Improving maternal and newborn health and reducing stillbirths in the Western Pacific Region – current situation and the way forward

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Summary

Despite positive trends in many indicators, there remains an unacceptable burden of preventable maternal, newborn deaths and stillbirths every year.

This paper provides an overview of the maternal and perinatal outcomes across 22 Pacific Island Countries and Territories, including Papua New Guinea. We highlight some unique challenges and provide examples of initiatives in three of the larger countries to contribute to safer childbirth.

There are high maternal and perinatal morbidity and mortality rates in many of the countries, although reliable data are limited. There are currently no data relating to the burden of intrapartum-related maternal and perinatal morbidity or stillbirth or the quality of intrapartum care. Varying definitions across countries for perinatal indicators mean that meaningful comparisons are difficult and unreliable. There is need for midwives and other maternal and newborn health providers to improve maternal and newborn indicators as countries advance towards the 2030 Sustainable Development Goals.

Keywords: Maternal health; Neonatal health; Stillbirth; Morbidity; Pacific island countries and territories; Pacific region; Quality of care

Introduction

Over the last few decades, the rate of women attending health facilities to give birth has increased and maternal and newborn mortality rates have decreased.[1] Despite these improvements, latest estimates suggest that 295,000 maternal deaths, 2.4 million neonatal deaths and 1.9 million stillbirths occur each year.[2,3] Each one of these deaths represents a tragedy for the family and the community and is responsible for immeasurable sadness. The vast majority of the deaths occur in low- and middle-income countries (LMICs), and most are preventable.[1,4] Progress towards the Sustainable Development Goals (SDGs) global target of 70 maternal deaths per 100,000 live births and 12 newborn deaths per 1000 live births by 2030 and the stillbirth targets of less than 12 per 1000 total births in the Every Newborn Action Plan (ENAP) are not on track.[5] In addition, the COVID-19 pandemic has brought significant disruptions to maternity care

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services worldwide, and progress towards SDG targets has stalled and even reversed in many LMICs.[6]

The majority of maternal deaths across the world are directly obstetric-related (73%), mostly due to preventable or treatable conditions.[1,7] Many of these deaths occur as a result of women giving birth in settings where there is a lack of access to skilled personnel or healthcare facilities. However, preventable maternal deaths and severe morbidity persists even in facilities with high coverage of essential interventions, such as uterotonics to prevent and treat postpartum haemorrhage (PPH), anticonvulsants for pre-eclampsia, and antibiotics for peripartum sepsis.[1] The leading causes of maternal death are obstetric haemorrhage (27.1%), pre-eclampsia and eclampsia (14%), sepsis (10.7%) and obstructed labour (9.6%) accounting for 62% of directly obstetric-related deaths.[7] Almost half (43%) of all stillbirths that occur each year occur intrapartum; most could have be prevented with good-quality intrapartum care.[2] Around 24% of all newborn deaths are related to conditions during labour and birth.[8] Implementing good-quality antenatal and intrapartum care is essential in order to achieve substantive reductions in maternal, perinatal and newborn mortality and morbidity.[4]

Some regions of the world face particular challenges in ensuring quality maternal and newborn care due to their geography, population or other contextual issues. The small island nations and territories of the South Pacific, typically referred to as Pacific Island Countries and territories (PICTs) are one such region. The PICTs comprise 22 countries, hundreds of small islands and atolls, and a combined population of over 13 million.[9] Papua New Guinea accounts for up to 10 million Pacific people. The smaller countries in the region are often omitted from global conversations and initiatives as they have small numbers of births and a limited health workforce. These countries matter regardless of size. A death or severe morbidity in a small country has profound community and national impacts, sometimes even more so than for larger neighbours.

The aim of this Viewpoint is to provide an overview of the maternal and perinatal outcomes across 22 PICTs, including Papua New Guinea, highlight some unique challenges facing these countries and finally, to provide some examples of initiatives being undertaken in a number of countries to address the situation and contribute to safer childbirth.

The Pacific Islands countries and territories context

The 22 PICTs are diverse in terms of geography, demography, culture, economic development and health while still having a lot in common. Similarities include geographic isolation, the impact of climate change, high rates of communicable and non-communicable diseases, logistical and financial challenges in designing and delivering health care services[10] and relatively small numbers of health workers.[11] Many of the countries face challenges relating to economic volatility, migration, erosion of traditional social structures, changing lifestyles, increasing poverty and vulnerability and continuing threats from natural disasters and climate change,[10] and uncertain funding sources to meet many of these challenges.[12]

The Pacific region has made significant progress in improving health outcomes and policies in recent years Nine of the PICTs achieved Millennium Development Goal (MDG) 4 on child mortality (Cook Islands, Federated States of Micronesia, Fiji, Republic of Marshall Islands, Niue, Palau, Samoa, Tonga, Tuvalu) and seven achieved MDG 5 on maternal health (Cook Islands, Fiji, Republic of Marshall Islands, Niue, Palau, Tonga, Tuvalu).[10,13] The situation going forward is much less certain due to the ongoing impacts of the COVID-19 pandemic.

At the outset of the COVID-19 pandemic, many PICTs closed their borders and remained relatively free from the direct impacts of the virus, although the indirect financial and health impacts were considerable and long-lasting.[14] By 2022, there was widespread community transmission in most countries with significant outbreaks in Papua New Guinea, Fiji, Solomon Islands and French Polynesia.[15] Substantial human resources within the health sector were shifted to COVID-19 preparedness and public health measures, with a consequent diminution of sexual and reproductive health services (especially access to family planning) and limited face-to-face services for routine antenatal and postnatal care.[16]

The report, *Health and Economic Benefits of Achieving UNFPA's Transformative Results in Pacific Small Islands Developing States*[17] sets out an investment case for the PICTs. It provides compelling evidence on how prioritising and funding essential sexual and reproductive services, including maternal health and family planning, will ensure universal health coverage for the region, particularly in the context of health systems disrupted by the pandemic.[18] These investments to accelerate coverage of sexual, reproductive, maternal, newborn and adolescent health services have become only more urgent.

Maternal and newborn health indicators

Maternal and perinatal morbidity and mortality rates (Table 1) are reported to be high in many of these countries, though reliable data are limited and there is over-reliance on international estimates, many of which are not recent.[2,3] Due to small population sizes and low numbers of births per year in many of the PICTs, maternal mortality ratios should be interpreted with caution.[17]

Measuring and comparing maternal and newborn health indicators across the region is challenging.

Pacific Island Countries and Territories	Population[19]	Live births per annum[19,20]	Number of midwives/ nurse-midwives[h,20]	Births attended by SBA[g,21]	Maternal mortality ratio[a,10,22,23]	Stillbirth rate[b,24]	Neonatal mortality rate[c,25]	Infant mortality rate[d,24]	Low birth weight prevalence[e,26,27]	Caesarean section rate[3]	Preterm birth rate[f,28,29]
American Samoa[j]	55,500	1,100[19]	–	–	57[22]–86[10]	–	–	–	–	–	–
Cook Islands[j]	18,000	252	39	–	–	5.2	3.9	6.3	3.5%[27]	–	–
Fiji	911,200	19.180	225	99.8%	34[20]–98[22]	8.6	11.6	23	–	–	10%
French Polynesia[j]	280,000[10]	–	–	–	–	–	–	–	–	–	–
Guam[j]	170,600	3,300[19]	–	–	43[22]	16.4[30]	–	–	–	–	–
Kiribati	118,600	3380	46	91.9%	92[20]–131[22]	14.3	21.3	39.2	13%[26]	9%	10%
Marshall Islands	56,800	1392	20	92.4%	108[22]	10.9	14.2	25.5	18%[26]	9%	–
Federated States of Micronesia	102,100	2485	15	–	88[20]	11.7	12.9	20.9	–	11%	10%
Nauru	10,600	314	8	–	–	13.1	18.3	23.9	27%[26]	8%	–
New Caledonia[j]	268,800	–		–	26[10]	–	–	–	–	–	–
Niue[j]	1700	18	2	100%		9.4	13.1	21	–	–	–
Northern Mariana Islands[j]	42,500	500[19]	–	–	59[22]	–	–	–	–	–	–
Palau	18,000	244	5	–	–	7.7[28]	–	–	–	–	–
Pitcairn Islands[j]	54	–	–	–		–	–	–	–	–	–
Papua New Guinea	9,866,600	277,020[20]–331,900[19]	800	56.4%	145[23]–434[22]	16.1	21.5	35.2	8–17%[26]	3%	10.6%
Samoa	211,400	5.295	71	88.9%	43[23]–55[22]	8.8	6.7	14.6	5%[26]	8%	10%
Solomon Islands	655,600	20,455	156	86.2%	104[23]–207[22]	10.1	7.8	16.6	10–12%[26]	6%	10%
Tokelau[j]	1400	29	7	–	–	–	–	–	–	–	–
Tonga	102,400	2569	30	98.3%	52[23]–129[22]	7.7	5	9.8	4%[26]	14%	10%
Tuvalu	11,800	253	19	99.5%	–	11.9	10.1	18.7	6%[26]	7%	10%
Vanuatu	294,600	8715	81	89.4%	72[23]–172[22]	11.1	10.5	21.1	10.9%[27]	12%	10%
Wallis and Futuna[j]	12,200[10]	–	–	–	–	–	–	–	–	–	–
Oceania regional[i]	13,276,400	415,800	–	–	129[23]–386[22]	14.7	19	32	9.9[27]–12%[26]	–	10%

[a]Number of maternal deaths per 100,000 live births. [b]Number of stillborn babies greater than 28 weeks gestation per 1000 total births. [c]Number of neonatal deaths under 28 days of age per 1000 live births. [d]Number of infant deaths less than one year of age per 1000 live births. [e]Birth weight less than 2500 g. [f]Proportion of preterm births per 100 live births. [g]Percentage of births attended by skilled birth personnel (doctors, nurses, midwives or other health professionals), latest available data. [h]Headcount of midwives/nurse-midwives. [i]Sustainable Development Goals Region Oceania excluding Australia and New Zealand. [j]Pacific Island territory – Data not available.

***Table 1*: Population, annual births, midwives and maternal and perinatal indicators across the 22 Pacific Island Countries and Territories.**

Maternal mortality is well defined by the World Health Organization (WHO)[31] and this definition is used in all PICTs. Definitions for other key perinatal health indicators vary. WHO defines preterm birth as a live birth before 37 completed weeks of pregnancy; stillbirth is defined as a baby born with no signs of life after 28 weeks gestation.[2,32] While fetal weight at birth of more than 500 g is included as a stillbirth definition in the International Classification of Diseases 10th Revision,[33] the use of gestational age is felt to be a better predictor of maturity and viability and is the most widely used criteria across data sources.[2] In the Western Pacific, Connolly et al.[28] identified considerable variation in definitions of preterm birth and stillbirth across the region. Within the PICTs only Tonga had a lower threshold of 28 weeks, while stillbirth definitions ranged from 20 to 28 weeks[28] (Table 2). In addition, 20–27 weeks makes up almost half of stillbirths in high-income countries so using 28 weeks underestimates the global burden.[2,35]

There are limited data on maternal morbidity in the PICTs. In 2021, De Silva et al.[36] published a systematic review of the proportion and causes of severe maternal morbidity or near miss in the Asia–Pacific region, finding data from only one PICT (Papua New Guinea), highlighting the lack of available data from the other countries. Looking at prevalence and risk factors of adverse birth outcomes, Kaforau et al.[26] reviewed 20 studies representing 11 Pacific Island countries (Papua New Guinea, Kiribati, Marshall Islands, Nauru, Palau, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu) showing a mean prevalence for low birth weight of 12% and preterm birth of 13%. Key drivers of these outcomes included malaria in pregnancy, consumption of betel nut and tobacco, maternal obesity and lack of antenatal care, all of which are chronic public health issues across the region.

Research from Papua New Guinea and the Solomon Islands[37–40] highlights factors leading to poor maternal and perinatal outcomes, including stillbirth and early neonatal death. In Papua New Guinea, stillbirth is defined as a baby born without a heartbeat after 22 weeks gestation and weighing more than 500 g.[41] A recent study conducted in two provinces in Papua New Guinea identified a stillbirth rate of 23.4 per 1000 total births[37] and an early neonatal mortality rate (NMR-death within the first seven days) of 14 per 1000 live-births.[38] A number of avoidable factors were identified among these adverse outcomes, with the majority related to poor intrapartum care and inadequate clinical management – at least one avoidable factor was identified for 94% of stillbirths.[27]Similarly, in the Solomon Islands, the stillbirth rate (defined as babies born after 28 weeks gestational age) is estimated to be 21.4–29.7 per 1000 livebirths.[40,42] A study at the National Referral Hospital (NRH) in the Solomon Islands reported that

Countries	Preterm birth definition[28]	Stillbirth definition[28]
American Samoa (USA)	<37 weeks[34]	>20 weeks[30]
Cook Islands	<37 weeks	>28 weeks
Fiji	–	–
French Polynesia (France)	–	–
Guam (USA)	<37 weeks[34]	>20 weeks[30]
Kiribati	–	>28 weeks
Marshall Islands	–	>28 weeks
Federated States of Micronesia	–	–
Nauru	–	>28 weeks OR body length >14 inches\1
New Caledonia (France)	–	–
Niue	28–37 weeks	>28 weeks
Northern Mariana Islands (USA)	<37 weeks[34]	>20 weeks[30]
Palau	–	–
Pitcairn Islands (UK)	–	–
Papua New Guinea	<37 weeks	>20 weeks OR 400 g
Samoa	–	>20 weeks OR 400 g
Solomon Islands	<37 weeks	>20 weeks OR 500 g
Tokelau (NZ)	20–37 weeks	>20 weeks OR 400 g
Tonga	28–37 weeks	–
Tuvalu	–	>28 weeks
Vanuatu	–	–
Wallis and Futuna (France)	–	–
WHO	<37 weeks	>28 weeks

Source: Adapted from Connolly et al.[28]

Table 2: **Preterm birth, stillbirth definitions across Pacific island countries.**

79% of maternal deaths were preventable. The leading cause of death was post-partum haemorrhage, with delays in management, including surgical care and lack of blood products identified as contributing factors.[43]

Another significant impact on maternal and newborn health is intimate partner violence (IPV). One study in Vanuatu has shown that the prevalence of IPV during the current pregnancy was 45%.[44] Papua New Guinea's Demographic and Health Survey (2016–2018)[45] found that 56% of women aged 15–49 have experienced physical violence, 28% have experienced sexual violence and 18% of women experienced violence during pregnancy.[46] Similarly, in Fiji, 64% of all women have been reported to have experienced IPV in their lifetime and 15% reported IPV in pregnancy.[47]

In 2018, the International Stillbirth Alliance Stillbirth Advocacy Working Group launched a Global Scorecard[48,49] to track progress against the Call to Action laid out in the Lancet's 2016 Ending Preventable Stillbirths series.[50] The Call to Action included stillbirth-related targets for mortality, universal healthcare, and respectful bereavement support, and the Scorecard includes one or more indicators for each of these targets. The Western Pacific Region adaptation of the Scorecard is shown in Fig. 1. While we acknowledge the limited data for a number of the PICTs, there are a number of key messages to be drawn from the Western Pacific Regional Scorecard including:

- There is inadequate data to track progress against 8 of the 20 stillbirth-related targets in any country in the region.
- Progress against the remaining targets is insufficient in most cases. For instance, just 18% of Western Pacific countries are known to have a Newborn Plan which is a first step in countries' implementation of the ENAP[5] and 9% are known to have a perinatal death review system, much lower than these proportions for ENAP countries (95% and 63%, respectively).[51]
- A critical step in stillbirth prevention is setting a national stillbirth rate target, but only 5% of Western Pacific countries are known to have done so. While 50% of countries in the region have already achieved the global stillbirth rate target of 12 per 1000 total births, no data are available on subnational stillbirth rate targets, which could help to address within-country inequities in stillbirth rates even in nations which have already achieved the global target.
- Progress on stillbirth prevention also requires building on success, and the Regional Scorecard shows that countries have an average of 91% of national births attended by a skilled birth attendant, far higher than global averages. However, as a national average, this weights large and small countries equally and should be interpreted with caution; moreover, these data are missing for half of the 22 countries in the region.

These key studies and significant gaps in the Scorecard highlight the situation and poor maternal and perinatal outcomes in some of the larger countries among the PICTs.

Delivering quality maternal and newborn health care

Over the last 25 years, there has been a commitment to 'Healthy Islands' that has been driven by WHO. Despite this, many health systems in the PICTs struggle to

	Indicator	Am. Samoa	Cook Islands	Fiji	French Polyn	Guam	Kiribati	Marshall Islands	Micronesia	Nauru	New Caled	Niue	N Mar.a Islands	Palau	Pitcairn Islands	PNG	Samoa	Solomon Islands	Tokelau	Tonga	Tuvalu	Vanuatu	Wallis & Futuna	W Pacific 2022	ENAP global pool 2020	Oceania 2020
Mortality targets by 2030	1.1 Does country have a Newborn Plan						yes									yes	no	yes				yes		18%	95%	75%
	1.2 Does country have a stillbirth rate target						no									no	no	yes				no		5%	33%	25%
	1.3 Has country achieved the global stillbirth rate target		yes	yes		no	no	yes	yes	no		yes		yes		no	yes	yes		yes	yes	yes		50%	38%	50%
	1.4 Does country have a subnational Newborn Plan						no									no	no	no						0%	32%	0%
	1.5 Does country have a stillbirth rate equity target																									
	1.6 Does country report subnational stillbirth rates																									
UHC: Family planning	2.1 How many additional users of modern contraception since 2012															112,000		5,000							53,314,000	117,000
	2.2 What is percentage of demand for contraception is met						53%	59%								47%	39%	46%	NA	50%	41%	51%		48%	54%	23%
	2.3 Does country have a reproductive health plan	no	yes	yes	no	no																		9%		
UHC: Antenatal care	3.1 Is country implementing global standards for antenatal care																									
	3.2 Percentage of women who receive 4+ ANC visits			94%			67%	77%								49%	73%	69%						71%	66%	0%
	3.3 Is country measuring quality of ANC																									
UHC: Intrapartum care	4.1 Is country implementing global standards for intrapartum care																									
	4.2 Proportion of births attended by SBA		100%	100%			92%	92%				100%				56%	89%	86%		98%	100%	89%		91%	58%	21%
	4.3 Is country measuring quality of intrapartum care																									
Milestones	5.1 Does country have quality improvement plan with focus on maternal and newborn health						in process									yes	no	in process						5%	51%	25%
	5.2 Does country have perinatal death review system						yes									no	yes							9%	63%	50%
	5.3 Does country have a research program for stillbirth (current or planned)						no									no	no	yes						5%	56%	25%
	5.4 Proposed: Does country have bereavement care standards																									
	5.5 Has country instituted a process for identifying a mechanism to reduce stillbirth-related stigma																									

Abbreviations: ANC, antenatal care; ENAP, Every Newborn Action Plan; PNG, Papua NEW Guinea; SBA, skilled birth attendant; UHC, universal health care.
Notes to the Figure: Western Pacific region includes 22 countries and territories (all those listed in table). ENAP includes 93 countries. Oceania includes 4 countries (PNG, Solomon Islands, Kiribati, and Samoa). Indicators are single-country equivalents of original indicators from the Global Scorecard.
How W Pacific 2022 indicator data were calculated: For indicators tracked by percentages (e.g., 2.2), we took the average percentage excluding countries with no data; hence, the W Pacific regional indicator represents the average percentage per country for those with data available (weighting each country equally); we followed this approach as we did not have access to numerators and denominators. For indicators tracked categorically (yes, in process, or no), the W Pacific regional indicator represents the number of countries responding "yes" divided by 22. Color coding for percentages, 100%, dark green; 74-99%, light green; 50-74%, orange; 0-49%, red.
Data sources: ENAP 2019; UN-IGME stillbirth estimates; Gregory et al. 2022; State of the World's Children 2021; expert knowledge. Please acknowledge the International Stillbirth Alliance Stillbirth Advocacy Working Group when using this Figure.

Fig. 1: Global scorecard for ending preventable stillbirths: Western Pacific, 2022.

provide equitable coverage with quality care.[52,53] As described earlier, the context is complex with over-strained and under-resourced health systems, health workforce shortages, high aid dependency, infrastructure limitations and challenging geography across land and sea.[10,17]

A review of health system quality improvement efforts that aimed to improve the quality of maternal and newborn care in LMICs in the Pacific region found examples of quality initiatives from Papua New Guinea, Fiji, Samoa and the Solomon Islands. Most of the initiatives focused on the clinical service or organisational level, such as healthcare worker training, audit processes and improvements to infrastructure. Few addressed patient experiences or system-wide improvements. Enablers to improving quality care included community engagement, collaborative partnerships, adequate staff education and training and alignment with local priorities.[52]

An adequate health workforce is needed to deliver quality care, yet a 2019 evaluation of the reproductive, maternal, newborn, child and adolescent health (RMNCAH) workforce across 14 Pacific Island countries[20] showed significant deficits. Most countries have insufficient specialist RMNCAH cadres: midwives/nurse-midwives, obstetricians/gynaecologists and paediatricians. The shortage is particularly acute in Papua New Guinea, and unlikely to improve without major sustained interventions. Several countries were experiencing very high staff turnover rates among key RMNCAH workers, making it challenging to maintain, let alone increase, staffing numbers. This is likely to have been exacerbated during the COVID-19 pandemic. The statutory retirement age in some countries is comparatively low (e.g. 55 years), and nurse-midwives are an ageing cadre in many countries, which presents a challenge for future workforce availability.

Examples of initiatives to address the challenges

This section presents a selection of initiatives across the region and in some of the PICTs that are being undertaken to address the challenges. The specific countries highlighted are Papua New Guinea, Solomon Islands and Fiji - the three largest countries in the South Pacific region.

Strengthening midwifery education

Midwives who are educated and regulated to global standards have been identified as key to decreasing maternal, newborn and stillborn deaths.[54,55] Modelling has tested the effects of scaling up provision of universal coverage of midwifery-delivered interventions by 2035, which could avert 65% of stillbirths. Even a modest 10% scale up would prevent 14% of stillbirths.[55] As such, there is a renewed focus on strengthening quality midwifery education and quality maternal newborn care.[56] The Pacific Island region has identified significant shortages in the number of midwives in some countries and challenges in educating, regulating and retaining midwives.[20]

Six of the PICTs (Fiji, Kiribati, Samoa, Solomon Islands, Tonga, Vanuatu) are currently undergoing, or planning, a process of reviewing, strengthening and renewal of their midwifery education programs under the Transformative Agenda program.[16] This program seeks to reduce unmet need for family planning, with midwives being a key cadre. Reviews of midwifery education curricula have identified a need to strengthen content on the management of complexities that contribute morbidity and mortality. In addition, there is a need to increase perinatal mental health content, including preparing midwives to provide support and care for women and families experiencing pregnancy loss. These strengthened midwifery education programs are critical to providing quality sexual, reproductive, maternal, newborn, child and adolescent health care into the future.

Papua New Guinea

Papua New Guinea is rich in geography, social, cultural and linguistic diversity.[57] One of the world's most diverse, dispersed and rural nations, 87% of the 9.8 million people in Papua New Guinea live in rural areas in remote and inaccessible communities.[19,58] Given this diversity, much of the population has poor access to health care, particularly during pregnancy, childbirth and postpartum. Maternal and newborn mortality indicators are amongst the poorest in the world, and the poorest in the Pacific region with an estimated 434 maternal deaths per 100,000 live births,[59] a NMR of 22 per 1000 live births[3] and a stillbirth rate 16.1 per 1000 total births.[45] Most women (78%) attend antenatal care at least once during their pregnancy and 49% receive four antenatal visits, but only 55% of women will attend a facility to give birth and be attended by a skilled provider.[45] Over the past decade, our group have conducted research relating to access and availability of maternity health services,[60,61] quality of care during pregnancy[52,53] and most recently a clinical trial of point of care testing and treatment of sexually transmitted infections in pregnancy and adverse birth outcomes.[62] Through our reporting of adverse events within this trial we identified a high burden of perinatal deaths among study participants with 23.4 per 1000 total births and 14 per 1000 livebirths for stillbirths and early neonatal deaths, respectively.[37,38]

Across much of our work we have identified preventable causes and avoidable factors associated with perinatal deaths in Papua New Guinea. Women's limited understanding of maternal and newborn danger

signs, and variable knowledge around the importance of early and regular antenatal care, all hinder timely care-seeking. For health care workers providing antenatal care, gaps in clinical management, including lack of action on intrauterine growth restriction and pre-eclampsia, further contribute to high perinatal mortality rates. Addressing these issues requires targeted health education of women and the community, as well as health system strengthening particularly upskilling of primary level health staff in remote communities.

We are currently undertaking implementation research in Papua New Guinea. In community settings, we are conducting qualitative research to understand women's and men's knowledge of danger signs in pregnancy, particularly as these relate to reduced fetal movement and premature rupture of membranes and to identify barriers and facilitators to accessing care during pregnancy and labour. Supporting the workforce of primarily nurses and community health workers, who provide the majority of maternal and newborn care, the Safe Delivery App[63] has recently been introduced and we are evaluating the usability of this phone-based technology to support health care workers in remote and rural settings.

Solomon Islands

The Solomon Islands have a population of around 660,000 spread across 993 islands.[64] Similar to Papua New Guinea, the country faces significant geographical, socioeconomic and cultural barriers to achieving health equity in maternal and child health services. The only tertiary referral center in the country, the NRH, services 5000–6000 births a year with very limited medical, nursing and midwifery staff.[43,65] Perinatal death audits are held monthly with the aim of identifying gaps in care and improving perinatal outcomes. However, previously there has been limited research targeting perinatal morbidity and mortality in the Solomon Islands. Despite a national maternal death surveillance system, a high rate of preventable maternal mortality at the NRH has been reported.[43] A similar national surveillance system outside of the monthly audits is not yet in place for neonatal deaths or stillbirths. With the aim of identifying preventive strategies, we investigated all stillbirths (those ≥20 weeks estimated gestation or >500 g birthweight) occurring at NRH between 2017 and 2018, using the WHO International Classification of Diseases applied to the perinatal period.[66] We identified a high stillbirth rate of 30.8 per 1000 total births in this hospital, though 58% of case files were missing, highlighting difficulties with accurate data collection.[67] Where data were available, 72% of stillbirths were likely preventable. Most occurred antenatally (86%) and risk factors such as low birthweight and preterm birth were common (59% and 62%, respectively).[67] Hypertensive disorders and infection were present in almost half of antenatal stillbirths. Although we found almost 80% of mothers attended at least one antenatal visit, many women didn't receive simple, preventive interventions during pregnancy.[67] The COVID-19 pandemic has caused significant disruptions to the national health system and public health initiatives, likely leading to higher numbers of perinatal deaths.[68,69] The Ministry of Health have prioritised strengthening antenatal care through improved health worker training, ultrasound provision and training in remote locations, and point of care syphilis testing. Despite these efforts, there is a long way to go in recovering from the setbacks of the pandemic and the true magnitude of perinatal deaths remains under-investigated. We aim to conduct a larger, prospective study investigating stillbirth and neonatal death at NRH from 2023 and work with the WHO to further investigate and classify perinatal deaths nationwide in future research efforts.

Fiji

Fiji comprises 332 islands, with a multi-ethnic population of just under 1 million.[19] The Fiji Ministry of Health provides health services through three main Divisional Hospitals located on the two main islands, 18 Subdivisional hospitals, over 80 Health Centres, and 99 Nursing Stations.[70] Eighty-two percent of Fiji's population live on Viti Levu and can access two of the three main referral hospitals. There is still a proportion of the population who have difficulty accessing health care due to geography, and this is made more challenging with adverse weather. Despite this, 99.8% of women give birth in a health care facility.

UNICEF Country data for 2021 indicates Fiji has met the SDG targets for maternal and newborn health, with an MMR of 34 per 100,000 live births and an NMR of 11.6 per 1000 live births; though a 2019 Maternal Death Surveillance and Response report implies otherwise with an institutional MMR of 86/100,000 live births.[20] The 2017 Government Health Status Report reports a perinatal mortality rate (PMR) of 13.6 per 1000 total births.[71] In the two decades between 1990 and 2010, Fiji had made great strides to improve maternal and child health which saw reductions in the infant mortality rate (IMR by 40%) and the MMR (MMR by 37%).[72]

However, variable access to essential health equipment and supplies, as well as space limitations, remains problematic at all levels of care, making it difficult to provide timely and respectful care for women. Providing greater access to good-quality obstetric ultrasound, improving quality of intrapartum care, and introducing a "quality culture" into health workplaces are all needed as is strengthening existing morbidity and mortality clinical reviews and developing dashboards for monitoring.

Over the last couple of decades, several initiatives have helped reduce MMR and PMR in Fiji. These

include regular quality assurance processes, support for peripheral hospitals by conducting virtual rounds to discuss cases of concern, and specialists from base hospitals conducting weekly outreach clinical consultations. Systematic improvements in pre-service and in-service training at all levels in partnership with the Royal Australian and New Zealand College of Obstetricians and Gynaecologists, UNFPA and Pacific Society for Reproductive Health. The delivery of family planning services has been prioritised by strengthening the capacity of front-line service providers under the UNFPA Transformative Agenda by undertaking a targeted training program to sustain the development of clinical skills. Trained Community Health Care workers, peer educators and youth leaders have played a significant role in improving public health awareness. In recognition of the high prevalence of NCDs in Fiji and their impact on maternal and neonatal outcomes, some early attempts are being made to integrate training and service delivery in Sexual and Reproductive Health across all care levels.[73] The Fijian Government has also substantially increased the renumeration of all medical officers, contributing to improved staff retention.

Sustaining these gains will remain a challenge, primarily due to health systems issues. The Fiji Ministry of Health has recently predicted that a decline in health worker numbers (especially midwives) and their ability to retain them. During the COVID-19 pandemic, immense disruptions in health services and training were experienced with lockdowns reducing access to obstetric and neonatal care, and causing delays in accessing health facilities, temporary closures in facilities including delivery suites in some divisional hospitals as well as staff shortages due to Covid infections and mandatory isolations. The full impact of all these on maternal and child health in Fiji is yet to be determined.

Conclusion

This Viewpoint highlights the limited available data relating to maternal and newborn health and stillbirths across the 22 PICTs. Varying definitions across countries for perinatal indicators mean that meaningful comparisons are difficult and unreliable. There are currently no data relating to the burden of intrapartum-related maternal and perinatal morbidity or the quality of intrapartum care across the 22 PICTs. Health systems stakeholders in these countries are unable to reliably evaluate the magnitude, causes and trends in maternal and newborn mortality and morbidity, or determine whether interventions, programs or strategies are effective. Equitable, quality care is challenging to geographical, infrastructure and availability of a sufficient RMNCAH workforce in many settings.

Good-quality care in the intrapartum period and the early postnatal period are critical to ensuring maternal, fetal and newborn survival and well-being.[4,53] A commitment and clear pathways to quality of care are urgently needed. This includes improving health system leadership, delivering sustaining education programs and encompassing learnings from women and their communities.[52] There is an urgent need to continue to support workforce development, education and training in-service training, especially for midwives. Investments in health workforce data systems are also needed to ensure that the RMNCAH workforce can be tracked, monitored and relevant and appropriate actions can be taken to address education pipelines, deployment and shortages.[11]

In this Viewpoint we have described data and ongoing initiatives from the three most populous countries (Papua New Guinea, Fiji and the Solomon Islands) in the Pacific region. There is a clear need for more to be done in these and in other countries. What is clear is the desperate need for midwives and other RMNCAH providers if we are to see an improvement in maternal and newborn indicators as countries advance towards the 2030 SDGs.

Contributors

CH and LV conceptualised the Viewpoint wrote the first draft and undertook the project administration and supervision of the project. BC collected the data for Tables 1 and 2, supported writing of the original draft and writing – review and editing. MDS and LP provided the data and analysis on the Solomon Islands and supported the writing – review and editing. DB and JB provided the data and analysis on Papua New Guinea and supported the writing – review and editing. TDA provided data on the Pacific data, Papua New Guinea context and supported the midwifery education data. ANH and SN provided the data and analysis on Fiji and supported the writing – review and editing. SL and VF provided the global stillbirth data and undertook the analysis and visualisation for the regional stillbirth scorecard. RS provided the section on midwifery education and supported the writing – review and editing. JV provided supervision, validation and supported all aspects of the writing. All authors approved the final version.

Declaration of interests

We declare no competing interests.

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