areas. A formal graduate support program should be considered to further enhance quality midwifery care in Papua New Guinea.

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Evaluation of the pilot TAPUAKI Pacific pregnancy and parenting education programme.

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ABSTRACT:

Background: The TAPUAKI programme aimed to improve Pacific women’s, their partners and families’ knowledge and confidence about pregnancy and parenting so they can make informed choices about their health and that of their infants. The programme consisted of six two-hour blocks of antenatal classes run over six consecutive weeks.

Aim: To evaluate the TAPUAKI programme for the effectiveness and delivery of its curriculum to pregnant mothers.

Methods: Both paper survey questionnaires and focus group interviews were used for the evaluation. Of 32 participants who attended the TAPUAKI programme, 13 agreed to take part in the evaluation (a response rate of 41%). There were three sites from Auckland, New Zealand (from 2013-2014) where the programme was piloted: Henderson, Onehunga and Otara. The 13 participants were Samoan, Cook Islands Māori or Tongan ethnicity, all aged between 17 and 40 years old. In addition, there were two female facilitators at each site who delivered the curriculum. All six facilitators agreed to take part in the evaluation.

Findings: Participants reported that their knowledge about pregnancy and parenting had increased as a result of the programme. Specifically, these topics were nutrition, giving birth, breastfeeding and safe sleeping practices. The programme helped to change some incorrect practices and beliefs that were held by those participants who already had children.

Conclusion: The women in the TAPUAKI programme were positive about it and felt there were benefits to it.

Key Words: Pacific, pregnancy, maternal health, antenatal education, parenting programme

BACKGROUND

Pregnancy and parenting education typically referred to as ‘childbirth education’ or ‘antenatal education’ is a key component of antenatal services. Health professionals consider it to be integral to successful pregnancy and birthing experiences.1 The evidence suggests that women who attend antenatal education have “less false labour admissions, less anxiety and greater partner involvement” than those who do not;1 although they also have more labour interventions such as labour induction and epidural use.1 Nevertheless, the benefits of antenatal education remain largely unknown.2

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The effects of antenatal education are dependent on a number of factors: namely, the characteristics of the people attending the classes, the skills of the educator or teacher and the programme objectives.\(^3\) The teacher’s cultural knowledge and understanding of the population being served is also important.\(^4\)

In 2013, Pacific people made up 7.4% (or 300,000 people) of the New Zealand population (4.2 million).\(^5\) They are the fourth largest ethnic group behind European (74%), Māori (14.9%) and Asian (11.8%).\(^5\) Samoans make up roughly half of the Pacific population followed by Cook Islands Māori (21%), Tongan (20%) and Niuean (8%). Also, Pacific have the highest proportion (35.7%) of children (aged 0 to 14 years) of any ethnic group (compared European 19.6%).

Almost two-thirds of Pacific people were born in New Zealand. Most live in New Zealand’s largest city Auckland (66%) and 12% in Wellington the capital city, meaning at least 80%-90% live in an urban setting.\(^5\) Only 7.1% of Pacific live in the South Island, with most settling in Christchurch (12,723 or 4.3% of all Pacific people).\(^5\)

Except for having some famous sports people, Pacific people remain a largely marginalized group within New Zealand. Their median income is the lowest of any ethnic group in New Zealand and they have a high unemployment rate along with Māori the indigenous people of New Zealand (Table 1).\(^6\) Furthermore, Pacific people have many adverse health indicators including high smoking, obesity and hazardous drinking rates relative to European New Zealanders (Table 1).

Pacific peoples in New Zealand have poor uptake of antenatal education.\(^7,8\) The limited research indicates that less than 1% of participants attending childbirth education in 2009 were of Pacific ethnicity.\(^7\) This is despite Pacific peoples’ comparatively higher birth rate than for all other ethnic groups.\(^9\) The reasons for Pacific peoples’ low engagement in antenatal education are not known. Little research has been conducted in this area. However, that most antenatal education courses in New Zealand are delivered by non-Pacific peoples, with variable knowledge and understanding of Pacific cultural beliefs\(^8\) may help to explain this. Similarly, the findings that social, financial and cultural factors hinder Pacific women’s access to, and use of, maternity services generally.\(^10\) These include their lack of understanding of the importance of antenatal care, language issues, a lack of transport, lack of family-based care and competing family priorities.\(^10\) Antenatal programmes that are attractive to this group and meets their specific needs are considered a priority.\(^7,8\)

### Table 1: Pacific Indicators

<table>
<thead>
<tr>
<th></th>
<th>Pacific</th>
<th>Māori</th>
<th>European</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Income (2013)</td>
<td>$19,700</td>
<td>$22,500</td>
<td>$30,900</td>
</tr>
<tr>
<td>Unemployment rate (2013)</td>
<td>15.8%</td>
<td>14.1%</td>
<td>5.3%</td>
</tr>
<tr>
<td>Smoking* (current) (2015)</td>
<td>24.7%</td>
<td>38.1%</td>
<td>16.6%</td>
</tr>
<tr>
<td>Obesity* (adults) (2015)</td>
<td>66%</td>
<td>46.5%</td>
<td>30.7%**</td>
</tr>
<tr>
<td>Hazardous drinkers* (2015)</td>
<td>23.4%</td>
<td>32.4%</td>
<td>17.7%**</td>
</tr>
</tbody>
</table>


Developed by TAHA Well Pacific Mother & Infant Service the TAPUAKI Pacific pregnancy and parenting education programme (‘the TAPUAKI pregnancy and parenting programme’, ‘the programme’) aimed to improve Pacific peoples’ access to, and participation in antenatal education by alleviating some of the noted social, financial and cultural barriers. Launched in June 2013, the programme involved evidence- based and culturally relevant curriculum, materials and delivery strategies to support increased Pacific engagement and participation in antenatal education.\(^8\)

The TAPUAKI pregnancy and parenting programme was piloted between November 2013 and April 2014 in three sites in the Auckland region to test its effectiveness in improving pregnant Pacific women’s their partners’ and families’ knowledge and confidence about pregnancy and parenting. This was so any changes to support improved programme effectiveness could be made prior to the wider implementation of the programme. The pilot sites were across the Auckland urban region where two thirds of Pacific people in New Zealand reside: Onehunga in the Auckland District Health Board region; Henderson in the Waitemata District Health Board region; and Ota in the Counties Manukau District Health Board region. The key programme was developed in October 2012 and piloted in...
November 2013. The programme included six modules and an introduction model. It was delivered over six weeks by facilitators and each session was approximately two hours long. The evaluation was undertaken approximately one month following each pilot.

The facilitators used a “buddy” approach to teaching, which is sharing content and cultural knowledge and expertise with the participants. This was of particular importance for those women who had strong cultural beliefs on pregnancy and parenting; limited awareness on “western thinking” in relation to this; were recent arrivals to New Zealand; or had limited English proficiency. In addition, it was the facilitators’ cultural knowledge and expertise that facilitated the selection of the relevant content and delivery methods (talanoa, personal stories and experiences). This, together with their warm, engaging and positive personalities positively influenced the women’s engagement and participation in the programme, and ultimately achievement of the outcomes.

The aim of this research was to determine the effectiveness of the programme in increasing pregnant Pacific women’s knowledge and confidence about pregnancy and parenting.

METHODS

Evaluation Methodology

The adapted Center for Disease Control (CDC) and Prevention ‘Framework for Program Evaluation in Public Health’ was the conceptual framework used for this evaluation. The CDC framework describes the criteria an evaluation must meet in order to be effective, and meet the needs of the stakeholder groups. It is characterised by a continuous learning model, and includes participation and collaboration by stakeholder groups throughout the evaluation process. This framework has been adapted for use with Pacific groups in the New Zealand context to ensure its cultural appropriateness. The adapted CDC framework was underpinned by the adapted Kakala model to facilitate a richer understanding of the evaluation concepts within a Pacific context. Based on Helu-Thaman’s work, the adapted Kakala model uses symbolic language to describe the evaluation process in a way that is meaningful for Pacific peoples. The adapted CDC framework and kakala model have proven effective and culturally appropriate for process and outcome evaluations of Pacific interventions.

Pacific talanoa methodological design

A Pacific talanoa methodological design was used to obtain a comprehensive understanding of the effectiveness of the TAPUAKI pregnancy and parenting programme. As noted in the preceding section, the Pacific talanoa methodology uses narrative to understand the truths and meanings of the social world. It is a conversation, a discussion whereby researchers (evaluators) and participants bring themselves, their past experiences and future aspirations, to engage holistically in an interactive and collaborative dialogue process. This involves creating and facilitating a ‘space’ and conditions for participants to share, question, challenge and re-think their views of the world. This sharing of stories was considered crucial for understanding participant views and perceptions in relation to programme effectiveness, and the enablers and barriers influencing its success. By ‘enablers’ are meant any resources (including people) that empower a person to take positive action.

Questions asked by the Facilitators

Table 2 shows the questions that participants were asked.

Table 2: Questions given to participants for the effectiveness of the TAPUAKI programme

<table>
<thead>
<tr>
<th>PART A: Effectiveness of the Programme</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal experience</strong></td>
</tr>
<tr>
<td>1. How useful did you find the programme and the information/materials that were shared? And why/why not?</td>
</tr>
<tr>
<td>2. Which topics in particular did you find useful? And why/why not?</td>
</tr>
<tr>
<td>3. Which topics did you find not as useful? And why/why not?</td>
</tr>
<tr>
<td><strong>Enablers and barriers</strong></td>
</tr>
<tr>
<td>4. What were the ‘good things’ about the programme?</td>
</tr>
</tbody>
</table>
5. What were the ‘not so good’ things about the programme?

Improving effectiveness

6. What changes are needed to make the programme better?

Any other thoughts or comments?

PART B: Effectiveness of programme delivery strategies

7. What were the ‘good things’ about how the programme was run?

8. What were the ‘not so good things’ about the way in which the programme was run?

9. What were the ‘good things’ about the facilitators, and the way in which she/he delivered the sessions?

10. What were the ‘not so good things’ about the facilitators, and the way in which she/he delivered the sessions?

11. What changes are needed to make the programme delivery better?

Any other thoughts or comments?

Data collection procedures

Participants

The participant data was collected via two talanoa (focus group discussions). One of the TAPUAKI facilitators made the initial approach to all potential participants via phone calls on the evaluator’s behalf. This was because of her established relationships with participants, and for privacy reasons (participants’ personal information). Follow-up phone calls or texts were made to discuss the talanoa and finalise the dates, times and venues. Reminders were also sent to all confirmed participants prior to the talanoa dates.

The talanoa were held at the Langimalie Clinic, Onehunga. One session was facilitated by the evaluator, and the other by the TAHA programme manager on the evaluator’s behalf. This was because of scheduling issues. The same procedures were used for both talanoa. They began with the evaluator or TAHA programme manager explaining the purpose of the evaluation, survey and talanoa, and the ethical considerations relating to participants’ participation. The direction of the talanoa was led by the participants, in keeping with the talanoa tradition. The evaluator or TAHA programme manager only referred to the talanoa guide if a specific point was not raised. Both talanoa was conducted in English; and recorded using an audio or video recorder. Participants were given a mea’alofa (gift) in appreciation of their time and support. The recordings were transcribed verbatim.

Facilitators

The facilitator data was obtained via talanoa (individual interviews). The evaluator made the initial approach to both potential participants via a letter of invitation. A participant information sheet was included. Follow-up emails were made to finalise the dates, times and venues. Reminders were also sent prior to the talanoa dates.

The talanoa were held in Botany and Onehunga. They began with an overview of the evaluation, survey and talanoa. The participant information sheet and consent form were explained, and the signed consent forms collected. The facilitators led the direction of the talanoa, in keeping with the talanoa tradition. The evaluator only referred to the talanoa guide if a specific point was not raised.

Data analysis

Both sets of data were analysed using Miles and Huberman’s qualitative thematic approach and procedures. The data was coded separately by stakeholder group, and according to construct (programme effectiveness, enablers, and barriers). The data was sorted and examined by construct to identify key themes. The themes were coded and the data further reduced to identify the most-frequently cited themes. Preliminary conclusions were drawn and these conclusions verified by revisiting field notes and raw data to ensure verification.

There were 13 female participants who agreed to take part in the evaluation. Of these, 7 were Samoan, 4 Tongan and 3 Cook Islands Māori. They ranged from 17 to 40 years old. All 6 facilitators took part and were either Samoan or Tongan ethnicity except for one who was non-
Pacific. The participants attended 3 different sites (5 at Henderson, 3 at Onehunga and 6 at Otara). Nearly all the participants were pregnant (except for one support person) and all had little or no previous antenatal education. The response rate was 41% (13 participated out of 32 persons invited).

**FINDINGS**

**Increasing knowledge**

The participants reported that their knowledge about pregnancy and parenting had increased because of the programme. They increased their knowledge on key topics such as being healthy during pregnancy, giving birth, breastfeeding and safe sleep than they did prior to attending the programme. This feedback was consistent across the group, regardless of whether they were first-time parents or already had children.

...taking these classes... really educates you on things... like just giving birth... sleeping on your left side, and like how to bath your baby... To me, it [the programme] was really educational... You learn new things that you didn’t know before... It just helps you to be a healthy mother... it was the best class I ever took.

- Onehunga Woman

The facilitators also felt the participants’ knowledge about pregnancy and parenting had increased as a result of the programme. They believed the participants’ ability to recall key learnings from previous sessions and discuss key learnings at length demonstrated this.

They [participants] said it [the programme] was really helpful... that they had learnt a lot... But you could also tell... in the preview from the past classes... because they remembered... and shared what they had learned...

- Onehunga Woman

**Increasing confidence**

The participants reported that they felt more confident about pregnancy and parenting because of the programme. This was not only because of the breadth and depth of the information they had learnt – including the “good and bad things” - but also the positive impact the facilitators had had on their self-esteem. As one participant noted, they (the participants) were treated like “VIP”, with everything focused on them and meeting their needs. Examples included the facilitators and nurses making them snacks and cups of tea, listening to what they had to say, and being positive and supportive. The participants enjoyed being “treated nice”, and believed it helped build their confidence.

She [lead facilitator] makes you feel like you can open up to her... someone you can trust and ask anything personal about being pregnant... you're not shy to hold back and say "Ah, nah. I don't wanna ask her that... I might sound dumb... I'm not comfortable...”

- Onehunga Woman

Some participants felt so confident that they were now sharing what they had learnt with their family and friends – even if the information challenged their “island myths and beliefs” on pregnancy, childbirth and parenting. Educating their family and friends so that they can make better decisions about their health and that of their babies was important to these participants.

Like when you go home, you take that information and you share it with your cousins... They're already mothers, but they didn't know little things like "do you know you should sleep on your left because, you know...” So you educate them... Anything you get, you like to tell your family or your friends so they know... And it's exciting! And it's useful information.

- Onehunga Woman

The facilitators also believed the participants felt more confident about pregnancy and parenting because of the programme; and for the same reasons as those expressed by the participants.

**Course Topics**

The participants considered the relevancy of the topics covered in the programme sessions an enabler. Everything they had wanted to know about pregnancy, childbirth and parenting was covered in the sessions.

Everything was important and useful.

- Henderson Woman
The topics participants found most useful were labour (giving birth), what happens post-delivery, breastfeeding and the "brain one" showing the effects of alcohol and smoking during pregnancy on a child's development. This was also consistent across the group, regardless of whether participants were first-time parents or already had children.

The facilitators considered the prescribed nature of the programme curriculum to be an enabler. The topics and information to be covered each week were clearly set out. All they had to do was ensure the information was communicated in a way that was appropriate and understandable for the participants.

We were completely green [in delivering antenatal education]... it [the curriculum] was easy to follow; and we just talked to how it was prescribed in the curriculum.
- Henderson Facilitator

**Medical and cultural based content**

The medical and cultural-based content in the sessions was considered an enabler by the participants. The cultural content acknowledged their cultures and the different beliefs they held in relation to the topics covered. The medical-based content, on the other hand, helped explain "things" their cultures and cultural beliefs did or could not. This was particularly in relation to how to care for themselves and their baby during pregnancy, the labour process; and what they (the pregnant women), their partners and families could do to ensure positive birthing and parenting experiences. "Both sides" (of information) were considered crucial by the participants for increasing their knowledge about pregnancy, childbirth and parenting; and their confidence in these areas.

... the cultural and medical beliefs was pretty interesting, because most of us we actually believe our culture instead of going to the medical understanding. So I reckon that was pretty good.
- Otara Woman

**Personal Relationships**

The personal relationships established within the group were considered an enabler by the participants. They felt confident and able to ask questions and share their personal stories or experiences of previous pregnancies because of the relationships they had developed with the other participants in the group. For some participants, meeting and getting to know the other participants was a highlight of the programme.

It's really good... you get to know the other ladies...
- Henderson Woman

**The Facilitators**

The participants believed the facilitators were an enabler. They had "lots of experience and knowledge" on pregnancy, childbirth and parenting. They also used basic, simple language to explain things; and if the participants did not understand what was being conveyed, they kept simplifying and explaining things until they did.

... they [health sector] have those words we don't understand... like we follow using simple English words, but they have the technical words, like kiwi words... they [the facilitators] come and explain what these words mean. Like, for 'baby' they [health sector] have the other name... and for midwife...
- Henderson Woman

The facilitators' warm, engaging and positive personalities were also considered key. According to the participants, it was these qualities which kept them coming back to the sessions. Their being of Pacific ethnicity meant they knew and understood what the participants' needs were, and could communicate effectively with them in a way that was genuine and appropriate.

It's a blessing to be a Pacific. You know in your heart what you tell people and what they need... and you make them feel so comfortable and they listen to you... We have that relationship. They can feel our love for them... and they keep coming [to the sessions].
- Henderson Woman

One facilitator thought that the curriculum was only as good as the person delivering it:

... the curriculum was really well planned out. But I think it's up to the facilitator (s)... on how they deliver... I think that's the
core thing of everything. Because you've given us the curriculum - so it's easy just to give it to them [the participants] to read word by word... but you know, it all comes down to the facilitator and the person that's doing it, and how they gonna do it.
- Facilitator

Barriers

The participants felt that their husbands or partners not attending the sessions - even the one specifically scheduled for them (the fathers) - was a barrier. They felt their husbands or partners did not know or understand what was happening with them and their baby. Similarly, the participants felt they did not know what their husbands or partners were going through. Their attending the sessions was considered important for addressing these gaps.

... we know also that not only do we hurt them, but they need to be patient at the same time... because pregnancy is not an easy thing...
- Henderson Woman

Most of the participants felt that too much time in the sessions was spent sitting down. They recommended more "movement" and exercise be incorporated into the programme.

... would be good one day to have class, talk about, and then another day go out and exercise together.
- Henderson Woman

DISCUSSION

The TAPUAKI pregnancy and parenting programme was effective in increasing pregnant Pacific women's knowledge and confidence about pregnancy and parenting. The women in the pilot knew considerably more about pregnancy, childbirth and parenting than they did prior to the programme. They also felt more confident about pregnancy and parenting because of their increased knowledge and self-confidence. This was consistent for all women, regardless of whether they are first, second or in some instances, fourth-time mothers. However, the level of change in the women's knowledge and confidence is not known because of the lack of baseline survey data.

The evaluation findings reveal that the success of the programme is dependent on a number of factors. Arguably, the most significant factor is the facilitators: their medical and cultural knowledge and expertise, ability to connect with Pacific peoples, and their personalities. It is doubtful the programme would have been as successful as it was had it been delivered by facilitators who did not have this knowledge, skills-sets and personalities. This finding is consistent with the views expressed by Enkin and colleagues.3

Another key factor is the characteristics of the participants. This programme was all of the women's first experience of antenatal education, including those who already have children. Most of them also had limited proficiency in English. Thus, the targeting of the programme to achieve optimal outcomes was relatively straightforward. The personal relationships established amongst the women, and the willingness of those who were already mothers to act as "mentors" for the first-time mothers also contributed to the programme success. It is doubtful whether the programme would have been as successful, had these "mentoring" roles and relationships and roles not been encouraged and supported.

The prescribed nature of the programme curriculum is another key factor, albeit for the facilitators only. The curriculum clearly sets out the aims and objectives for the programme and individual modules (sessions). As noted in the findings section, this was of particular importance to the facilitators in this pilot because it was the first time either of them had delivered antenatal education. However, as also noted, the curriculum is a guide only, with facilitators required to develop their own lesson plans, resources and activities – which they considered a barrier to programme effectiveness.

Other key factors include the relevancy of the content for participants; and the use of appropriate delivery methods such as visual demonstrations, activities and talanoa (interactive discussions, sharing of stories) so participants can "see" what is being communicated, and share, question, seek clarification, challenge and re-think their views – a process consistent with the Pacific talanoa methodology.15, 16 As noted, the presence of these factors was dependent on the facilitators: their cultural knowledge and understanding of Pacific
peoples and “what works” for them; and their ability to connect with this group in a way that is appropriate and meaningful for all involved. Learning from others within the group (vicarious learning) is also a key enabler. However, there is evidence to suggest that such learning is not always positive as participants may learn negative behaviours.

The evaluation findings also suggest that consideration needs to be given to a number of factors to enhance programme success. One is the programme target audience and focus. Extending the programme to Pacific peoples’ pre-conception could potentially support improved maternal and infant outcomes, by increasing peoples’ knowledge and behaviour earlier in the ‘life cycle.’

Structured lesson plans for each module, with supporting resources and activities is another factor that requires attention. This is considered crucial, given the variability in experience and expertise amongst facilitators. These plans will help to ensure consistency in the messages that are communicated. They will also support monitoring and evaluation activities.

The weighting given to some topics such as pain relief and “high risk” conditions is another factor that requires review. While these aspects are important, they are primarily the domain of lead maternity carers and doctors. This programme should focus on other, more positive aspects. How to get husbands or partners engaged and involved in the programme so that their knowledge about pregnancy and parenting is increased; and the financial and personal (time) cost of preparing the food (catering) for the sessions are other factors that require consideration.

The presence or lack of these factors influence the success of the TAPUAKI pregnancy and parenting programme and the women’s knowledge and confidence about pregnancy and parenting is increased; and the financial and personal (time) cost of preparing the food (catering) for the sessions are other factors that require consideration.

The women in the TAPUAKI programme were positive about the programme and felt there were benefits in it.

ACKNOWLEDGEMENTS

We would like to acknowledge the Well Pacific Mother and Infant Service team, and the pregnant Pacific women and facilitators of the TAPUAKI programme for their collaboration in this evaluation.

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Barriers to contraceptive use in South Tarawa, Kiribati.

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ABSTRACT:

Background: Improving access to family planning in the Pacific region has been slow, especially for those living in remote and rural areas. Pacific countries consistently report contraceptive prevalence rates well below the United Nations’ global averages for ‘less developed’ regions. The most recent data available on family planning usage in Kiribati from 2009 reported that the modern contraceptive prevalence rate was just 18.0% and total contraceptive prevalence rate just 22.3%.

The aim of the study was to investigate knowledge and use of family planning and identify barriers to contraceptive uptake for men and women of reproductive age in South Tarawa, Kiribati, to inform future approaches aimed at increasing access to family planning.

Methods: A mixed methods approach was used. A community survey of men and women of reproductive age (15-49 years) (n=500) was carried out to identify current levels of knowledge, contraceptive use and barriers to use. Focus groups (n=4) of target populations (men 15-24, men 25-49, women 15-24, women 25-49) were undertaken and in-depth interviews (n=14) were conducted with health professionals and government officials to interpret survey results, further investigate barriers and generate ideas for improving service delivery.

Findings: Considerable barriers to family planning use were observed in the community survey and explored in the interviews and focus groups. They can be categorised into four thematic groups: disinterest in family planning; knowledge gaps; personal, family and social objections; and unsuitable service delivery.

Conclusion: A broad range of solutions were identified and fourteen service delivery recommendations were made for family planning service providers in South Tarawa. The recommendations may also hold relevance to other Pacific countries, however we encourage service providers to consider their country context before initiating any recommendations provided in this study.

Key Words: Pacific, Kiribati, family planning, contraception, qualitative

BACKGROUND

Access to family planning in much of the Pacific remains inadequate and inequitable. While use of family planning continues to increase in the region, in most countries the prevalence of modern methods of contraception is still well below the United Nations’ (UN) global average for ‘less developed’ regions.¹ Furthermore, unmet need for contraception in the Pacific is among the highest in the world.² Consequently, throughout the Pacific a significant proportion of pregnancies are unintended, with unplanned or mistimed pregnancies in some countries accounting for over half of all births.³ High fertility and rapid population growth, coupled with a large and expanding youth population, increasing urbanisation and overcrowding, present considerable challenges for small island states.⁴

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Kiribati Context

The Republic of Kiribati is a remote island nation in the equatorial Pacific Ocean, consisting of 32 coral atolls and two raised coral islands spread over an area of 3.5 million square kilometres. The most recently completed census (2015) recorded the total population at 110,110, with around half of the population living in the primary urban centre and capital of South Tarawa. Like many nations in the region, Kiribati has a young population, with 57% of the population aged less than 25 years.5

The 2009 Demographic and Health Survey (DHS), the most recent data available on family planning use in Kiribati, reported that the modern contraceptive prevalence rate was just 18.0% and total (modern and traditional) contraceptive prevalence rate just 22.3%.

Modern methods of contraception include, but are not limited to, the oral contraceptive pill, condoms, injectables, implants, tubal ligation and vasectomy. Traditional methods primarily refer to the monitoring of a woman’s menstrual cycle, but also include methods such as withdrawal, abstinence, and breastfeeding.6

Unmet need for contraception was 28.0%. Subsequently fertility rates are high, with the total fertility rate at 3.8 children per woman in 2010 and the adolescent fertility rate at 49 births per 1,000 teenage women.7

In Kiribati, family planning services are provided by the Ministry of Health and Medical Services (MHMS) via government health centres and public hospitals and through the Kiribati Family Health Association (KFHA), an International Planned Parenthood Federation member. From both sources, services are generally available free of charge.

METHODS

This study used a mixed methods approach combining quantitative data from a community survey and qualitative data from focus groups with key populations and interviews with health professionals and community leaders. A mixed method was chosen because together the two methods provided a better understanding of the problem than either method alone.

The study area was centred on South Tarawa, the area with the greatest unmet need for family planning in Kiribati.7

The study was developed by Family Planning in close consultation with KFHA staff who offered regular input and advice to ensure the study was suitable for the South Tarawa context.

To begin with, a community survey of men and women of reproductive age (15-49) was developed to identify current levels of family planning knowledge, contraceptive use and barriers to usage. While we acknowledge that some women can become pregnant earlier than 15 and later than 49, the age span used for this survey is consistent with the age span used by World Health Organisation when referring to reproductive age. A total of 518 men and women between the ages of 15-49 were surveyed. 18 of these surveys were excluded due to incomplete responses leaving a total of 500 surveys for final analysis. While the survey is too small to give us a contraceptive prevalence rate suitable for national statistics, the respondents appeared to be broadly reflective of the national demographic cohorts which indicates that the data is likely to be reasonable reflective of the population.

Volunteers (n=20) from KFHA were chosen to administer the survey. These volunteers were trained in how to implement the survey, how to ask questions and how to ensure confidentiality. Each volunteer also signed a confidentiality agreement. Because of the sensitive nature of the topic, men interviewed men and women interviewed women. To further ensure that the survey was grounded in ethical practice, each respondent was read a statement about informed consent and everyone was also informed that the survey was confidential and that they could choose not to answer specific questions or stop participating at any time. Each respondent was also informed about who to contact in case of wanting to lay a complaint.

Each interviewer was tasked with completing a set number of interviews for their given communities so it must be noted that this method of data collection does not give a truly random sample and potential biases must be considered.

The survey forms were manually entered into Survey Monkey. The results were then exported into and analysed in Microsoft Excel.

Focus groups (n=4) of target populations were undertaken to interpret survey results, further investigate barriers and generate ideas for mitigation strategies. Target populations were identified as young men (15-24), men (25-49), young women (15-24) and women (25-49). Participants were recruited through visiting Maneaba (meeting houses) and asking for volunteers that met the age/gender requirements. When investigating sensitive topics, the Kiribati-speaking focus group moderators (male for the male groups and female
for the female) employed hypothetical questioning techniques. Each focus group was capped at eight participants; big enough to generate discussion but small enough that people would not feel left out. Following the focus groups, the responses were translated into English for analysis.

Interviews (n=14) were also conducted with health professionals and community leaders to further interpret survey results, identify further barriers and successful strategies or recommendations for meeting unmet need. Interviews were generally conducted in English. Where they were conducted in Kiribati language, a skilled translator was employed. The interviews were recorded and transcribed for analysis. All focus groups and interviews followed the same ethical rigour as the community survey and interviewees were informed about the study purpose, that their participation was voluntary and that they had the right to decline to answer and to withdraw.

FINDINGS

Community Survey

Of the 500 people surveyed, 300 were women and 200 were men. Approximately 70% of both the men and the women surveyed were currently married or in-union. To avoid discomfort for respondents, the survey did not explicitly ask whether they were sexually active. Instead the marital/in-union status was used as a proxy for sexual activity. For questions relating to usage of family planning, results are reported for respondents who were married or in-union. For questions relating to knowledge, results are reported for all respondents.

It should be noted that there are limitations to this study including the small sample size of 500 respondents which is not sufficient for national statistics. Also, by only focusing on data from married and in-union participants when exploring the use of family planning, the study excludes valuable information from those who may have been sexually active but not married or in-union.

A breakdown of respondents by key demographic indicators can be seen in Error! Reference source not found..

Knowledge

The first set of questions sought to identify levels of basic family planning knowledge among respondents. Respondents were asked to name as many contraceptive methods as they could (Figure 1). Their answers were unprompted with interviewers recording all methods stated. When asking respondents whether they had heard or seen any sexual and reproductive health (SRH) messages in the last three months, a substantial 84% of respondents reported having been exposed to messages in the last three months with radio being the most common media overall, reaching 77% coverage among the 40-44 age group.

Usage

Respondents were asked whether they were currently using contraception and if so what methods (Figure 2). As such we learnt that a total of 50% of currently married or in-union women were currently using contraception, with 33% using only modern methods, 6% using modern and traditional methods, and 11% using only traditional methods. Among men the numbers were similar overall with 46% currently using contraception.

The study also explored how the use of contraception increased with the number of children that a woman had up until four or more where it tapered off. Just 15% of those without children were using contraception compared with 76% of those with three.

The survey further showed that there has been a large increase in the use of contraception among religious groups (Catholic, Kiribati Uniting Church and other) with at least twice the figure of contraceptive prevalence for South Tarawa since 2009.7

Finally, the survey explored why some people chose not to use contraception and most commonly for both men and women were religious opposition to family planning use (13% and 11% respectively). Health concerns, personal and partner opposition were also commonly identified barriers to contraception use. The responses from currently married respondents are shown in Figure 3.
Table 1: Breakdown of survey respondents by key demographic indicators.

<table>
<thead>
<tr>
<th></th>
<th>Currently married or in-union</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
</tr>
<tr>
<td><strong>Age</strong></td>
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<td></td>
</tr>
<tr>
<td>15-24</td>
<td>37%</td>
<td>30%</td>
</tr>
<tr>
<td>25-49</td>
<td>63%</td>
<td>70%</td>
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<tr>
<td><strong>Children</strong></td>
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<td></td>
</tr>
<tr>
<td>0</td>
<td>22%</td>
<td>30%</td>
</tr>
<tr>
<td>1</td>
<td>24%</td>
<td>14%</td>
</tr>
<tr>
<td>2</td>
<td>16%</td>
<td>20%</td>
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<tr>
<td>3</td>
<td>19%</td>
<td>16%</td>
</tr>
<tr>
<td>4+</td>
<td>19%</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>3%</td>
<td>15%</td>
</tr>
<tr>
<td>Primary</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Junior secondary</td>
<td>31%</td>
<td>18%</td>
</tr>
<tr>
<td>Senior secondary</td>
<td>54%</td>
<td>56%</td>
</tr>
<tr>
<td>Tertiary</td>
<td>6%</td>
<td>4%</td>
</tr>
<tr>
<td>Still in school</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Paid Employment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>16%</td>
<td>46%</td>
</tr>
<tr>
<td>No</td>
<td>84%</td>
<td>54%</td>
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<tr>
<td><strong>Religion</strong></td>
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<td></td>
</tr>
<tr>
<td>Catholic</td>
<td>46%</td>
<td>49%</td>
</tr>
<tr>
<td>KPC†</td>
<td>43%</td>
<td>40%</td>
</tr>
<tr>
<td>Other</td>
<td>11%</td>
<td>11%</td>
</tr>
</tbody>
</table>

†Kiribati Uniting Church

Interviews and focus groups

Four focus groups were also held with key groups of men and women of reproductive age, each group being capped at eight participants each. Then semi-structured interviews were held with health promoters, clinical staff, government and non-government decision makers.

Four key themes were identified from the focus groups and interviews:

1. Disinterest in family planning.
2. Personal, family and social objections.
4. Service delivery barriers

1. Disinterest in family planning

Among many of the interviewees there was a feeling that family planning use and controlling fertility was not a matter of big importance in peoples’ lives.

Interviewees had many theories on the causes of this disinterest, including broad cultural reasons and pragmatic justifications. For some, the disinterest was attributed to traditional ideas around children as wealth:

Traditionally, the more babies you have the richer you are because you are a king and you have so many daughters and sons to look after you. That is a mentality that has to be changed (before family planning use can increase further).

- Government official

Figure 1: Number of contraceptive methods named (currently married, %).

![Figure 1](image-url)
Fertility was commonly presented as something that only needs to be controlled if issues start to arise or when the maximum desired fertility is reached. For some this maximum will be dictated by health reasons, in particular when given advice from health professionals that it would be unsafe to have further children.

Similarly, when young couples got married contraception was not thought to be a priority for many and having a child very soon after marriage is expected. There was a general feeling among health professionals that marriage could be a window of opportunity to engage with young people to educate them about reproduction and family planning and enable them to make safe contraceptive decisions.

2. Personal, family and social objections

Many of the interviewees discussed the social pressures from others as barriers to family planning use. Social pressures were described as coming from three areas: from themselves, from their partners, and from their faith.

In 2009, the Kiribati DHS cited religious prohibition as being the most common reason for not intending to use family planning. However, in this survey most people reported that they felt “very supported” in their SRH decisions by their church leaders (Figure 4).

Still, many interviewees reported that faith-based pressures were still prevalent, particularly in regards to the use of modern methods.

Another common subset was objection from partners. The reason for men not wanting their wives to use family planning was regularly given as jealousy and that family planning somehow could facilitate unfaithfulness.

They said that if they are going to use the family planning that means they can go out with other men. It is about jealousy and not trusting each other.

- Health Professional

There was a feeling that actively engaging men in family planning, in their roles as partners, as fathers and as community leaders was essential to removing barriers to family planning uptake.

The last common subset was personal objections, primarily from women. There was a huge concern about side-effects from modern family planning methods. Among health professionals there was the belief that many of these women were either frightened by myths about contraception or inadequately counselled about possible side-effects.

3. Knowledge gaps

The lack of practical knowledge about family planning and reproduction was also a common theme. This lack of knowledge meant that people faced a range of barriers from simply not being aware of family planning methods, to not knowing how to access them and not knowing how they affected their bodies.

People really need family planning, but they don’t really know what the benefits are, what the procedure is, or are they...
going to have to pay?- Focus group participant

Knowledge gaps were also prevalent around natural method users, having serious impacts on efficacy.

Focus group participant and health professionals were asked what could be done to improve peoples’ knowledge of family planning and responses typically included improved sexuality education in schools and improved health promotion messages.

Several health professionals also called for more reflective messaging that enabled people to ask questions with talk-back radio as being given as a good example.

Announcements or promotions on media, you just give them information, but there is no way of people asking questions. We just give out information whether people understand it or not. How can they respond that they are not clear about something? It is not a two-way correspondence. - Health Professional

4. Service delivery

Accessing family planning in the clinical setting was viewed as problematic because of issues relating to confidentiality, acceptability and accessibility.

Confidentiality concerns typically stemmed from being seen to be going to a clinic. With the relatively small population of South Tarawa and the closeness of the communities there were fears that when someone went to a clinic they would likely see people that they know.

The problem with the clinic is that there are so many people there. Some of them are Catholic or whatever and they don’t want the other members of the church to see them. - Health professional

There were also concerns that the clinic staff would not treat their clients’ details as confidential and with a cultural taboo around sex before marriage young people felt that it was too risky to go to the clinic for family planning.

Existing health clinics were also seen as unacceptable service delivery modes for many, particularly younger men. They felt that the services were often not designed for them and that people judged them. Several younger focus group participants felt that it would be best to provide services to young people in a more comfortable and youth-focused situation such as in a youth centre.

Issues of accessibility of clinics were also raised. To attend SRH clinics people often had to travel a considerable distance, often at a significant expense. If people were not prioritising the accessing of family planning it was thought that many would simply not go, despite wishing to space or limit their children.

Several interviewees suggested the establishment of home visitation programmes for key populations. It was suggested that community clinic staff and lay educators could be used to run these programmes.

Lastly, there was concern that family planning was getting lost within wider programmes and was not given the priority that it needs. In community clinics family planning was just one of many health services provided.

The approach here is that (family planning) is regarded as part of the normal health services. If you never ask any questions about family planning you will never get any information. But if you have a unit that is focussed on this issue then you may be able to get more results. (Currently) it is a passive approach. What we need is a more aggressive one. - Government official

DISCUSSION

The results from the community survey indicate that the knowledge level of family planning is relatively low among people in South Tarawa. Still, the use of family planning has increased considerably since 2009 with a total of 50% of currently married or in-union women using contraception. This is dramatically more than the 19% of six years previous?

The contraceptive prevalence from this study is compared to regional averages (by development status) and the contraceptive prevalence for South Tarawa reported in the 2009 DHS (Figure 5).

In 2009, Kiribati had one of the lowest contraceptive prevalence rates in the world and the lowest in the Pacific region at 22%. In South Tarawa it was poorer still at just 19%. Given the extremely low numbers in 2009, it is not unreasonable to expect a large increase in contraceptive prevalence with increased family planning promotion and investment. At 50%, the contraceptive prevalence from this sample is over 150% greater than that observed in 2009. This increase brings South Tarawa more in line with developing country averages.
Barriers, however, remain. Among the stated reasons for non-use were religious beliefs, health concerns, personal and partner opposition. The interviews and focus groups further identified four key areas for non-use: disinterest in family planning, knowledge gaps, personal, family and social objections, and service delivery.

It must again be noted that the community survey did not employ random sampling methods to identify survey respondents. Subsequently, the results of the community survey should not be treated with the same authority as official demographic and health surveys. Despite this, the data is likely to be reasonably reflective of the population.

There was a feeling among participants that family planning use and managing fertility were not matters of big importance in peoples’ lives. Family planning was seen to be something that was often accepted to be important but rarely prioritised until fertility began to cause problems. Interviewees described a pattern in which once people had reached their maximum desired number of children they would begin family planning use.

This pattern differs from that commonly promoted in health promotion materials and should be considered in the development of new materials. Yet care needs to be taken in doing so. Delaying use of family planning until such a time that maximum fertility is reached has a considerable impact on the health of women and their children. Research has shown that spacing of births is closely correlated with infant survival, with babies born less than two years after the next oldest sibling more than twice as likely to die in the first year as those born after an interval of three years.9

Similarly, the delaying of first child birth allows women to safely bear children in their healthiest years. The age at which woman have their first birth can have serious implications for the health of the women and her child. Early childbearing increases the risks for women and their children, with the younger the mother, the greater the risk to her and her baby. Ensuring women have access to family planning to delay first childbirth is vital for the health of women and their children.10

Personal, family and social objections were highlighted in the community survey. The most commonly stated reasons for non-use were faith-based opposition, health concerns, personal opposition and partner opposition. Many of the interviewees reinforced these same barriers. There was however the impression that people generally felt supported in their contraceptive decisions by their church.

This may be in-part due to the active increase in the engagement of church leaders in SRH programmes, both by the MHMS and KFHA. It may also be in-part due to the increased promotion of faith-appropriate family planning methods including the Billings Method and the use of cycle beads.

The promotion of natural family planning methods by service providers should be done with some care. Natural family planning methods are moderately effective if used perfectly. When used inconsistently or incorrectly however the method effectiveness is very poor, with an estimated 24% of women becoming pregnant after one year of use.11

Knowledge gaps were identified in both the community survey and the interviews. There was a consensus among most people interviewed that people were generally aware of family planning but that many had limited understanding of how it actually worked.

An example of this knowledge gap was observed in the survey between respondents having attended a condom demonstration yet failing to identify condoms as a method of contraception (Figure 6). This specific knowledge gap may in
part be linked with health promotion messages primarily having focused on promoting condoms as a barrier against STIs and HIV, and not drawn enough attention to the dual function of condoms. The barriers described in this study are principally barriers to service delivery as described by the informants, and should not be seen as an exhaustive list of challenges influencing contraceptive uptake.

CONCLUSION

While the study identified a broad range of barriers to contraceptive uptake in South Tarawa, the focus groups and interviews highlighted several ways for family planning providers to address these barriers. Improving access to culturally appropriate family planning information and services is central to supporting women to determine the number and spacing of their children and ensuring that these women have the necessary information to do so.

The following 14 service delivery recommendations are proposed for family planning policy, programmes and decision makers in South Tarawa, Kiribati. We encourage other service providers in other countries to consider their context before initiating any of the recommendations.

1. Consider desired fertility trends of men and women in South Tarawa when developing new family planning materials. Highlight the importance of delaying and spacing children.

2. Promote the use of contraception at first intercourse through family planning promotion programmes.

3. Develop programmes to work with couples before marriage to educate them on family planning. Marriage should be viewed as a window of opportunity for health promotion.

4. Consider the terminology and language used in health promotion messages, in particular the use of moralistic language in regards to sex.

5. Develop family planning promotion programmes to specifically target men in their role as partners. Educating men on the benefits of family planning for the health of their families could address the partner barriers to family planning uptake. Special attention should be paid to addressing jealousy.

6. Create family planning promotion messages and materials that address myths around modern family planning methods.

7. Review existing family planning consultation guidelines and practices to ensure adequate and accurate information is provided about possible side-effects.

8. Promote the use of condoms as a contraceptive option. Consideration needs to be given during the design of these programmes to the lower efficacy of condoms compared to other modern methods.

9. Use ‘edutainment’ materials as a tool for increasing awareness of family planning. ‘Edutainment’ movies are popular with health promoters and public alike yet only limited options exist for family planning in Kiribati.

10. Utilise family planning promotion channels that allow the public to ask questions. Possible examples include talkback radio, the use of social media (especially direct messaging functionality), or the provision of contact details for questions.

11. Review the confidentiality procedures for all clinics. Ensure that all staff are trained in confidentiality best practice. Engage in media promotion programmes to stress the confidentiality of family planning clinics.
12. Integrate family planning clinic services into existing youth safe-spaces, e.g. youth centres.

13. Develop home visitation programmes for family planning promotion and low-level service delivery. Delivering family planning promotion services in the home is thought to allow more privacy and give messaging more weight.

14. Dedicate human and financial resources to family planning specific programmes. There is concern that family planning is often not-prioritised within wider sexual, reproductive, maternal and wider health programmes.

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The Pacific Society for Reproductive Health (PSRH) – twenty-years on.

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Benjamin Franklin has been quoted as saying that there are only two things certain in life – death and taxes.1 But there is a third certainty - change. Much has changed over 20 years. For organisations to survive, they have to be relevant, sustainable and flexible. Inflexible organisations do not last long.

The PSRH therefore has to evolve to stay relevant and sustainable for its members, for reproductive health and women in the Pacific Islands. Strategies in governance, operations and implementations have been revised to stay abreast of changes in expectations, opportunities and challenges. The Society’s revised vision is for an improved workforce and country capacity that responds adequately to the reproductive health needs of Pacific communities and families.

That was probably not the initial vision of the founders of PSRH when it was conceived by a regional group of reproductive health professionals who met at an educational meeting in 1993 in Suva Fiji. The meeting was funded by the Australian overseas aid agency and organised by the Fiji School of Medicine (FSM) and the Royal Australian and New Zealand College of Obstetricians and Gynecologists (RANZCOG). The outcome of the meeting was the belief that working together would provide strength and a platform from which to build supportive networks across the range of reproductive health providers in the Pacific and Pacific-rim countries. The initiative was nurtured and administered through RANZCOG, with leaders such as Dr Rajat Gyaneshwar and the late A/Prof Brian Spurret, leading to the birth of the Society in 1995 under its former name, the South Pacific Regional Obstetrics and Gynaecology Society (SPROGS). In 1997, the Society was renamed the PSRH; and in 1999, the PSRH Secretariat was relocated to the office of the Dean of FSM, Dr Wame Baravilala who was the first Secretary-General. In 2005, the Secretariat was relocated to the office of Dr Rufina Latu at the South Pacific Commission. In 2006, the Secretariat moved to the office of Dr Alec Ekeroma who had just formed the Pacific Women’s Health Research Unit at the University of Auckland. The PSRH was registered as a Charitable Trust with the NZ Charities Commission in August 2008, and this has brought many benefits. In 2012, the Secretariat relocated to Dr Ekeroma’s private practice at 525 Remuera Rd, Auckland.

Members of the PSRH are from all the Pacific Island states and territories including Australia and NZ. Membership of the Society is for life although members are invoiced for annual subscriptions if they reside in Australia and NZ and biennial subscriptions of Pacific members are due when they attend the biennial conferences. The PSRH is governed by a Board of nine members comprised of seven elected Trustees, the immediate past president, and a representative of RANZCOG.

The PSRH has had conferences in Port Vila Vanuatu (1995), Apia Samoa (1997), Suva Fiji (1999), Madang, Papua New Guinea (2001), Nadi Fiji (2003), Nadi Fiji (2005), Apia Samoa (2007), Auckland NZ (2009), Honiara Solomon Islands (2011), Apia Samoa (2013) and Suva Fiji (2015). The aims of the conferences were to provide a platform for the dissemination of Pacific relevant research evidence, to support our clinical researchers and to aid the networking of ideas on what works and what doesn’t. The conferences have grown in sophistication...
over the years with the last one hosting 400 participants and preceded by eight different skills workshops. The conferences and workshops have been well supported by international and national donor agencies, stakeholder organisations and Pacific Ministries of Health.

The Society’s mission is to:

1. To improve reproductive health outcomes in the Pacific region through capacity building interventions and advocacy, so that Pacific families realise their full reproductive health potential and rights.

2. To provide and support professional development initiatives for Pacific reproductive health workers by working in partnership with governments, academic and professional institutions, agencies and non-governmental organisations.

3. To improve provide and support interventions to improve reproductive health outcomes.

Improving standards of care provision in all areas of reproductive health shall be done through advocacy and targeted action to support the Pacific workforce through training, research and networking projects and programmes.

PSRH’s advocacy work include support for midwifery and specialist obstetrics and gynaecology (SOG) training. For example, PSRH in 2002 made a submission to RANZCOG to support the Pacific SOG workforce by providing a continuous professional development (CPD) programme contextualised for the Pacific setting. Those who join the CPD programme and are recognised by their countries as SOG are offered Associate Membership of RANZCOG. As of the end of 2015, more than 40 of the approximate 70 SOGs in the Pacific Islands were Associate Members of RANZCOG.

The PSRH made a significant contribution to the Open Enquiry of the NZ Parliamentarians’ Group on Population and Development that published the Making Maternal Health Report in 2009, which was used by the NZ government to lobby for increased awareness of maternal health in the Pacific.

Members of the Society appreciate the value of participating in the PSRH workshops and conferences with the 2015 conference in Suva hosting 400 nurses, midwives and doctors. The Society has also matured with the election of the first midwifery president in Kathy Gapirongo from the Solomon Islands. Having a senior Pacific midwife in the presidential role is a milestone reflective of the genuine respect and collaboration that exists between the midwifery and medical workforces within the Society.

The Society has innovated in the delivery of professional programmes for its members. Training workshops are conducted in conjunction with RANZCOG support throughout the region at the request of Pacific governments or educational institutions. Workshops in ultrasound scanning, research, clinical audit, basic surgical skills and colposcopy have been accredited by at least one qualifying authority in the Pacific and have had the support of RANZCOG. The Pacific Emergency Maternal and Neonatal (PEMNeT) programme was developed specifically to acknowledge the low resource setting and the challenging geography of the Pacific. A Manual was authored by key midwives and SOG in the region and a Facilitators Guide was developed with the assistance of RANZCOG. The sustainability of the training programme is in its dissemination strategy of programme embedment in routine professional learning activities. A Facilitator’s Guide was developed in collaboration with RANZCOG to assist trainers with programme facilitation and dissemination.

The PSRH has supported the development of national societies such as the midwifery societies of Fiji and the Solomon Islands and the Fiji Obstetrical and Gynaecological Society as a tangible way to improve professional standards in the Islands. PSRH also works collaboratively with other partners such as the Friends of Fiji, Send Hope Not Flowers and the Fiji School of Medicine to realise its goals. Through these collaborations, PSRH has funded research projects, infrastructural support and nursing scholarships. The PSRH Board has approved ten research awards, which will be offered from 2017 to incentivize reproductive research capacity building in the region. To further support research capacity building efforts, the Pacific Journal of Reproductive Health, an independent publication of the Society was delivered of its first issue in June 2015.

PSRH has name recognition and is respected across the Pacific, operating as a driving force in reproductive health education and networking for over twenty years now. There is much to be done and as a society of proactive members, PSRH looks forward to embracing
global health developments and empowerment of women that will bring stronger societies and better reproductive health outcomes to all Pacific nations.

REFERENCES:


Where do we go with maternal health?

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On 15 September 2016, the Lancet published a new series of six papers on maternal survival, bringing together current epidemiology, successes and failures in this subject area, all within the framework of the Sustainable Development Goals (SDGs). Audrey Ceschia and Richard Horton of the Lancet stated in an editorial, "The lesson ... is that progress in maternal health is fragile and non-linear. The gains that have been made ... during the era of the Millennium Development Goals (MDGs) — must never be taken for granted. Constant vigilance is essential."

They go on to suggest that "Now is therefore the moment for a radical reappraisal of practices, programmes, and policies to achieve sustainable maternal health and wellbeing worldwide. This is an attempt to understand and take stock of efforts to improve maternal health, and add momentum for maternal health in the era of the Sustainable Development Goals (SDGs)." What do they mean? Essentially, all of us are being challenged to examine maternal health, mortality and morbidity from a wider perspective - one that considers the context of a larger health agenda for women and prospective mothers.

In November 2015, the United Nations health agencies, the World Bank Group and UNDP3 published their estimates of maternal mortality for each country globally. We should not lose sight of the tremendous progress made In the Asia Pacific region in terms of maternal mortality and morbidity from 1990 to 2015. In 1990 the mean MMR in Asia Pacific was 353 maternal deaths per 100,000 live births. By 2015 this regional MMR had dropped by 64% to 127 maternal deaths per 100,000 live births. In 2015 it was estimated there were about 84,000 maternal deaths in the Asia Pacific region, of which an estimated 499 deaths occurred in the Pacific Island countries.

While some countries still have work to do to further reduce maternal deaths, others are well on their way to meeting the global MMR target of 70 maternal deaths per 100,000 live births by 2030. To make further progress, we must consider the many interventions that lie outside the traditional health sector. This calls for the development of new partnerships and advocacy strategies in order to leverage policy change and meaningful, sustained action.

A paper published by UNDP3 in 2011 describes a framework to analyse the structural and social determinants of maternal health. The grouping of factors described in the framework are: individual attributes of women (age, parity, knowledge of services, previous obstetric history); family characteristics (economic status, access to resources, support from birth and marital family, marital relationship); community context (rural-urban-tribal, social position (class, ethnicity), social capital, distance to facilities); culture and social values (women's status, gender norms, religion, health beliefs, social cohesion); health services (availability of services - emergency obstetric and neonatal care, blood availability, skilled birth attendants and other staff, acceptability of services, fees and charges for services); structural determinants (laws, policies, budgets, education, social protection) and so on.

All these issues need to be carefully weighed, considered, discussed and translated to actions if we are to truly realise the goal of improving maternal health and minimising maternal death and morbidity in our countries. As these are areas outside the expertise of most reproductive health workers, new partners need to be engaged and empowered to work with the health...
sector to ensure high quality and women-friendly maternal care is accessed by all women, including the vulnerable and those who were previously left behind.

In the same issue of the Lancet, Kruk et al predict that in the next decade and a half, maternal health will depend to a large extent, on social, political, environmental and demographic changes. Governance issues, economic growth (or the lack of it), urbanisation and health crises will constitute shocks from outside maternal health which will profoundly affect maternal and newborn survival. However, there is hope in that health systems innovations can be leveraged to improve maternal health through universal health coverage, behavioural economics and mHealth (mobile health is a general term for the use of mobile phones and other wireless technology in medical care). We need to be prepared.

REFERENCES


Severe pre-eclampsia: it’s recognition and management

Barry NJ WALTERS

This article deals with certain aspects of the disorder that have not been as well covered in the literature as other elements. The clinical manifestations are manifold, variable and sometimes, if unrecognised, can have unfortunate results. The first truism to accept is that there is no such entity as ‘mild’ pre-eclampsia. All cases have the potential to undergo a transition to a life-threatening illness for mother and baby and, therefore, close monitoring as an inpatient is essential.

Pre-eclampsia is a disease of the placenta and its vasculature. The placenta cannot be directly examined and its function is poorly assessed by current techniques. The derangements that come to clinical attention are protean, variable and, in the early stages of pre-eclampsia, may not include hypertension, the usual diagnostic entry point.

For these reasons, every woman, particularly those in the first pregnancy, should be regarded as being at risk. It is largely to detect pre-eclampsia that repeated visits to the obstetrician are necessary, since it may be absent at an antenatal visit yet present in a severe form within days.

Symptoms

A perplexing feature of pre-eclampsia is the fact that it may present with symptoms before any clinical signs appear. In other cases, there may be some clinical signs, but minimal or absent hypertension, and even these cases may progress undetected and lead to fetal death, eclampsia, abortion or other severe maternal complications. Many women who ultimately develop severe pre-eclampsia experience suggestive symptoms in the days or weeks before diagnosis, including headaches, visual disturbance, swelling, dyspnoea, nausea or vomiting, reduced fetal activity and, particularly in the worst cases, a severe pain in the upper abdomen or lower chest that has distinctive diagnostic characteristics that are defined in a paper detailing many cases.1

The term chosen for this pain is ‘pre-eclamptic angina’, angina being used in its original sense as signifying a severe cramp-like pain. The presence of pre-eclamptic angina signifies a grave prognosis for mother and baby, as it is a feature of only the worst type of pre-eclampsia. It is a sign of imminent calamity and terrible complications may be seen in those women who manifest pre-eclamptic angina. Its genesis lies in hepatic infarcts and haemorrhages, which were well documented by Sheehan in his landmark text2 describing the pathology at postmortem of many cases of severe pre-eclampsia and eclampsia. This severe, and often recurring, symptom (sometimes first experienced a week or more before presentation) is a marker of a dangerous and unstable state. Those with pre-eclamptic angina are in need of urgent delivery. Women with any of the above symptoms require careful evaluation, with attention to pre-eclampsia as the possible underlying cause.

Signs and laboratory features

The classical sign of pre-eclampsia is hypertension, but it is usually episodic and may be entirely absent when the woman is seen in the morning, but severe and dangerous by the late afternoon or at night. This reversal of the diurnal rhythm of blood pressure in pre-eclampsia was described decades ago.3 The presence of hyperactivity of the deep tendon reflexes or donus is of great concern and suggests nervous system involvement and risk of progression to complications, even eclampsia.

Tenderness of the liver accompanies the pain mentioned above and should be taken as a worrying feature. Oedema is often seen, but is not invariable and many women develop substantial oedema in normal pregnancy so careful evaluation is necessary. Proteinuria is a sign of severity and is not required to diagnose pre-eclampsia as in many pre-eclamptic women
it is not present until the disease reaches a late stage. Thus many with the disease do not have proteinuria at presentation and its absence cannot be taken as reassuring, while its presence indicates a more advanced stage and those with it are at greater risk. In years past, heavy proteinuria was taken as an absolute indication for delivery. Now, with better fetal assessment and monitoring, pregnancy may be allowed to proceed in the presence of proteinuria, but only at very early gestations where it is felt that prolongation is essential for fetal reasons, as continuation of pregnancy in this situation is always at the cost of risk to the baby and mother. Proteinuria is a reliable indicator of severity signifying the need for intensive repeated monitoring of the baby as old studies confirmed that proteinuria correlates with higher risk of fetal demise.4

The laboratory features of pre-eclampsia are well known, but the presence of normal tests does not exclude the disorder and should not provide reassurance. The most reliable test, although even it may mislead in some cases, is plasma uric acid5 that rises in most cases, but not until the disease is entering a more severe state. It should not exceed 0.33 in any pregnant woman (unless there is renal disease or dehydration and it is not reliable with twins) and should not exceed the same numerical value as the gestational age before 34 weeks – thus at 28 weeks, it should be no higher than 0.28.

Thrombocytopenia, any evidence of haemolysis or a high haemoglobin (indicating plasma volume contraction), elevation of alanine aminotransferase and any elevation in creatinine are all worrying features. In 1954, the combination of some of these abnormalities was described6 in very advanced cases, but this classic description went largely ignored until the acronym 'HELLP' was applied to this clinical subgroup many years later7 and this has benefited women and babies as it is a memorable term and has increased the recognition of a severe variant of pre-eclampsia that sometimes does not manifest hypertension, but is nevertheless very dangerous.

Complications and their prevention

Pre-eclampsia is a progressive disorder that worsens always, sometimes gradually and sometimes with fulminating rapidity. Therefore, repeated assessment of mother and baby is necessary. Ideally, this should be in hospital – so volatile and unpredictable is pre-eclampsia that it demands in-patient observation and care. It cannot safely be dealt with as an outpatient and neither can it be assessed reliably in a period of a few hours as its worst signs may not be present until later.

I believe that there is no place for the recently developed 'maternal fetal assessment unit' in the evaluation of cases of suspected pre-eclampsia, as a reliable predictive assessment cannot be made in a short period of time. Ongoing inpatient care is essential for these women.

The aim of continuing care in hospital is to assess maternal and fetal fitness to continue the pregnancy, and to control hypertension. Pre-eclampsia worsens until delivery, and even for some time afterwards. For this reason it is always in the mother’s best interests to deliver the baby, but in very early cases it is usually necessary to attempt prolongation for fetal benefit, even though this exposes the mother to the hazards of eclampsia, abruptio, hypertensive cerebral haemorrhage, pulmonary oedema, retinal detachment, hepatic haemorrhage and renal impairment or failure. Such attempts at prolongation require the most assiduous and diligent of monitoring, and should only be undertaken at a tertiary centre with the best available modalities of fetal and maternal surveillance and, ideally, assistance from a physician trained in Obstetric Medicine.

When the baby is mature, there is no benefit that justifies the risk in deferring delivery. A recent study8 randomised women with pre-eclampsia between 34 and 37 weeks to either immediate delivery or attempted prolongation. This valuable work showed no difference in fetal outcome, but more maternal complications in those where delivery was not undertaken promptly. For this reason, after 34 weeks it is difficult to justify continuing the pregnancy in women with definite pre-eclampsia. Moreover, when the decision is taken to deliver the baby, it should be accomplished without delay. Where betamethasone administration is required for fetal lung maturation it is reasonable to wait, provided the fetus is constantly monitored. Otherwise, even overnight delay may expose the baby and mother to unnecessary risk such that if delivery is determined to be necessary it should not wait until the next morning. Many cases have deteriorated in that interim period.

However, delivery alone is insufficient management of pre-eclampsia. It must always be combined with control of abnormalities and
preparation of the patient including any or all of the following: control of severe hypertension by use of oral or intravenous agents, correction of disordered fluid status, correction of coagulopathy, and prophylaxis against eclampsia by means of magnesium sulphate. Not all those with pre-eclampsia require magnesium. The indications are uncontrolled hypertension, persistent headache or vomiting, altered conscious state, tremor or agitation, hyperreflexia with or without clonus and, of course, eclampsia itself. Any woman requiring magnesium must be delivered as soon as possible and the magnesium continued for 24 hours.

When is delivery necessary?
As mentioned above, after 34 weeks there is little benefit and considerable hazard in continuing the pregnancy with definite pre-eclampsia. The decision to terminate the pregnancy earlier than 34 weeks is always difficult, and involves consideration of a number of factors. Prediction of progression in pre-eclampsia is imprecise and unreliable, although the recently available test ‘Placental Growth Factor’ has been shown of reasonable predictive value in studies elsewhere.\(^9\) This test may well provide a useful enhancement to the current care of women with pre-eclampsia.

The following factors represent maternal endpoints. Once reached, any one of these indicates that delivery is necessary or that if continuation (to achieve fetal viability) is to be attempted it carries high risk:

- failure of blood pressure control despite use of any two drugs in standard doses;
- worsening thrombocytopenia;
- pre-eclamptic angina or liver test abnormalities;
- rising creatinine, oliguria despite adequate hydration, or heavy proteinuria;
- pulmonary oedema;
- haemolysis;
- persistent neurological symptoms, any alteration of conscious state, confusion or persistent headache;
- antepartum haemorrhage; or
- other persistent symptoms such as vomiting or accumulating oedema.

Fetal indications often constitute the reason for delivery. These include the following:

- abnormal fetal CTG monitoring or flow aberrations on ultrasound;
- subnormal growth between ultrasound examinations;
- reduction in amniotic fluid volume; and
- achievement of sufficient maturity, namely 34 weeks, but earlier in severe cases.

In many cases, a combination of subcritical factors may decide the need for delivery, even though no single factor, by itself, would constitute an endpoint. When pre-eclampsia complicates diabetes, renal disease, lupus or any other medical or obstetric (for example, intrauterine growth restriction) disorder, the prognosis is worse and the decision for delivery should be made at the slightest sign of deterioration, usually earlier than in cases not complicated by a second disorder.

It should also be recognised that the whole situation of being under surveillance for a life-threatening condition is so stressful for the patient that she may decide she cannot tolerate further uncertainty and, in these cases, it is entirely correct to agree to her request for delivery, even if things may seem medically stable. It is the patient and her family who suffer most and her opinion must be taken seriously.

After delivery, the disease remains active for at least a week and sometimes longer. The woman’s blood pressure commonly reaches severe levels three to seven days postpartum\(^10\) and eclampsia has been seen several days after delivery. This postnatal hypertension may need ongoing drug therapy. Thus, continued surveillance of the mother is well justified and she should not be sent home less than a week after delivery. The blood test abnormalities slowly return to normal, but it may take many days for the platelet count to rise, liver enzymes to fall and renal function to recover.

It is a great pity, but nevertheless the truth, that medicine has not yet mastered the prediction or management of this enigmatic disorder and has no cure other than delivery. This situation may change with future advances, but in the meantime the best that can be offered is diligent and insightful care and meticulous monitoring, bearing in mind that, if the pregnancy is continued too long and warning features not heeded, a serious complication is very likely to occur in every case of pre-
eclampsia, and this may include fetal or maternal death.

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Invited Commentary – Pre-eclampsia in the Pacific

Theresa MITTERMEIER

BACKGROUND

Pre-eclampsia and related hypertensive disorders of pregnancy have a significant impact on maternal and perinatal outcomes. Worldwide 10% of all pregnant women are affected by hypertensive disorders, with 2-8% of pregnancies complicated by pre-eclampsia. Pre-eclampsia is in the top five contributors to maternal mortality, and associated with 10-15% of direct maternal deaths. The majority of these occur in developing countries.

Prevalence data from the Pacific is limited, however studies in New Zealand, the United States and Hawaii demonstrate higher rates of hypertension and pre-eclampsia in Pacific Islander women. The reasons for this are complex and not yet fully understood. Risk factors for pre-eclampsia include obesity, chronic hypertension, diabetes, nulliparity, extremes of maternal age and conditions leading to hyperplacentation (e.g. twin pregnancy). Although there are higher numbers of pregnancies to multiparous women in the Pacific, the higher prevalence of pre-eclampsia may be due to higher rates of obesity, chronic hypertension and diabetes.

A New Zealand cross-sectional survey found one in three Pacific adults have raised blood pressure when compared with one in five other ethnic groups. BMI was identified as a major modifiable risk factor. Literature suggests increasing maternal obesity is contributing to the rise in pre-eclampsia rates, and increases the risk for pre-eclampsia due to metabolic abnormalities, such as increased circulating leptin, glucose, insulin and lipids. Another New Zealand study of adolescents in high school demonstrates Pacific people experiencing high blood pressure at a younger age compared with other ethnic groups. This is relevant to the obstetric population, especially in the Pacific where there are high adolescent fertility rates.

Recent research has identified racial differences in placental telomere length contributing to cellular aging of the placenta and hypertensive disorders. This data is not specific to Pacific women and further research is needed to understand the aetiology of pre-eclampsia in Pacific populations.

THE BURDEN IN THE PACIFIC

Although data in the Pacific is lacking, pre-eclampsia is known to cause a substantial burden on maternity and neonatal outcomes across the antenatal, intrapartum and postnatal course. There is a recognised cycle of disease as women with pre-eclampsia have a higher risk of developing recurrent pre-eclampsia, chronic hypertension and type two diabetes mellitus. There is also evidence for foetal or developmental origins of cardiovascular disease.

The impact on families and health care systems includes long antenatal admissions with laboratory and ultrasound investigations, multiple follow-up appointments and tertiary level care of women with severe pre-eclampsia and neonates with complications of prematurity.

There are various barriers to reducing the impact of pre-eclampsia in the Pacific. Fewer women receive antenatal care, and fewer births are attended by skilled birth attendants. Late booking means risk factors for pre-eclampsia are managed very late. For example, only 8% of mothers in Samoa attended an antenatal clinic during the first 20 weeks gestation. Magnesium sulfate (MgSO4) for the prevention and treatment of eclampsia, and its antidote calcium gluconate have been identified as essential medications required to improve maternal health and prevent complications. A study on low-resource countries in Asia and the Pacific reports the availability of MgSO4 in stock in primary health centres. In the Solomon Islands this was 86% and in Vanuatu 33%. The availability of calcium gluconate was 72% and 0% respectively. The study identifies a lack of diagnostic equipment and equipment required for the safe

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administration of MgSO4. The authors also mention a lack of treatment guidelines and educational materials for the management of pre-eclampsia. This necessitates interventions at all levels of the health care system including health professionals, health facilities, pharmaceutical supply and government/regulatory systems.24

WHAT CAN BE DONE?
Timely and effective care of women presenting with hypertensive disorders of pregnancy is the cornerstone of reducing complications and avoiding deaths.26

In the Pacific this poses unique challenges as a developing region with geographic isolation, fewer health resources and socioeconomic barriers to healthcare.

Improving pregnancy outcomes must begin pre-conceptually to optimise a woman’s BMI, blood pressure and blood sugar levels. Education of mothers, families and health care professionals is an important first step. Access to quality antenatal care must be improved. The Pacific Emergency Maternal and Neonatal Training is one resource for health professionals appropriate for the Pacific context.15

During pregnancy, the only identified interventions for the prevention of pre-eclampsia include calcium supplementation (1.5-2.0g elemental calcium/day) where dietary calcium intake is low, and low-dose acetylsalicylic acid (75mg aspirin) in women with high risk factors for developing pre-eclampsia.27 A recent large prospective cohort study has found that folic acid supplementation in pregnancy was associated with a reduction in pre-eclampsia.28 These are low-cost interventions feasible in the Pacific Islands.

Other important antenatal opportunities include screening for hypertension, proteinuria and gestational diabetes mellitus, particularly among high risk groups. As only a small portion of healthcare costs is spent on medical testing,10 priority should be given to tests which could result in long-term economic savings. Serial fundal height measurements are a simple strategy important in identifying the intrauterine growth restriction associated with placental dysfunction in pre-eclampsia. There is a need for training in and availability of growth ultrasound scans in developing nations including the Pacific Islands.

Beyond 34 weeks gestation delivery may outweigh the risks of continuing a pregnancy complicated by pre-eclampsia. Although safety of the mother is the first duty of care, decisions regarding the timing of delivery in the Pacific Islands may be influenced by the ability of the neonatal facilities to support premature babies.

Following pregnancy, regular surveillance of blood pressure, urine protein level, fasting glucose and lipid panel for the early detection and treatment of cardiovascular risk factors is important. Modifiable factors such as healthy diet, exercise and weight loss can be addressed.22 Increasingly there is recognition of the importance of targeting non-communicable diseases and integrating this with antenatal and ongoing care. The Government of Samoa has recently invested in the Samoa Primary Health Care Centre tasked with health awareness and education, community interventions and health promotion to improve the overall health of women in Samoa.30

CONCLUSION
Pre-eclampsia and related hypertensive disorders of pregnancy are increasingly important in the Pacific with the rise in non-communicable diseases and obesity. Low-cost and lifestyle interventions are possible. There are ongoing challenges due to geographic and socioeconomic barriers to healthcare.

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The Journal is also to provide a platform for evidence dissemination for researchers and clinicians from the Pacific and Pacific-rim countries.

The Journal welcomes manuscripts from all areas of reproductive health (family planning, contraception, obstetrics and gynaecology, midwifery, pregnancy, labour, postnatal period, socio-economic, cultural and mental health indicators affecting reproductive health, gender-based violence, cost-effectiveness, workforce and professional development). We prefer manuscripts that have the potential to inform clinical practice and policy decisions in the low-resource setting. We will publish original research, literature reviews, perspectives, short articles, clinical audit, journal/magazine article commentaries, letters to the editor. We will add sections in the future to address our readers’ needs, so we welcome your feedback. Please refer to instructions for authors for a full explanation of the Journal’s scope.

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Dr Rufina Latu is the Technical Officer at the World Health Organization in Papua New Guinea. Rufina is a medical graduate from the Fiji School of Medicine and holds a Masters degree in Public Health from the University of New South Wales. She has contributed extensively to advocacy submissions for PSRH.

Prof Glen Mola, *MBBS(Melb), DPH(Syd), MRACGP, FRANZCOG, FRCOG, OL, CSM*

Professor Glen Mola has been head of Reproductive Health and Obstetrics and Gynaecology at the School of Medicine and Health Sciences UPNG since 1997.

Prof Peter Stone *MFM MD FRANZCOG FRCOG*

Peter Stone is Professor of Maternal Foetal Medicine at the University of Auckland. He is the RANZCOG representative on the National Screening Unit Antenatal and Newborn Screening Technical Advisory Group. His clinical and research interests include maternal foetal medicine, obstetric ultrasound and prenatal screening and diagnosis.

A/Prof Nicola Hawley *PhD*

Nicola Hawley is an Assistant Professor of Epidemiology at Yale University. Dr Hawley's research focuses broadly on understanding how maternal and child health are impacted by rising levels of obesity and diabetes in developing countries.

A/Prof Swaran Naidu *FRANZCOG*

Swaran Naidu is an A/Professor at the Fiji National University Department of Obstetrics & Gynaecology. She has worked as a consultant obstetrician gynaecologist in Australia where she performed and published research on the menopause.

Dr Shanti Raman *MBBS FRACP MAE PhD*

Shanti is a Consultant Paediatrician, with subspecialty training in Community Paediatrics, epidemiology and public health. Her research and teaching interests include global maternal, newborn and child health, child rights and child maltreatment, the health of migrants and refugees, poverty, indigenous child health, and quality and safety in health. She is currently the clinical lead for Child Protection services in South Western Sydney as well as the Consultant Community Paediatrician for Maari Ma Health Aboriginal Corporation in far west New South Wales. An academic clinician at the University of Sydney Australia.

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Dr Theresa Mittermeier, *MBChB, DipOG, DipPaeds.*

Theresa graduated from the Faculty of Medicine, the University of Auckland with Distinction in 2012. She is training to be an obstetrician gynaecologist. She has postgraduate qualifications in paediatrics, obstetrics and gynaecology. 

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