The contribution of church health services to maternal health care provision in Papua New Guinea

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SUMMARY

Access to maternal health services is one key to the reduction of maternal mortality in Papua New Guinea. Church health services (CHS) are known to administer around 45% of rural health facilities. We undertook a descriptive analysis based on health facility service provision data for 2009 from the National Health Information System (NHIS), supported by document review and interviews. We recoded NHIS data on facilities by administration by CHS or government health service, judged their capacity for emergency obstetric care (EmOC) and analysed service provision for 2009. For rural services (ie, outside of provincial capitals), CHS were recorded as providing 58% of health facility childbirth care and 38% of first antenatal visits. Obstetric referral patterns and facility capacity suggested many facilities were likely to have only basic EmOC and limited referral options. Nationally, CHS provided 21% of temporary methods of contraception (measured in couple-year protection) but 85% of referrals for permanent contraception. There was marked variation across provinces with clear implications for where health system strengthening could be beneficial to maternal survival. Our findings also disclosed gaps in the NHIS around monitoring of complicated childbirth and inclusion of community-based care.

Introduction

Maternal mortality is a high priority for the national government, communities and development agencies working in Papua New Guinea (PNG) – as expressed in the National Health Plan (1) and the Ministerial Task Force on Maternal Health in PNG (2). Access to maternal and reproductive health services is essential to the reduction of maternal mortality (3). For example, in China UNICEF (United Nations Children’s Fund) data record a dramatic fall in maternal deaths from 110 per 100,000 live births in 1990 to 38 per 100,000 in 2008, while over the same period the proportion of women delivering in a health facility in China rose from 51% to 92% (4). The proportion of women in PNG who accessed a supervised birth at a health facility in 2009 was 42%; this has remained relatively static for more than five years (5). Poor access to contraception is also linked to high maternal mortality (6) and the United Nations Population Fund estimates that PNG’s contraceptive prevalence rate is low: at 36% of women aged 15-49 using any contraceptive method, similar to other ‘least developed countries’ (average 30%) and well below the Asia-Pacific regional average of 67% (7). PNG’s National Health Information System (NHIS) indicator for contraceptive use is couple-years protection (CYP), which measures usage of ‘modern methods’ of contraception including permanent male or

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female sterilization, intra-uterine devices, oral contraceptive pills and hormonal implants and injections, but not including condom use. This indicator has also remained static in recent years (81 per 1000 women aged 15 to 44 years in 2009) (5).

Churches in PNG are known to be widespread providers of health care. Commonly termed church health services (CHS), they are often cited as responsible for approximately 50% of services in rural areas and 45% of services overall (8). Rural health care services are particularly important in PNG, as approximately 85% of the population lives outside cities or towns, and rural infrastructure is markedly undeveloped (1). Churches are also active in training health care workers: administering 2 of 3 universities providing health worker education, 5 of 8 general nurse training institutions and all 12 community health worker training schools in the country (8,9). When considering how to increase women’s access to care, CHS contribution is likely to be critical.

Recent work by the Health Policy and Health Finance Knowledge Hub at the University of Melbourne (10), as well as other commentators (8,11,12), has documented the diversity of these providers in different provinces. However, the size and nature of their specific contribution to maternal health care provision are not routinely reported.

Our aim in this short report is to provide a national snapshot, from routinely collected health information, of the relative contribution of CHS to the provision of maternal and reproductive health care services that are important to maternal survival.

Methods

A descriptive analysis was undertaken in Port Moresby in 2011 comprising document review, secondary analysis of national health information monitoring data and interviews. We reviewed published and grey literature documents on CHS in PNG, linking this to a broader literature review on church-government relationships (10) and sought reports from CHS peak bodies and the government’s National Department of Health (NDoH) CHS liaison office.

The following indicators of maternal service provision were selected: childbirth in a health facility; first visit for antenatal care; and provision of contraceptive services for family planning, as measured by the couple-years protection (CYP) rate. The NDoH Monitoring and Research Branch supplied data on these indicators for 2009 (the most recent complete dataset available in mid-2011), disaggregated by province, district and health facility. This reflected publicly available data collated in the Annual Health Sector Review (5). We attempted to triangulate this with nationally collated data held by CHS bodies, but meaningful comparison was not possible because the CHS dataset was not population-based and was collected for a different purpose.

We manually coded each health facility listed in the NHIS report as run by CHS or the government, based on a CHS health facility inventory and Geobook mapping. We then re-analysed the service provision data, using simple proportions, to compare provision by CHS-run facilities with that by government-run facilities. There is no national collation of statistics in the NHIS on services for complicated childbirth (such as caesarean section). Instead we estimated the likelihood that emergency obstetric care (EmOC) was available at a facility based on the number of hospitals with a resident medical officer, the opinions of key informants (see below) and the annual reports supplied. We reviewed caesarean section rates reported to the Obstetrics Society, but these could not provide a CHS and government comparison.

We also interviewed senior staff in maternal health in NDoH, country offices of the World Health Organization (WHO) and UNICEF, the Specialist Society for Obstetrics and Gynaecology, the CHS National Office, and in rural CHS facilities providing maternal health care including those run by the Evangelical Church of PNG, Catholic Health Services, Anglican Health Services and Nazarene Health Ministries. These interviews were to provide additional information to support our interpretations and judgements, which remain the responsibility of the researchers, and may not reflect the opinions of those interviewed.

Results

Table 1 displays our breakdown of CHS and government health services (GHS), summarizing total facilities in health system categories; we note that all aid posts, and the
TABLE 1

Facilities run by Church Health Services (CHS) and Government Health Services (GHS) in Papua New Guinea, 2009

<table>
<thead>
<tr>
<th>Agency</th>
<th>Aid posts</th>
<th>Health centres</th>
<th>District/rural hospitals</th>
<th>Provincial/general hospitals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>-</td>
<td>411</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>Churches</td>
<td>236</td>
<td>340</td>
<td>16</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>236</td>
<td>751</td>
<td>20</td>
<td>22</td>
</tr>
</tbody>
</table>


The great majority of health centres, are located in rural areas.

Childbirth in a health facility

Of supervised childbirths in a health facility in 2009 (a total of 76,498 deliveries in our dataset), 30% were in CHS facilities and 70% in GHS. There was significant variation between provinces, as displayed in Figure 1. To describe the situation in rural areas, we also present health facility deliveries outside of provincial hospitals or Port Moresby General Hospital; for these rural births 58% took place in CHS facilities. This shows greater variation by province (Figure 2), with a number of provinces recording that more than two-thirds of their rural health facility deliveries take place in CHS facilities, namely Gulf, Western Highlands, Madang, Sandaun (West Sepik), West New Britain and East New Britain provinces.

Based on the data available we judged that in 2009 38% of the identified 21 rural and district hospitals in the CHS had demonstrated capacity for comprehensive EmOC (those facilities with medical doctors and adequate facilities capable of doing caesarean section and organizing blood transfusion). Estimation of basic EmOC facilities (those with doctors or skilled midwife who can provide the 6 signal WHO EmOC functions) is a more difficult judgement and we estimated that 62% of the CHS facilities reporting deliveries could do this (Table 2). It was not possible to make judgements about service quality or the degree to which services are always available.

The NHIS also records referrals to higher centres for obstetric complications. Of all such referrals in 2009, 31% were done by CHS facilities. These vary greatly from province to province (Figure 3), and may give some indication of both the activity of CHS compared with GHS (similar to that seen in Figure 1) and the availability of a viable referral pathway.

Provision of first antenatal care visits

Nationally, 38% of first antenatal care (ANC) visits were conducted in CHS, as compared with GHS. When provincial hospitals and urban clinics are excluded, CHS facilities provided 48% of first-visit ANC services. This also varies by province, as shown by Figure 4. In some provinces, such as Gulf or Sandaun (West Sepik), around 80% of first ANC visits are provided by CHS.

Provision of contraceptive services for family planning

The proportion of family planning services, measured as CYP per 1000 women aged 15-44 years, provided by CHS was 21% nationally in 2009. There is considerable variation by province, as illustrated by Figure 5. This may correlate with denominational affiliations of CHS: our qualitative information suggests that Catholic CHS providers predominate in provinces, such as East and West New Britain, New Ireland and the Autonomous Region of Bougainville (termed North Solomons in NHIS data), where CYP is relatively lower. However, Catholic CHS providers are also present in other provinces where CYP is higher. The NHIS also records referrals from health facilities for permanent contraception; the CHS provide the majority of these referrals (85% in 2009).
Figure 1. Supervised childbirth in health facilities by province, 2009, expressed as the percentage of total health facility deliveries in government health services (GHS) as compared with church health services (CHS) for each province. Note: this figure uses province names as they are expressed in the National Health Information System dataset.

Figure 2. Supervised childbirth in rural health facilities by province, 2009, excluding provincial hospitals. Note: this figure uses province names as they are expressed in the National Health Information System dataset. GHS = government health services
CHS = church health services
TABLE 2

CHURCH HEALTH SERVICES FACILITIES CAPABLE OF EMERGENCY OBSTETRIC CARE (EmOC) IN 2009*

<table>
<thead>
<tr>
<th>EmOC status</th>
<th>Facilities</th>
<th>Province</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>Balimo</td>
<td>Western</td>
<td>Southern</td>
</tr>
<tr>
<td>Basic</td>
<td>Kikori</td>
<td>Gulf</td>
<td>Southern</td>
</tr>
<tr>
<td>Basic</td>
<td>Kanabea</td>
<td>Gulf</td>
<td>Southern</td>
</tr>
<tr>
<td>Basic</td>
<td>Kapuna</td>
<td>Gulf</td>
<td>Southern</td>
</tr>
<tr>
<td>Basic</td>
<td>Watulum</td>
<td>Enga</td>
<td>Highlands</td>
</tr>
<tr>
<td>Basic</td>
<td>Opiam</td>
<td>Enga</td>
<td>Highlands</td>
</tr>
<tr>
<td>Basic</td>
<td>Tinsley</td>
<td>Western Highlands</td>
<td>Highlands</td>
</tr>
<tr>
<td>Basic</td>
<td>Kotna</td>
<td>Western Highlands</td>
<td>Highlands</td>
</tr>
<tr>
<td>Basic</td>
<td>Migendi</td>
<td>Simbu</td>
<td>Highlands</td>
</tr>
<tr>
<td>Basic</td>
<td>Tookena</td>
<td>Eastern Highlands</td>
<td>Highlands</td>
</tr>
<tr>
<td>Basic</td>
<td>Telefomin</td>
<td>West Sepik</td>
<td>Momase</td>
</tr>
<tr>
<td>Basic</td>
<td>Kimadan</td>
<td>New Ireland</td>
<td>Islands</td>
</tr>
<tr>
<td>Basic</td>
<td>Yagaum</td>
<td>Madang</td>
<td>Momase</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>Ruminginae</td>
<td>Western</td>
<td>Southern</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>Nazarene,Kudjip</td>
<td>Western Highlands</td>
<td>Highlands</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>Braun Memorial</td>
<td>Morobe</td>
<td>Momase</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>Raihu, Aitape</td>
<td>West Sepik</td>
<td>Momase</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>St Mary, Vunapope</td>
<td>East New Britain, Kokopo</td>
<td>Islands</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>Gaubin</td>
<td>Madang</td>
<td>Momase</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>Mambisanda Emmanuel</td>
<td>Enga</td>
<td>Highlands</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>Kopiam</td>
<td>Enga</td>
<td>Highlands</td>
</tr>
</tbody>
</table>

*This classification is also based on staff and hospital capacity and opinions of key informants

Discussion

These data, drawn largely from the government NHIS, demonstrate that CHS play a significant role in provision of maternal health services for PNG’s rural majority, accounting for close to 60% of health facility childbirth outside the provincial towns and capital. They provide important access to basic emergency obstetric care and are active referrers of women with complications. However, there is wide variation by province, and when considering the location of comprehensive EmOC capacity it is clear that there are many situations where women are delivering in CHS facilities with basic emergency obstetric care, but have no feasible options for referral if a complication requiring comprehensive EmOC (for example, a caesarean section) becomes necessary. A number of provinces have CHS that are conducting a large proportion of health facility deliveries, but are not recorded as active in obstetric referrals; this may indicate areas where particular attention to upgrading referral pathways for CHS facilities that are obstetrically active could assist in reducing maternal deaths. Some examples include Gulf, Oro (Northern in NHIS data), Enga, Madang and Sandaun (West Sepik in NHIS data). These data demonstrate the need for national and provincial planners to carefully examine what childbirth care services are
Figure 3. Obstetrics referrals in 2009, from government health services (GHS) and church health services (CHS), by province. Note: this figure uses province names as they are expressed in the National Health Information System dataset.

Figure 4. Antenatal care (first visit) services by government health services (GHS) and church health services (CHS) in all health facilities (including provincial hospitals and urban clinics) by province. Note: this figure uses province names as they are expressed in the National Health Information System dataset.
being provided by CHS and to ensure their integration in health planning. Other recent studies (10,11) support greater attention to the detail of provincial and national partnership arrangements between GHS and CHS.

CHS have a different role in extension of family planning services. While they are more active providers of contraception in some provinces than others, nationally they are recorded as providing the great majority of referrals from rural areas for permanent contraception. This suggests that, even in the presence of real or perceived barriers to institutional support for contraception, there are mechanisms for providing access to family planning that could perhaps be expanded.

CHS have different systems for financing, staffing and organization of services, when compared with GHS, although they are intended to work to the same national standards and report in the same NHIS. Our quick snapshot suggests that there would be value in carrying out a more in-depth review of the systems deployed by those CHS that are active in maternal health care. A review of the submissions to the Ministerial Task Force (2) shows relatively few from CHS organizations, and there may be benefit in a more targeted study of CHS systems.

The National Health Plan (1) and the Ministerial Taskforce (2) envisage a role for CHS in the delivery of maternal health care. Our analysis demonstrates that their role goes well beyond preventive or first-line care, and it is notable that they provide a larger proportion of rural health facility deliveries than they do of antenatal care. CHS are also well known to play an active role in providing other community care services, including education, nutrition, aid post support and support to village health volunteers. This includes some areas where aid post staff or village birth attendants are supported to promote maternal health, including attendance at home births where a facility delivery was not possible. It was not possible in our analysis of the NHIS to reliably report the CHS contribution to community care. A national conference on village health volunteers (12) demonstrated that CHS, and other non-government organizations, support a large cadre of lay health workers, but that...
their contribution to maternal or newborn health care is not sufficiently captured in the NHIS (13,14).

There are a number of limitations in our analysis, the main one being the potential for under- or over-reporting of services within the NHIS. The estimate of whether women had access to EmOC reflected our own judgement, based on limited data on the facilities in question. These limitations illustrate the difficulty that the current form of the NHIS has in providing information useful for maternal health planning, especially the lack of monitoring data on obstetric complications and their response, and the incomplete inclusion of community care noted above. These are currently being addressed by NDoH, including provincial visits for audit and review (2), and represent an essential step towards better maternal health care coverage.

Conclusion

Church health services provide the majority of health facility childbirth care in rural areas, and a substantial proportion of antenatal care, obstetric referral and family planning services. Their contribution, and the systems that underpin it, warrant more detailed study in support of strengthening maternal health care. The National Health Information System provides useful data on relative service provision, but could be strengthened further to include information on obstetric complications and community-based care.

DISCLOSURES

The authors declare they have no conflicts of interest. An abbreviated version of this paper was presented in an open session at the PNG Medical Symposium in 2011.

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