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“...and then she died”

Indonesia Maternal Health Assessment

February 2010



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List of Abbreviations and Acronyms

ANC	Antenatal Care
APN	<i>Asuhan Persalinan Normal (Normal Delivery Care)</i>
Askeskin	<i>Asuransi Kesehatan Masyarakat Miskin (Health Insurance for the Poor)</i>
BDD	<i>Bidan di Desa (Village Midwife)</i>
BEONC	Basic Emergency Obstetric and Neonatal Care
<i>Binkesmas</i>	<i>Bina Kesehatan Masyarakat (Director General of Community Health)</i>
BMPK	<i>Badan Mutu Pelayanan Kesehatan (Health Service Quality Agency)</i>
BPS	<i>Bidan Praktek Swasta (Private Practice Midwife)</i>
CEONC	Comprehensive Emergency and Obstetric Neonatal Care
CPR	Contraceptive Prevalence Rate
<i>Depkes</i>	<i>Departemen Kesehatan (Ministry of Health)</i>
<i>Gakin</i>	<i>Keluarga Miskin (Poor Family)</i>
GSI	<i>Gerakan Sayang Ibu (Mother Friendly Movement)</i>
Gol	Government of Indonesia
HHS	Household Health Survey
HSS	Health Sector Review and Health Systems Performance Assessment
IBI	<i>Ikatan Bidan Indonesia (Indonesian Midwives' Association)</i>
IDI	<i>Ikatan Dokter Indonesia (Indonesian Medical Association)</i>
IDHS	Indonesian Demographic and Health Survey
IMMPACT	Initiative for Maternal Mortality Program Assessment
<i>Jamkesmas</i>	<i>Jaminan Kesehatan Masyarakat (Community Health Insurance Scheme)</i>
MDG	Millennium Development Goal
MgSO ₄	Magnesium Sulphate
MMR	Maternal Mortality Ratio
MoH	Ministry of Health
MoHA	Ministry of Home Affairs
MoNE	Ministry of National Education
MPS	Making Pregnancy Safer
NTB	<i>Nusa Tenggara Barat (West Nusa Tenggara Province)</i>
NTT	<i>Nusa Tenggara Timur (East Nusa Tenggara Province)</i>
Ob-Gyn	Obstetrics and Gynecology/Obstetrician and Gynecologist
OOP	Out-of-pocket
P4K	<i>Program Perencanaan Persalinan Pencegahan Komplikasi (Birth Preparedness and Complication Prevention Program)</i>
PMDF	Proportion of Maternal Deaths in Females of Reproductive Age
POGI	<i>Perkumpulan Obstetri dan Ginekologi Indonesia (Indonesian Society of Obstetrics and Gynecology)</i>
Polindes	Pos Persalinan Desa (Village Maternity Post)
<i>Posyandu</i>	<i>Pos Pelayanan Terpadu (Integrated Health Services Post)</i>
PNS	<i>Pegawai Negeri Sipil (Civil Servant)</i>
PPNI	<i>Persatuan Perawat Nasional Indonesia (Indonesia Nurses' Association)</i>
PTT	<i>Pegawai Tidak Tetap (Contract Employee)</i>
RPJMN	<i>Rencana Pembangunan Jangka Menengah Nasional (National Medium-term Development Plan)</i>
SHI	Social Health Insurance
SPK	<i>Sekolah Perawat Kejuruan (Nursing School: high school equivalent)</i>



SPM	<i>Standar Pelayanan Minimal</i> (Minimum Service Standard)
TBA	Traditional Birth Attendant
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
WHO	World Health Organization

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Executive Summary



Executive Summary

Maternal health remains one of the top priorities of the Government of Indonesia (GoI) and the Ministry of Health (MoH) because reductions in maternal mortality have been slow. The current Maternal Mortality Ratio (MMR) for Indonesia is 228 but with existing programs and interventions the government does not believe it will be able to achieve its stated Millennium Development Goal of 102 maternal deaths per 100,000 live births by 2015.

There are positive trends in an increased use of skilled birth attendants, almost universal access to some level of antenatal care and continued use of family planning but these are not enough to stem the tide of maternal death. Interventions by the skilled birth attendants in many cases are not in line with existing standards and prove to be ineffective in trying to address the emergence of complications. Antenatal care is important, but it is not where gains in decreased mortality will be obtained.

The current approach in Indonesia which emphasizes the use of a midwife for delivery and community-based interventions has not had the anticipated impact. The government has increased the number of midwives available but their deployment patterns are still uneven and many remote areas do not have access. In addition, the training of many midwives is seriously below standard and new graduates are coming into the market without the requisite skills to safely manage birth complications. Obstetricians are not widely available—of approximately 2,100 trained specialists, more than half practice on the island of Java.

Health centers and hospitals, which are key elements of a referral system designed to address emergency complications, are also still not performing at an optimal level. When clients access the system, they encounter barriers such as denial of service, demand for payment prior to service and inadequate treatment. Hospitals are not implementing standard policies that would address the leading causes of death, which are hemorrhage, infection and eclampsia.

A woman's economic status, her level of education and her age at first marriage are social determinants that can affect maternal health and the birth outcome. Wealth quintiles also determine what kind of health care is accessed by women. Nearly 70 percent of Indonesia's wealthiest women give birth with a health professional, compared to only 10 percent of the poorest quintile in two Serang and Pandeglang districts in West Java.

The continued use of traditional birth attendants (TBA) and delivering at home are contributory factors to maternal mortality in Indonesia. In collecting data from verbal autopsies in three districts, (a widely used government initiative to determine the causes of maternal death) 63 out of 76 deaths occurred in home births that had been assisted by a TBA. In all but five cases, the TBA worked alone without any partnership with a skilled birth attendant.

In order to improve the access of the poor and the near poor to health services, the government is implementing the social insurance scheme, Jamkesmas. Approximately 104 million people should qualify for assistance but there are presently only 76.4 million people covered by this social health insurance (SHI) plan. Even those who are covered are not always able to afford care because of external expenses such as transportation charges which must be paid up front.

The Government of Indonesia and donors have consistently focused on midwives and community-based interventions to address the persistently high rate of maternal mortality.

However, the accumulated evidence would suggest that providing midwives alone is too narrow a strategy.

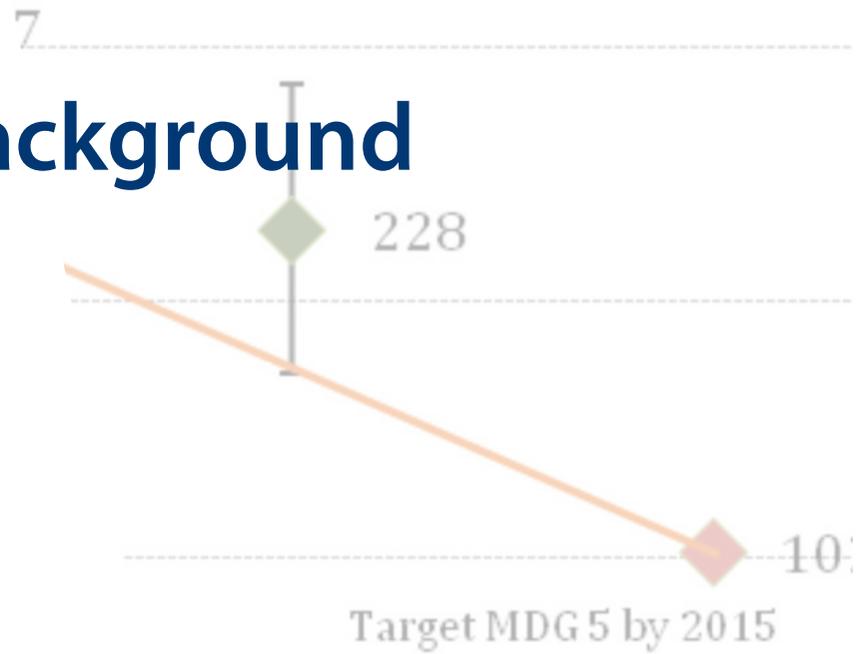
If Indonesia is to accelerate the reduction of maternal mortality and drive down maternal mortality rates, it can no longer depend on midwives alone. Other issues that must be addressed include:

- **addressing the human resource gap.** Underutilization of midwives for normal delivery care and underutilization of family practice doctors for maternal health in general need to be redressed;
- **making emergency obstetric care more available, particularly for poor women when they arrive at public hospitals.** This would necessitate more rigorous implementation of existing emergency obstetrical care policies;
- **enhancing the linkages between the community-based delivery facility (such as a village midwife or a private midwife facility) and hospital services.** The question is how to improve coordination such that the timing of referral, the reception of the referred patient and the time to management is shortened, and the quality of care by the hospital is improved;
- **standardizing the quality of care throughout the system, starting with providers and including all types of facilities** through accreditation, certification and sanction by professional organizations in order to improve quality; and
- **better utilization of the opportunities present under the national health insurance plan** to develop incentives for providers to attend to the needs of the poor and near poor and improved utilization of the program by eligible clients.





Section 1 : Background



2003-2007

2015

Section 1: Background for Maternal Health Review

The Government of Indonesia (GoI) has requested the World Bank and other partners to provide technical support in the form of a comprehensive health systems assessment for Indonesia. The aim of the GoI is to obtain advice for the development of its Medium-Term Development Plan (RPJMN) 2010-14, which proposes policies aimed at achieving the long-term vision laid out in the National Long-term Development Plan (RPJPN) 2005-2025. The broad policy directions in the long-term vision are to: (i) improve health financing; (ii) respond to demographic and epidemiological dynamics; (iii) provide more attention to promotional and preventive health services; and (iv) address nutrition cross-sectorally.

The RPJMN 2010-2014 sets out the main goals and targets to be achieved in the government's long-term vision for health care in Indonesia. These include: (i) improving access to health care; (ii) reducing the double burden of disease; (iii) improving the number and distribution of health workers; (iv) reducing the misuse of narcotics and prohibited substances; (v) increasing life expectancy to 73.7 years; (vi) reducing maternal mortality to 102 per 100,000 live births; (vii) reducing infant mortality to 15.5 per 1,000 live births; and (viii) reducing underweight malnutrition to 9.5 percent among children under five.

The World Bank responded to the request by GoI with the provision of assistance to conduct a comprehensive Health Sector Review and Health System Performance Assessment (HSS). In order to obtain a full understanding of the challenges in achieving reduced maternal mortality, the Bank conducted a rapid review of the current policies and programs the government undertakes in the area of maternal health. The review examines both the central and decentralized levels of government (as much as possible with the available data) and provides an assessment of the strategic relevance of the ongoing policies.



Section 2: Current Maternal Health and Mortality in Indonesia



Section 2: Current Maternal Health and Mortality in Indonesia

After a history almost 30 years of political determinism, comprehensive inputs and development of an extensive service delivery system, women still die in childbirth in Indonesia. Not only do they still die, they die in much higher numbers than women in other countries in the region and, notwithstanding a downwards trend in the Maternal Mortality Ratio (MMR), they still die in essentially the same numbers as in previous decades if one deconstructs the data and looks at the confidence intervals.

Despite three decades of interventions, the current approach in Indonesia which emphasizes the use of a midwife for delivery and community-based interventions has not had the anticipated impact. Research in Indonesia recently concluded that “Achieving equitable coverage of all birth by health professionals is still a distant goal in Indonesia, but even among women who receive professional care, maternal mortality ratios remain surprisingly high.” (Ronsmans et al 2009).

Box 2-1: A Profile of the Indonesian ‘Everywoman’

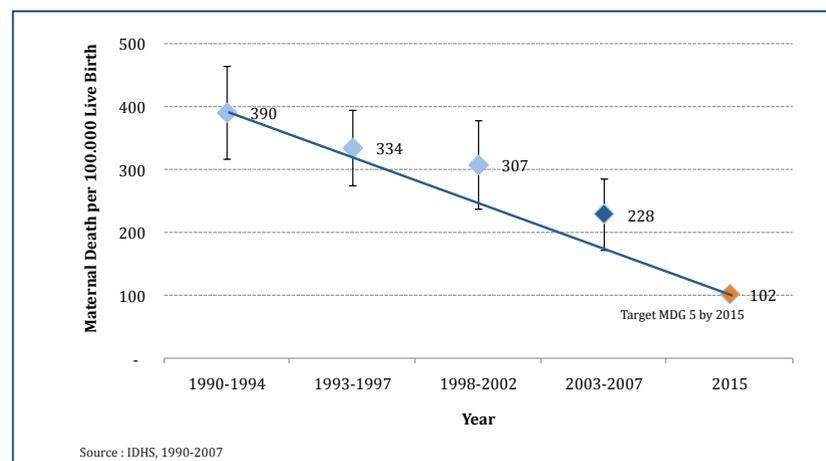
Information on who is dying is crucial to driving effective action (personal communication, W. Graham, April 2, 2009). Dr. Graham termed this ‘social obstetrics’ and said remembering the woman behind the death is more important than just getting the data. If one synthesizes all the data findings on maternal death from around Indonesia, irrespective of concerns about their validity or robustness, there is a remarkably similar picture of who is dying. The woman who dies is young, usually in her mid-twenties and usually lives in a rural area. She is poor, either marginally employed in the grey market or dependent on the agricultural sector for her income. Her economic status might permit access to a government program for subsidized health care but her utilization of the program is uncertain. She either does not understand how the program works and how she should access it or she is ashamed to participate because of the public stigma of being identified as poor (Trisari 2007).

She finished her basic education and maybe had one or two more additional years but then her parents needed her to contribute to the family income. She accesses the public health system for her antenatal care and plans to deliver at home. She knows that having a skilled provider is the right thing to do, so she intends to have a midwife deliver her child but wants the traditional birth attendant nearby. When complications arise, she does not have a clear plan of what she will do and she and her family waste time trying to make a decision. Because she lives in a rural area, without ready access to hospitals, her life will ebb away en route to the hospital or just after she has arrived. While many other women die here, in all economic classes and education strata, this is the picture of the Indonesian ‘everywoman’.

2.1 Maternal Mortality Ratio

The latest DHS data from 2007 establishes the MMR as 228 deaths per 100,000 live births and declining.¹ Using the direct sisterhood method, the Gol estimates that MMR will be 195 in 2015, other measurement methods such as PMDF (Proportion of Maternal Deaths in Females of Reproductive Age) indicate that MMR could be between 264-285 (Bappenas 2007). UNICEF, WHO, UNFPA and the World Bank's most recent estimates put MMR in Indonesia at 420. By any measure, MMR in Indonesia is high. Achieving Millennium Development Goal (MDG) 5 will necessitate the Gol reducing maternal deaths by 9.5 percent annually from 2005 to 2015, however, this has not been achieved during the years 2005-2008 (Bappenas 2007). The trend as shown in Figure 2-1 indicates, therefore, that Indonesia will not meet MDG 5 of 102 deaths per 100,000 live births.

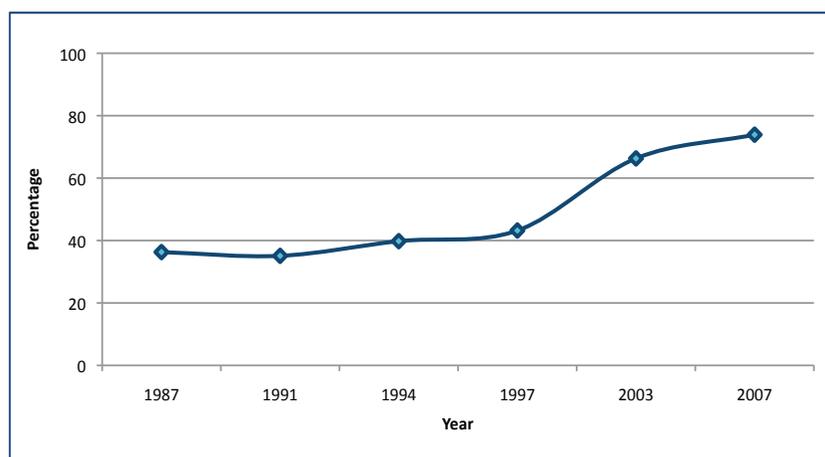
Figure 2-1: Indonesia's Maternal Mortality Ratio (1990-2015)



2.2 Number of Deliveries with Skilled Birth Attendants

The 2007 Demographic and Health Survey (IDHS, 2008) shows that 73 percent of births in Indonesia are attended by a skilled provider. A skilled provider is defined as an obstetrician or gynecologist (Ob-Gyn), doctor, nurse or midwife. This high national figure hides large inequities between provinces. Jakarta has 97 percent of births attended by a skilled provider while Maluku has only 33 percent, the lowest in the nation. Although Papua has the highest ratio of midwives to population at 74 to 100,000, only 46 percent of deliveries were attended by skilled providers.

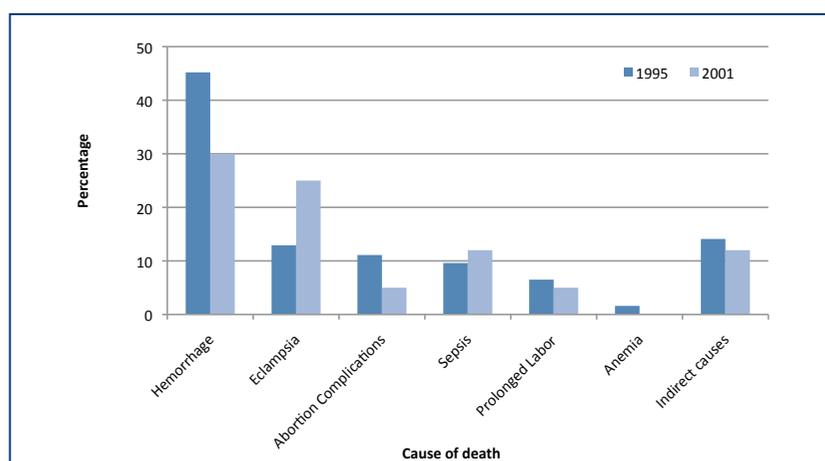
¹ This estimation came from 65 maternal death cases among 42,000 households.

Figure 2-2: Trend in Use of a Skilled Birth Attendant (1987-2007)

Source: IDHS 1987-2007.

2.3 Causes of Death

Over the last 14 years, the cause of maternal death has changed in Indonesia—with declining rates of hemorrhage. In the 1995 Household Health Survey (HHS), 43 percent of deaths were attributable to hemorrhage, while the 2002 HHS attributed 30 percent of deaths to hemorrhage. In the IMMPACT data published in 2006, 22 percent of maternal deaths in its study area were due to hemorrhage. However, national figures belie the individual provincial differences. In data from the Ministry of Health (MoH) on the causes of maternal death in six provinces,² hemorrhage accounted for 54 percent of deaths in South Kalimantan and 34 percent of deaths in West Sumatra (Bappenas 2007). Figure 2-3 shows the causes of maternal deaths in Indonesia.

Figure 2-3: Causes of Maternal Deaths Over Time (1995-2005)

Source: Indonesia Household Health Survey, 1995-2001.

Complications arising from abortion are another major contributory factor in maternal deaths. Researchers in Indonesia have suggested that unmet need in family planning contributes to unwanted pregnancy which, in turn, contributes to continuing utilization of abortion services. Because the legal conditions for abortion are restrictive, there are many unsafe abortions which cause maternal deaths.

² The six provinces were NTB, West Java, East Java, West Sumatra, North Sulawesi and South Kalimantan.

Although the figures are hazy, it is estimated that one to two million abortions take place in Indonesia each year, many of which are performed by unskilled providers in unsanitary conditions (Hull et al 2009). Other estimates range between 700,000 to three million abortions each year, relatively large numbers given the national estimate of 4.3 million births recorded in 2005. Little information is available about the characteristics of women who seek pregnancy termination, or the possible consequences of abortion in terms of maternal morbidity or mortality.

One community survey (Utomo et al 2000) found that about 24 percent of abortions are performed by traditional birth attendants (TBAs) and that this ranges from 15 percent in cities to 84 percent in rural areas. They also found that 66 percent of women having abortions reported an induction abortion, giving an estimated 1.3 million induced abortions annually. This same study found that one-third of abortion clients were unmarried and 50 percent had never used contraception, confirming the need for family planning programs.

The legal status of abortion remains ambiguous, even with the passage of the new Health Law in 2009. The legislation regulates safe abortion for cases of rape, danger to a mother's life or because of serious genetic malformations but interpretations regarding medical emergency options remain vague. In addition to professional counseling, a husband's permission is needed. The new Health Law is thus not particularly conducive towards furthering maternal health objectives generally, and specifically disregards the needs of single women.

2.4 Contraceptive Prevalence and Method Mix

In Indonesia, the family planning program made impressive gains during the 1990s but has stagnated in the last decade. According to the 2007 IDHS, the total fertility rate is 2.6,³ a rate which is virtually unchanged since the 2002 IDHS. The contraceptive prevalence rate (CPR) has stagnated; it was 60 percent in 2002 and is now 61 percent and includes both traditional and modern methods. The three most commonly used modern methods are injectables (accounting for 31.8 percent of all methods), the contraceptive pill (13.2 percent), and the IUD at 4.9 percent. The unmet need for family planning is 9 percent and has remained the same since the 1997 IDHS.

³ Hull and Mosley (2009) show a fertility rate of 2.3 in 2007 using a refined sampling method.

Box 2-2: History of Family Planning in Indonesia and Current Challenges

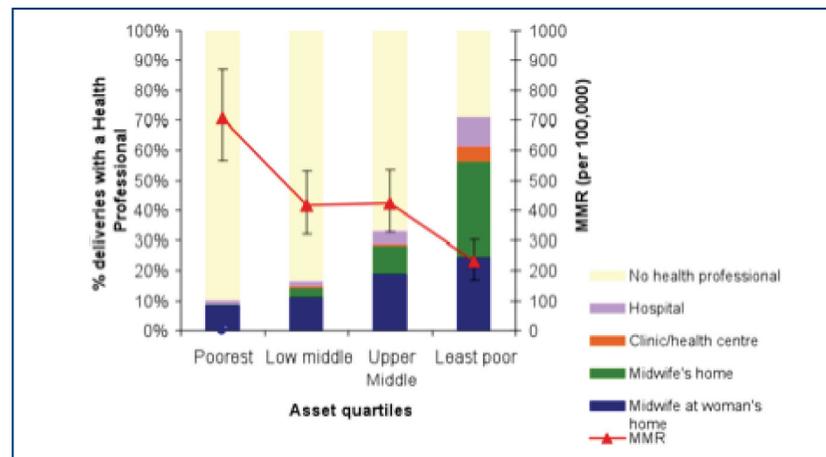
The Indonesian family planning program is internationally renowned. Since the inception of the modern family planning program in the late 1960s, the program has raised the CPR from under 5 percent to the current 61 percent and halved the total fertility rate from over 5 to 2.33 (Hull 2009). During the 1990s, the program provided a complete range of family planning methods, including access to surgical contraception for both men and women, implants and pills. These were subsidized through donor contributions, notably USAID, and also through central government support. Contraceptive availability is currently more limited, with pills and injectables accounting for 45 percent of methods used among women who practice contraception. Long-term methods, such as implants, IUDs and sterilization account for only 11 percent (IDHS 2007). Another significant change is a shift in where couples obtain their contraceptive supplies, with 69 percent now using the private sector and 22 percent government services (IDHS 2007). Hull speculates that the shift to private sector providers has influenced method choice: “The injectables, once a three monthly treatment, but more recently a monthly shot, were an ideal way for the private practitioner to lock in a flow of payments-particularly in contrast to implants which involve only five yearly visits ...” (Hull 2009). A further contribution to decreased availability of methods is declining donor support (USAID ended its program in 2006) and disarray at BKKBN.

This disarray at BKKBN is due in part to their delayed response to decentralization. The “Big Bang” decentralization of public sector management responsibilities to the district level has created serious challenges to the capacity of central agencies, including the MoH and BKKBN, to oversee and guide service delivery. In response to decentralization, the MoH began to implement regulations to divest themselves of centralized implementation duties in 2001 but BKKBN decentralized in January 2004, having obtained a waiver until then to delay the process. But with decentralization, the BKKBN district offices were merged either with local Health, Population, Civil Registration, or Women’s Empowerment agencies or some combination thereof. Family planning field workers were shifted to other offices; some no longer provide contraceptives or community promotion activities. The sense is that quality of family planning care has deteriorated and access issues remain a major concern with decentralization.

Despite concern that the flat CPR will contribute to a population explosion, analysis of the DHS and SUSENAS data indicate that the annual birth numbers are still falling and will drift down to 4.2 million births annually in approximately 8 to 10 years from now, with a concomitant decline in TFR to 2.10 in 2016 (Hull 2009). Thus, unchecked population growth is less the political challenge for the Indonesian family planning program than are issues such as unmet need, inappropriate method use in older women who have completed their families, and the inability to legally access contraceptives for single women who are sexually active. In addition, the clinical skills of providers to offer longer-term methods remains an area of concern.

2.5 Sociocultural Determinants of Maternal Health

A woman’s economic status, her level of education and her age at first marriage are social determinants that can affect maternal health and the birth outcome. Wealth quintiles also determine what kind of health care is accessed by women. Nearly 70 percent of Indonesia’s wealthiest women gave birth with a health professional, compared to only 10 percent of the poorest quintile in two districts in western Java (Serang and Pandeglang) (Figure 2-4).

Figure 2-4: Place of Delivery (Variant by Economic Quintile)

Source: Ronsmans et al 2009.

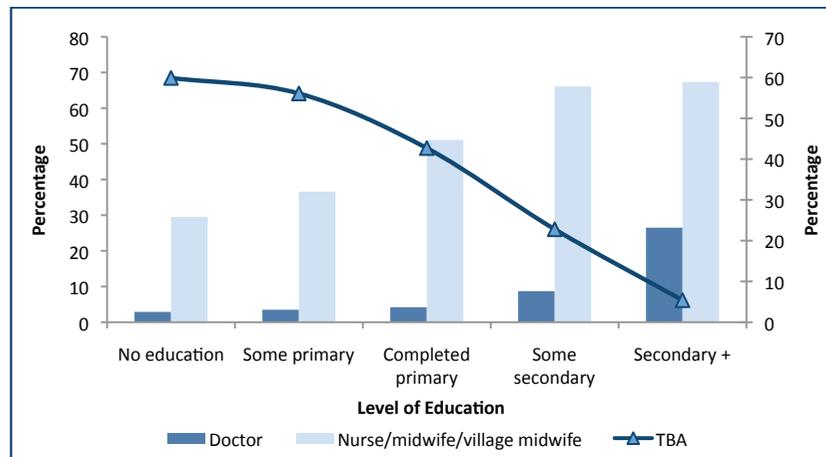
In Indonesia there has been a steady increase in the age of first marriage over the past two decades (WHO 2006) and the median age has increased to 19 years. However, the legal age of marriage for girls is still 16. Some 9.5 percent of girls between the ages of 10-16 in NTB were already married in 2003; with 11 percent of urban girls and almost 9 percent of rural girls already married (Bappenas 2007). Nationally, the percentage of girls under fifteen giving birth has dropped to 1 percent (WHO 2006) but 10 percent of girls between 15-19 have already given birth. There is, however, a significant difference in fertility rates between urban and rural areas, with twice the proportion of rural adolescent girls having given birth compared to urban adolescents (WHO 2006). A failure to complete schooling may be a factor in girls marrying early. In two districts in South Kalimantan, for example, the primary reason for girls under the age of twenty marrying was because they were no longer in school.

Box 2-3: ...and then she died

Mrs. S was a 15 year old housewife with an elementary school education. Her husband was 20 years old and he worked as a bird seller. She never went for prenatal care and did not know she was carrying twins. When she was eight months pregnant, she fell at the market. Her grandmother took her home to rest. The morning after her fall, she started having labor pains and the family called for a TBA to be with her. After two hours, the patient still had not given birth so the TBA suggested it would be wise to have a midwife present. The midwife came within half an hour and managed the labor, giving her a dose of oxytocin. After four hours, the first of her twin boys were born. The midwife did not know she was having twins but waited for an hour, when the second twin was born. The baby started breathing but then died immediately. The midwife went home right after the birth of the second baby, failing to complete a post-partum check. The TBA stayed on, washing the babies and giving Mrs. S something to drink. Suddenly, in the early evening, just after dusk, she had difficulty breathing and then she died.

The WHO report (2006) on human rights and maternal health notes that 14 percent of women with no formal education in Indonesia have become mothers during adolescence. For all women, their level of education influences their access to the health system. The data indicate a much higher use of a TBA for a woman with no education or a limited primary school education with much higher rates of use of a skilled birth attendant when a woman has had some secondary education or has completed secondary school (Figure 2-5).

Figure 2-5: Utilization of Birth Attendants by Level of Education



Source: IDHS, 2007.



Section 3: Government Response to the Continued Maternal Mortality Crisis



Section 3: Government Response to the Continued Maternal Mortality Crisis

3.1 Current Government Policies and Strategies

The government's current policies for reducing maternal mortality are contained in the 'Healthy Indonesia 2010,' 'Minimum Service Standards' and 'Making Pregnancy Safer' programs.

3.1.1 Healthy Indonesia 2010

The Healthy Indonesia 2010 program emphasizes empowering communities. It also defines the following goals:

- 90 percent of deliveries with a skilled health provider;
- a midwife ratio of 100 to 100,000 population;
- achieving a Posyandu 'Purnama' and 'Mandiri' participation rate of 40 percent;⁴
- iron consumption by 80 percent of pregnant women;
- a ratio of general doctors of 40 per 100,000 population;
- 80 percent of the eligible poor covered by *Jamkesmas*; and
- a contraceptive prevalence rate of 70 percent.

3.1.2 Minimum Service Standards (MSS)

As part of the decentralization effort, the service delivery practices at the community health center were reviewed and revised. The MSS include six areas addressing maternal health. These service standards include lists of service delivery activities, manuals and guidelines to manage care and expected human resources necessary to implement the service. They include: (i) the practices for antenatal care; (ii) treatment of obstetric complications; (iii) delivery with a skilled provider; (iv) postnatal care; (v) family planning; and (vi) coverage of costs for poor families. A guidebook for managers lays out their responsibilities. However the MSS remain ill-defined, complex to measure and few districts actually apply them. Family planning MSS are not used (Haynes and Harahap forthcoming).

3.1.3 Making Pregnancy Safer⁵

The policies and strategies for maternal health delineated under the Making Pregnancy Safer program now guide the majority of program interventions. The government has outlined the

⁴ *Posyandu* is a community-driven initiative that delivers neighborhood services on a fixed monthly schedule. The five main services are family planning, maternity care, immunization, infant growth monitoring and nutrition awareness. The services are delivered by community agents (*kaders*) and either village midwives or midwives from the local community health center. There are four types of *posyandu*: *Pratama*, *Madya*, *Purnama* and *Mandiri*. These rankings indicate increasing self-reliance and quality. *Posyandu Purnama* criteria include more than eight services a year, five *kaders* as the average number of community agents, and delivery of the five main programs. *Posyandu Mandiri* has as its operating criteria: meeting on a routine monthly basis, delivering the five main services-including additional programs as necessary-and finding funding resources to cover 50 percent of participating households.

⁵ This built on an earlier program, Gerakan Sayang Ibu (GSI). That program focused community efforts on managing the three delays that contribute to maternal mortality (delays in recognition and decision making, getting to services and receipt of appropriate services), managing the four risk factors of too young, too old, too many children and too close together and creating a supportive environment within hospitals to promote maternal health. However, the global evidence indicating that any pregnancy can develop complications and the shift to complication prevention rather than risk profiling has made GSI less used as a policy.

following as essential components:

- continued use of village midwives to reach all women and to support the policy that all births should be attended by a skilled provider;
- renewed emphasis on antenatal care, including having the first prenatal visit in the first trimester;
- development of the emergency neonatal and obstetric basic and comprehensive systems, which rely on facilities to provide interventions;
- maternal death audits to better pinpoint the causes of death;
- promotion of exclusive and immediate breast-feeding, including within the first hour of birth;
- family planning and postabortion care; and
- expanding the Desa Siaga effort nationwide and encompassing multiple public health objectives.

To implement the Making Pregnancy Safer program, the ministry has outlined a strategic program encompassing:

- **an emphasis on quality** within health services delivery;
- **empowering the community** (much like the original Siaga campaign, this focuses on complication prevention and birth preparedness and is referred to as P4K, or Program Perencanaan Persalinan Pencegahan Komplikasi);
- **partnerships between MoH and other sectors**, such as donors, the private sector, and NGOs in order to reduce mortality; and
- **a renewed emphasis on management**, including surveillance, monitoring and evaluation, and collecting data for planning purposes.

While these strategies are in-line with international best practices and evidence-based approaches, it is their implementation and monitoring that falls short. A gap analysis would indicate the following:

- treatment protocols and standard of care in hospitals are sub-par and a direct contribution to facility-based mortality, particularly in the case of treatment of emergency complications;
- trends and patterns evident in maternal death audits at the district level are not then used to inform revised strategies and address the root causes of maternal death at district levels; and
- the referral hierarchy is not need-based (that is, a woman with excessive bleeding is referred from home to a *Puskemas* because that is the identified chain, but she should be referred directly to the hospital, as that is where there are services available to treat her medical need).

3.1.4 Insurance Support for Maternal Health Services

In order to improve the access of the poor and the near poor to health services, the government is implementing the social insurance scheme, *Jamkesmas* (formally *Askeskin*). Under this plan, the standard packet of services for members includes family planning methods (including the contraceptive pill, injections, IUDs, and surgical contraception), antenatal care, delivery care for both normal deliveries and complications and postnatal care. Blood transfusions are also covered if necessary, as would be the case in the treatment of severe hemorrhage. Eleven percent of Indonesia's population is classified as poor, while an additional 30 percent are near poor, living on less than US\$2.00 per day. On this basis, approximately 104 million people should qualify for assistance while there are presently some 76.4 million people covered by this social health insurance (SHI) plan.

This new system is intended to address barriers to access that existed under the previous insurance program *Askeskin* (Health Insurance for the Poor). Data from IMMPACT (Nadjib 2007), for example, found barriers such as:

- a lack of understanding of the administrative enrollment procedures by the poor;
- misperceptions about how much a client would have to pay (out-of-pocket–OOP–expenses), particularly for the purchase of medication and inpatient services;
- populations unwilling to use the services because they were uncomfortable at being publicly identified as being poor; and
- misclassification by local government of population groups who were actually poor and thus eligible. This resulted in their being incorrectly denied services to which they should have been entitled.

Despite increased coverage under *Jamkesmas*, however, there remains a continued need at the district and provincial level to cover the poor and near-poor populations that are still not enrolled in the national scheme. In response, 36 districts and cities were, by 2007, implementing their own health financing schemes and another 60 were providing free health care (Gani 2008). Many of these base their reimbursement rates on *Jamkesmas* and use the public sector as the service provider of choice.

3.1.5 Donor Support for Government Policies

Of US\$188.2 million of donor support received for health in 2002⁶, 26 percent was spent on maternal health programs. The majority of this funding (51 percent) was spent on improving health systems, while infectious diseases (14 percent) and reproductive health (11 percent)—including Safe Motherhood—also received significant allocations (Michaud 2006). Donors continue to be responsive to government needs in this sector; AusAID, DFID and USAID remain among the largest supporters. However, donor support to the health sector in Indonesia remains small in financial terms as a proportion of overall health spending (World Bank 2008).

A timeline of key points in the history of the Indonesian maternal health program—showing efforts to date to address this crisis—is presented in Box 3-1 below. Indonesia has consistently relied extensively on midwives as the primary provider for maternal health and has focused interventions at the community level.

⁶ This is the last year for which complete donor funding information is available.

Box 3-1: History of Maternal Health Programs in Indonesia

The first national seminar for safe motherhood in Indonesia was held in 1988, with then President Soeharto providing the keynote address. Formal maternal mortality reduction figures were subsequently included in the national development plan for the first time. The government at that time established the goal of trying to reduce maternal deaths to 340 per 100,000 births by 1993. Other milestones include:

- 1989: Commencement of the program to train village midwives, the *Bidan di Desa* (BDD), which was designed to increase access by placing a skilled provider in every village.
- 1993: National seminar with the heads of all the provinces in which strategies to reduce infant and maternal mortality were hammered out. This resulted in a comprehensive, multi-sectoral national action plan for safe motherhood.
- 1995-1996: National seminars with President Soeharto giving lead speeches twice on maternal mortality, increasing the political will to solve the problem.
- 1996: *Gerakan Sayang Ibu* (GSI) or Mother Friendly Movement started by the Vice-minister for Women's Affairs as a national movement to promote maternal health.
- 1997-2000: The Asian financial crisis and the political crisis in Indonesia that heralded the end of Soeharto's presidency also resulted in a programming change that focused on a safety net of services for the poor. These included some services for maternal health but they were not specific, focused interventions.
- 1999: Beginning of Social Health Insurance schemes targeting the poor and near poor which include coverage for maternal health services. This starts with the crisis social safety net, continues with the *Askeskin* program which evolves into *Jamkesmas* in 2007.
- 2000: Indonesia signs on to the Millennium Summit, committing itself to reaching a maternal mortality ratio of 102 per 100,000 births by 2015.
- 2000: WHO articulates a global strategy-Making Pregnancy Safer-and Indonesia adopts this as its fundamental approach to maternal health.
- 2001: Indonesia joins the global White Ribbon Alliance movement with the founding of the national group *Pita Putih* Indonesia, and the mandate 'zero tolerance for maternal death.' This activist group develops the *Siaga* campaign, promoting awareness of factors that can lead to maternal death and providing community responses to overcome these barriers.
- 2001: Decentralization and the devolution of authority to the districts shifts responsibility for maternal health to the district level, with inputs from the center.
- 2002: The Ministry of Health finishes its review and strategy planning and officially launches Making Pregnancy Safer.
- 2004: *Askeskin* begins coverage. This is a national health insurance plan for the poor which includes maternity care.
- 2007: *Jamkesmas* begins continuing *Askeskin* program which also cover the near poor





Section 4: Maternal Health System Inputs



Section 4: Maternal Health System Inputs

It is apparent that Indonesia has dedicated significant resources to overcoming the problem of maternal mortality—especially through the *Bidan di Desa (BDD)* program—however, despite 20 years of inputs, donor support and national political will, many women still die of maternity-related causes. For the last two decades, the BDD or village midwife program has been the centerpiece of any policy directive oriented toward reducing maternal mortality. This program was conceived as an additional one year of midwifery training for people who had a nursing school education (*Sekolah Perawat Kejuruan* or SPK).

It was expected that the BDD program would sufficiently improve the quality and quantity of antenatal, obstetric, postnatal care and contraceptive services in the village. Half-way through the program, training was increased to three years of midwifery training after completing high school. This innovative program to provide midwives to every village in Indonesia was viewed as a way to increase access to skilled care. It was intended to sharply reduce maternal mortality. This section looks at results from this strategy, in light of the fact that MMR is still high.

4.1 Providers and Facilities

4.1.1 Midwives

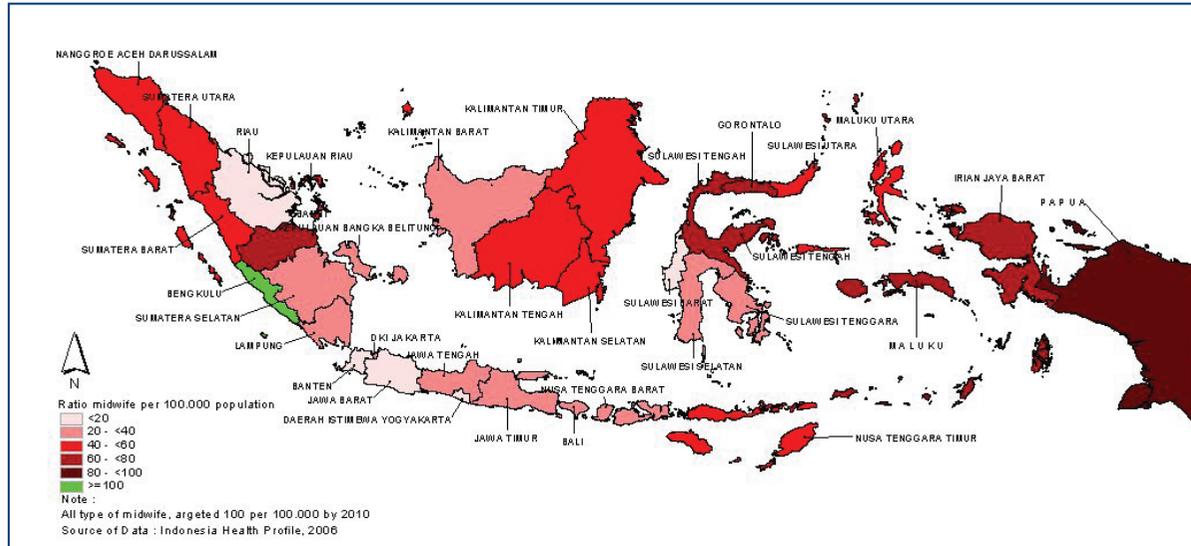
The outcome of this investment in midwives is not clear. In 1998, an AusAID study on the BDD in NTT and NTB stated “the BDD program is flawed in conception and there are serious problems with its implementation” (Hull et al 1998). The report stated that there were issues with placement and retention, skill level and utilization, quality and training.

4.1.1.1 Quantity and Distribution

While physicians and nurses have a key role to play in maternal health, the most prominent health service provider is the midwife. There are currently approximately 80,000 midwives in Indonesia (World Bank 2009). Most of these midwives were employed and trained under the village midwife program. The program no longer receives budgetary support from the central government in terms of training large numbers of midwives and the payment of contracts has been shifting between the center and districts. Nevertheless, midwives still remain the key provider in almost all strategies.

The intent of the BDD program was to provide a midwife in every village but this has not yet been achieved. In 2005, data from the MoH indicated that only 40 percent of the 68,816 villages in Indonesia had midwives in place and in some places, such as North Sumatra, less than 10 percent of the 5,360 villages had a midwife (Muhibin 2008). In 2006, the Indonesia health profile (MoH 2007) showed a national ratio of midwives at 49 per 100,000 population with a range from 8.9 per 100,000 in Banten to 74 per 100,000 in Papua. However, the high ratio of midwives in Papua is largely due to the remoteness of areas and this analysis should keep this in mind. Figure 4-1 shows the distribution of midwives by province.

Figure 4-1: Ratio of Midwives to 100,000 Population by Province



In 2006, 44,616 midwives were in private practice nationally, a 158 percent change from 1996 for all midwives. The majority of this change was found in urban areas, a 1,791 percent change nationally and a 2,347 percent change in outer islands⁷ alone (Rokx et al 2010). The World Bank report found that the distribution of midwives in the public sector had decreased. Nationally, the average number of midwives at a health center was 3.7 in 2007, a decrease from 5.8 in 1997. These figures should be interpreted with caution, however, as the private-public workforce distinction is not as clear-cut in Indonesia as in other countries. The national policy allows for dual practice and many midwives in the public sector open private practices after hours. There are very few midwives who obtain their income exclusively from either their private or public practice.

4.1.1.2 Training and Skills

At the onset of the BDD program, nursing school graduates (equivalent to a high school degree) received a one-year crash program, referred to as a Diploma-1 or D1. The push for rapid deployment of midwives compromised candidate selection and the quality of training (Shankar 2008). One study (Hull et al 1998) found that the midwifery educators' clinical skills were "limited and out of date", training equipment was old and in need of repair and there was a shortage of textbooks. In addition, the study found that the village midwife was only required to perform 15 deliveries under supervision, and some of those were on models. This compared to the 50 deliveries older midwives had performed during their training. Midwife training also did not include education in client interactions, which is a significant contributor to client satisfaction and perception of quality.

In 1997, the government and donors began a series of initiatives to increase skills with the introduction by the government of in-service competency-based training on skills such as normal birth and basic emergency obstetric care. Donors supported training in lifesaving skills (Mother Care project), training staff at midwifery schools and developing supervision skills. The GoI changed the basic midwifery training to be a three-year post-high school program. This became known as the "D3" diploma and is now the basic level of education required for midwifery. This change was espoused in a national congress of the Indonesian Midwives' Association (IBI) in 1998.

⁷ Outer islands means all islands except Java, Bali and Sumatra.

IBI does not have aggregate data on what proportion of its overall membership is trained to the D1 level versus the D3 level although, presumably, the numbers of D3 trained midwives are increasing given that this is now the normative standard.

Evaluation and program reviews have repeatedly found that midwives practicing in Indonesia lack basic competency in core skills. A 2002 paper found that “over 90% of the nurses and midwives sampled had had no post basic or continuing professional development training in the past three years, which in the global era of rapid health care development means that much midwifery care in Indonesia may not be conducted according to evidence-based best practices” (Hennessy 2002).

A study of 338 midwives (Hennessy 2006) in North Sulawesi, North Sumatra and East Kalimantan found that the entire sample population had training needs in all of the 40 core tasks.⁸ As the paper states: “the respondents perceived themselves to have skill deficits in all the areas covered.” Compounding the difficulties in training is the fact that “there is no statutory regulatory authority for nurses and midwives, and consequently there are no regulatory standards for education and clinical competence (although work is in progress to develop these authorities) ... the vast majority of nurses and midwives (60%) have inadequate training and preparation for the role, which creates the potential for substandard care delivery” (Hennessy et al 2006).

The most recent government and donor initiative has been the development of a training program for normal delivery, *Asuhan Persalinan Normal (APN)*. This is a ten day training course that has four days of classroom instruction and six days of practicum. Trainees do a minimum of three supervised deliveries. The training includes the active management of the third stage of labor and newborn care. It is based on WHO clinical materials and is to an international standard. Trainees are limited to 12 to 15 in a class, and there is clinical accreditation that takes place two to six weeks after training. The National Clinical Training Network records show that 12,479 midwives have received APN training through their network, which is 14 percent of the total number of midwives in Indonesia. Other organizations have also trained midwives in APN, using different trainers. Accurate data are not available as IBI doesn't have records, even though the MoH and IBI have suggested that APN training be mandatory for all midwives.

The National Clinical Training Network, which is doing the training nationwide has reported significant improvement in delivery skills. One local assessment of results in Cianjur and Tangerang (West Java) found that 81 percent of the 120 midwives trained were able to perform active management of the third stage of labor, compared to 34 percent of 109 midwives who had not received the training or a follow-up supervisory visit (Hermiyanti 2007). In three districts in NTT, 78.5 percent of the midwives had received in-service training in APN, and 18.6 percent of those same midwives had received training in how to conduct a maternal and perinatal audit. Only 11 percent of the midwives had received in-service training in basic emergency obstetric care and 7 percent had training in lifesaving skills for maternal health (AIPMNH-NTT 2008).

There continue to be concerns over the functions and skills of midwives, especially in the performance of nonmidwifery tasks. Midwives were initially intended to focus on midwifery services but they now also undertake primary preventative care, curative care for common childhood diseases, vaccinations and family planning along with their other tasks.

⁸ These core tasks include patient education, assessment of clinical data, setting up equipment for procedures, serving as liaison with other medical professionals, and recognizing and managing risks in clinical care. The core tasks are found in all the expected competencies of midwives, such as antenatal care, obstetrical care and family planning.

As one paper found: “most midwives perform many tasks (including providing nutrition advice and immunizations) and attend few births, so their capacity to manage complications and recognize the need for referral may be compromised” (Ronsmans 2009).

The Ministry of National Education (MoNE) in 2008 reported that there were 595 schools offering midwifery training, however, there are questions regarding their performance. There is no national standard for the training curricula and graduates do not take a competency test prior to licensing. The quality and skills level of many of the new graduates is questionable (World Bank 2009). There are pilot programs underway in West Java where graduates can register with the provincial health authority but cannot practice at the district level until they have passed a competency exam administered by IBI. In a 2008 review of midwives in Aceh, East and Central Java, 129 midwives indicated that their preservice training at midwifery schools was not in compliance with an established and standardized curriculum (Sushanty et al 2008). Midwifery academy staff in Yogyakarta stated that there are currently too few competent instructors available for preservice education and not enough practice sites for students in urban areas (personal communication, Aisyiyah, May 15, 2009).

4.1.1.3 Retention

Midwives trained under the BDD program are moving out of their village posts. They are becoming civil servants and working in the community health center, entering private practice, entering academia and teaching midwifery or leaving clinical services for administrative posts. Whatever the reason, the intended target of one midwife in every village has fallen short.

While the utilization of village midwife services remains an essential element of most proposed maternal health interventions, formal central-level support was supposed to end in 2007. Government policy now states that midwives should either make the transition to local district staff or they should be established enough that they are able to stay in their villages but earn an income from private practice. However, the concept of “local district staff” is very nuanced. Public sector health staff were “transferred” to the districts under decentralization, however, the reality is that the center retained control over salaries, conditions and hiring and firing (Heywood 2009). In addition, the central government has been following up on an earlier promise to convert those on contract (including both PTT and local contracts) to permanent civil service status by the end of 2009.

Heywood’s (2009) study in 15 districts in Java found that the overwhelming majority of midwives were civil service (PNS) or contract (PTT) workers. A total of 3,388 midwives were civil servants (PNS), 1,662 were contract (PTT), 209 were local contract, 164 were daily contract (a category of worker not seen in any other province but West Java) and 593 were privately employed. In 2004, there were 5,707 contract midwives in remote areas; by 2006 there were only 437 contract midwives in remote areas (MoH 2007). In 2004, the total number of contracted bidans was 12,345 and by 2006, this had fallen to 2,505. There were 52,168 midwives employed at *puskesmas* in 2006. If we extrapolate from the trends found in Java, then approximately 56 percent of those midwives would be PNS and 34 percent would be contract midwives.

The MoH has warned against interpreting a reduced number of midwives in the BDD program as an overall reduction in the availability of midwives (personal communication, Dr. Lukman, April 2009). It is their opinion that services remain available as long as the professional is on-site, even if they are no longer part of the formal village midwife program. Retention has been viewed as a function of integration into the community and the ability of a midwife to earn sufficient income. While integration into the community was problematic at the onset of the program, research conducted by Hull et al

(1998) indicated that this was not an overall problem and acceptance rates for the midwives were good a decade into the program. Retention is also a function of job satisfaction, career opportunities, salary benefits and continued professional opportunities. In the 2003 Nursing and Midwifery Workforce Management Survey conducted by WHO (WHO 2003), Indonesia did not score well on most of these parameters, suggesting there is significant improvement possible in the system for retaining midwives.

One study found that more established midwives were reluctant to move from their villages because of family reasons and disturbance to their private practices if they moved more than one hour away. The younger midwives, who did not have as many community ties, were more inclined to consider moving (Ensor et al 2008). UNICEF (1997) also found that a midwife's marital status had an impact on retention; those midwives who either were married or got married during their tenure were more likely to stay in the village where they were placed.

IMMPACT found a paucity of midwives in the more remote areas and a high turnover rate, in part caused by the demanding and isolated professional environment (Makowiecka et al 2007). Retention rates are also a factor of adequate mentoring and supervision and a clear understanding of role expectations. In Indonesia, "ongoing lack of supervision coupled with diverse duties and unclear job descriptions meant that many midwives worked in isolation with few opportunities for job support and learning, thereby affecting retention as well" (Shankar 2008).

4.1.1.4 Salaries

Parker and Roestam (2003) reported government estimates that 60 to 75 percent of the village midwives placed since 1994 were still in their villages, however, what role salary plays in their retention is unclear. Initially, village midwives received a three-year commitment from the government to cover their salary (PTT). This contract could be renewed twice at most, at which point they could either become a civil servant or continue in private practice. At the end of their PTT contract some village midwives moved from the village to the health center to become a civil servant at the facility, thereby leaving some villages without midwives. A 2007 initiative supported the concept of Bidan Siaga, paying incentives from the central budget for PTT midwives to practice in remote locations. Under MoH Regulation No. 508/2007, midwives could receive IDR2.5 million per month for service in remote locations. (DepKes RI 2008)

To enter a private practice, it was expected that a midwife would need to take a three-year D3 midwifery course after completing their PTT contract. This additional education requirement was in line with IBI's policy⁹ recommendation of 1998 that only D3 trained midwives be allowed to have a private practice. A 1998 study found, however, that PTT midwives would have to pay US\$1,391 for tuition and living costs if they wanted to complete the course. Ironically, the tuition portion of this training exceeded what they could earn at that time as a village midwife (Hull et al 1998).

Research on net incomes for midwives has found income difficult to quantify accurately. As is common practice in Indonesia, public sector midwives who earn a government salary also supplement their income through private practices. Even during their contract years, midwives were permitted to have a private practice; in effect doubling their sources of income.

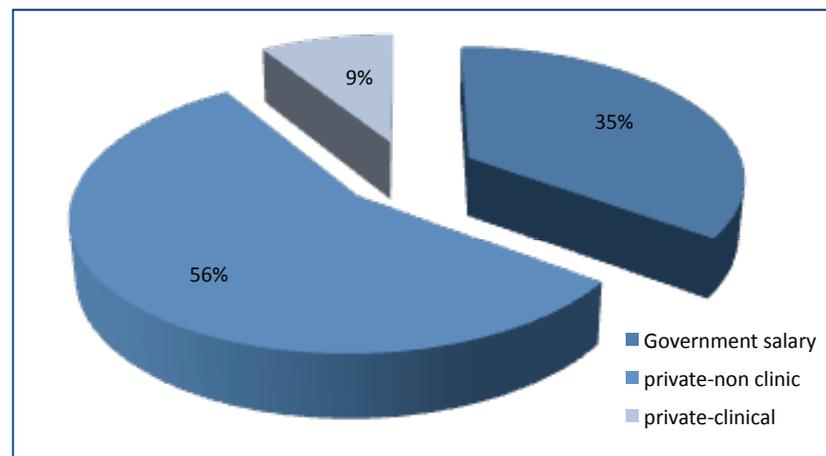
Various studies (Menelaws 2000, Nadjib et al 2001 and Nadjib 2008) have reported widely varying incomes between districts and between urban and rural locations within districts. Private income is affected by location as those closest to urban centers face competition for services while in more rural

⁹ The 1998 IBI congress made a policy decision that private practice midwives would only be granted a license to practice if they had finished the D3 training program. Until now, however, the policy has never been implemented and there are D1 trained midwives in private practice.

areas, less competition allows midwives to capture a greater market share. In the most remote areas, ability to pay tends to decline because of reduced income among the population. However, overall, even in rural areas, midwives are able to capture enough market share to earn an adequate income (Ensor et al 2006).

The IMMPACT study (2007) found that basic salary differed depending on contract status. A civil servant (PNS) employee earned the most with an annualized salary of US\$1,768. Contractors for three years (PTT) who had central-level contracts earned US\$1,179 compared to contractors who had local contracts, who earned just US\$1,072. Of these earnings, base salary contributed on average 79 percent to the total, the additional money was earned through bonuses and re-imbursement for services provided to the poor under the *Askeskin* program. Government salaries contributed 35 percent of total income, while private clinical services contributed 56 percent and private nonclinical services the balance of 9 percent. Total annual incomes, including public sector salary, private practice income and private nonclinical income varied significantly across the sample population. The mean private sector income was US\$2,508 per year but 10 percent of the sample had an annual income of over US\$11,000.

Figure 4-2: Contributions to Income by Source



Source: IMMPACT 2006.

Levels of income appear to be closely related to number of years since qualification; a midwife with 15 years of experience earns more than twice the income of a midwife with less than five years of experience (Ensor et al 2008). IBI indicates that there is a salary differential between public sector midwives who have only received a D1 degree and those who have had lengthier training and received the D3 (personal communication, Harni, May 11, 2009.) However in the private sector, midwives charged similar tariffs and received payment, irrespective of their educational background and training.

4.1.1.5 Quality of Services

The basic elements required to ensure quality of care—such as a national examination to determine competency—have yet to be implemented in Indonesia. There are pilot projects in place to improve quality and IBI is providing significant support to the *Bidan Delima* program. This is a quality improvement and accreditation program that establishes facility standards and skills competencies necessary before a midwife can be certified as a member of the program. Approximately 10 percent of midwives in Indonesia have already earned this certification and the program is active in 15 provinces

(HSP 2008). The *Bidan Delima* program is considered valuable by midwives because it is an external validation of improved quality although accredited midwives do not charge more for their services.

In a study done in 1994 in Kalimantan, poor quality of care was a contributory factor in 60 percent of 130 maternal deaths (Supratikto et al 2002). This study helped local decision makers to understand that village midwives alone were not responsible for maternal deaths and lead to a change in the working relationships of health providers at different levels of the system. A 2004 study done in Lombok found that among the 100 respondents, there was a positive correlation between their perception of quality of care and their willingness to use the free medical services. The same study found that even if the care was free, those respondents in the higher economic groups would not use the services if they perceived quality to be lacking. The quality issues they identified included lack of empathy on the part of health center staff, failure to do a thorough examination and an inadequate supply of drugs (Saimi 2006).

A confidential inquiry done by IMMPACT found that while village midwives' emergency diagnostic skills were accurate, they were less capable in the clinical management of complications (D'Ambruso, Achadi et al 2008). In a paper looking at differences in the quality of care provided by midwives in the private and public sectors in Pekalongan, researchers found that clients were equally satisfied except on one dimension, that private sector midwives provided greater empathy and assurance (Wibawa 2000). The rationale for use, however, depended less on quality than access and it was easier to obtain a consultation with the private midwives.

Conventional wisdom in Indonesia states that the quality of care in the private sector is significantly better than the public sector but studies are beginning to challenge this. The World Bank's Health Workforce study found there is no significant difference between private and public providers on the vignette score related to prenatal care and child curative care.¹⁰ It states that "private sector providers may simply have better knowledge and training than those in public health clinics. This assumes that quality of private providers is higher, however, for which there is little evidence from comparison of diagnostic vignette scores across public and private practices" (Rokx et al 2010).

4.1.1.6 Motivation for Service

The success of the midwife program rests in large part on being able to capitalize on the social motivation of Indonesian women. In one study in Banten, the reasons for being a midwife fell into four categories: ability to have a career and earn an income, convenience for family reasons (proximity to husband's job or children's school), an altruistic desire to do good for the community and parental demands. Interestingly, while career, family and community motivations were approximately equal when deciding to become a midwife, this shifts radically when remaining a midwife. Seventy-one percent of the midwives interviewed said they remained a midwife for career and income reasons, while community altruism was given as a reason by only 11 percent of the midwives (Ensor, Quayyum et al 2008).

In a 2009 focus group with 10 midwives in Yogyakarta, researchers found that salary and income were not the primary determinants for providing service. Midwives acknowledged that they could make significantly more money in the private sector but retained their positions in the public sector because of job security. They continued in the private sector because they thought their practices were a contribution to overall community well-being, irrespective of the financial gain. The midwives

¹⁰ As part of the child curative care vignette, researchers asked an indicative question whether the health worker asks about the nature of the stool when a child has diarrhea. Only 42 percent of *Puskesmas* health workers and 43 percent of private physicians responded they would ask this question.

emphasized that a primary motivation was the service they rendered the community. They were willing to put up with difficult hours and delayed payment because they perceived a critical role for themselves in the health of the community. In addition, they said that being a midwife provided them with enhanced social status within the community.

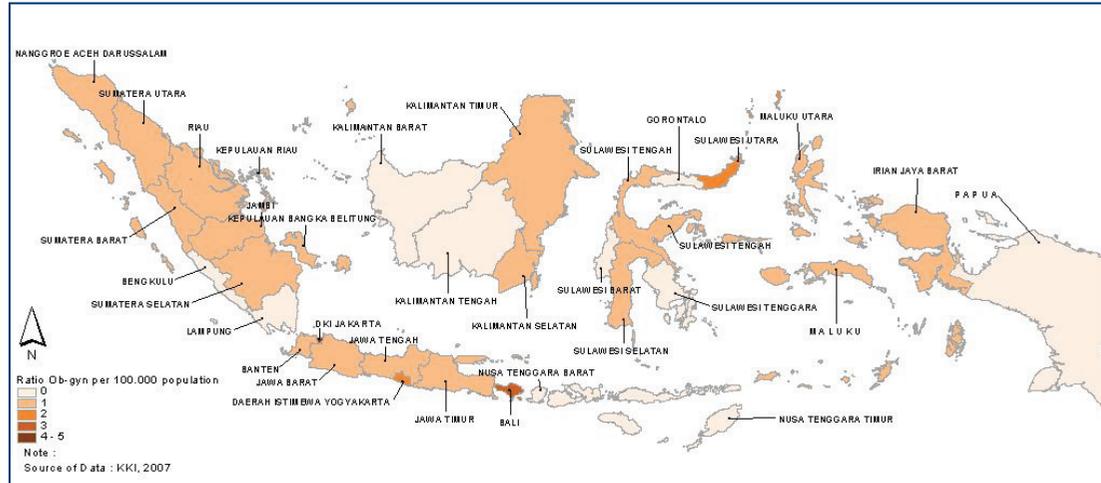
Other factors cited for staying in the profession included excellent working relations and a desire for job security by becoming a civil servant. Researchers have also examined extrinsic factors which compelled a midwife to consider leaving the profession (Martha et al 2007). Among some of the reasons given for leaving include:

- lack of autonomy;
- only being called by the community to do difficult births;
- poor supervision and support from bosses; and
- a feeling that there was a difference between the compensation and the very large amount of responsibility they had to deliver expanded care programs.

4.1.2 Doctors

There are approximately 55,000 doctors in Indonesia and 15,000 specialists, of whom 2,100 are Ob-Gyns. Of the Ob-Gyns, more than half (1,393) practice on Java in the six provinces of DKI Jakarta, DI Yogyakarta, Banten, East Java, Central Java and West Java. Eighty-five practice in Bali and 131 in North Sumatra, presumably clustered around Medan. West Sulawesi has only one registered Ob-Gyn in the entire province, while in nine out of 33 provinces there are fewer than seven Ob-Gyns (Figure 4-3).¹¹

Figure 4-3: Ratio of Ob-Gyns per 100,000 Population (by Province)



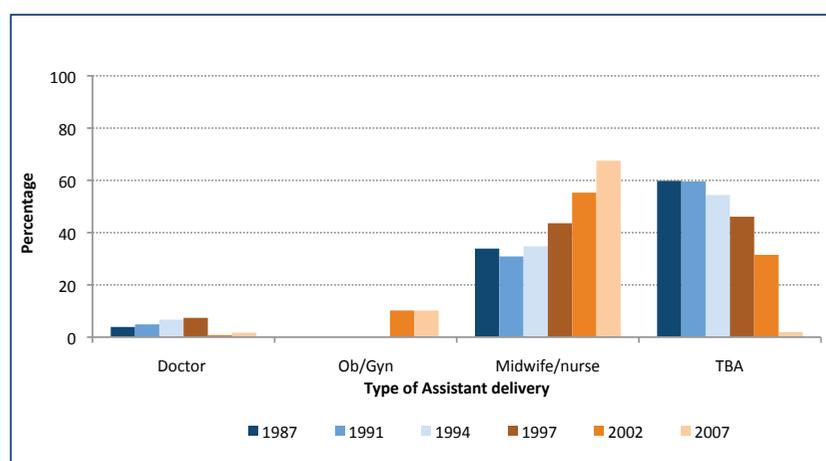
To provide surgery, a team of an obstetrician and anesthetist is needed and anesthetists are in short supply and unevenly distributed. While there are an estimated 750 anesthetists, 40 percent live in Jakarta and the remainder in provincial capitals; six provinces have no anesthetist. Nurse anesthetists have received medical accreditation to administer anesthesia and currently provide approximately 70 percent of anesthetic needs in Indonesia. There are currently 1,700 nurse anesthetists practicing in Indonesia. Since 1986, their curriculum has become more rigorous and

¹¹ These data are drawn from the registration information compiled at the Indonesian Doctor's Council, which is charged with licensing and monitoring all physician registration. They are from the July 16, 2007 report.

includes three years of nursing training post high-school, 12 credits in anesthesiology and then clinical practice in anesthesia for another six months (Indonesia Federation of Nurse Anesthetists 2009).

IDHS data indicate that general doctors overall attend less than 10 percent of births (Figure 4-4). After increasing from 1987 to 2002, general doctor-assisted deliveries decreased in 2007. The most recent data shows a renewed increase in the utilization of general physicians, but this is still extremely low at 1 percent (DHS 2007). Obstetrician-assisted delivery is flat—at approximately 10 percent of births. A problem with physician-attended births is that Indonesia allows public sector providers to maintain private practices at up to three practice sites. As a consequence, public sector physicians are sometimes unavailable to attend to complicated deliveries because they are at their private practices. This private-public dualism is becoming more of an issue for Indonesian policy makers because of high absenteeism rates within the public sector.

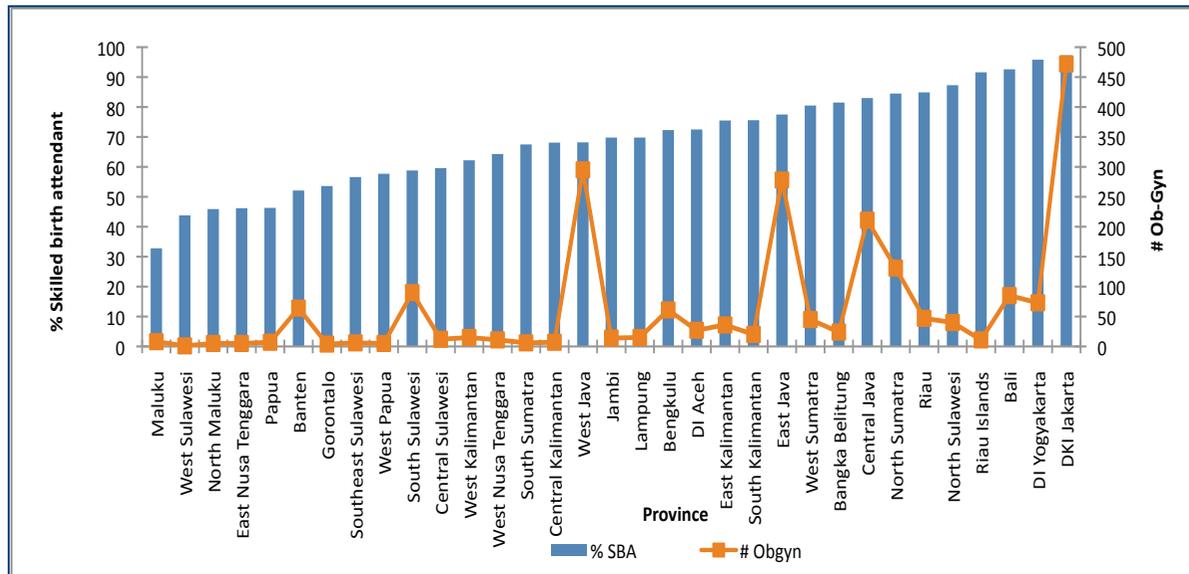
Figure 4-4: Type of Service Provider Attending Delivery (1987-2007)



Source: IDHS 1987-2007.

There is little correlation between the number of obstetricians and the overall percentage of births attended by a skilled provider (Figure 4-5). For example, West Sulawesi, with only one obstetrician, nonetheless has 43 percent of its population delivering with skilled providers.

Figure 4-5: Percentage of Births Attended by Skilled Providers vs Number of Ob-Gyns



Source: Percentage of Skilled Birth Attendant: IDHS 2007; Number of Ob-Gyn: KKI 2007.

At one time the Indonesian Society of Obstetrics and Gynecology (POGI) piloted a program called “Gynecoid” which was a six-week intensive course in obstetrics for family practice doctors to better equip them to deal with emergencies. However, the license to practice was linked to being in a remote area and doctors were not legally allowed to use their expanded practice skills if they moved into an area served by gynecologists. This program was disbanded in 2005 but the MoH recently issued a policy directive that allows family practice doctors to provide emergency obstetric care in remote areas if there are no specialists available. In another new policy directive from the ministry, hospital-based training of specialists is designed to increase the number of specialist physicians, including the number of gynecologists. They will, however, not enter the workforce for at least another two years.

4.1.3 Nurses

Nurses are the largest segment of the health workforce in Indonesia although estimates of their numbers vary widely. The professional organization PPNI, or *Persatuan Perawatan Nasional Indonesia*, maintains that there are almost 800,000 (personal communication, Ibu Tini, Jan 27, 2009) but the National Institute of Health Human Resources Development and Empowerment indicates that there are 308,306 nurses. The majority of nurses (60 percent) are educated only to the SPK level, 39 percent have a diploma (D3) and 1 percent are university graduates (S1); these latter two groups typically move into teaching nursing soon after completing their SPK training. This means that nurse educators have little clinical experience in the field and that the majority of direct clinical care is delivered by the least-qualified nurses. There appears to be little differentiation between clinical roles of nurses with different educational qualifications (Hennessy, Hicks, Koesno, 2006).

Nurses are “often the only health workers in remote and poor rural areas and end up carrying out services and medical treatment for which they are neither trained nor allowed to perform under the Medical Practice Act” (World Bank 2009). IBI is at odds with the professional nurses’ organization, PPNI, because of their perceived encroachment onto the historical practice domains of IBI. In a case study in Yogyakarta (Widyawati 2002), nurses were found to be providing maternity care. Of approximately 2,900 nurses in DI Yogyakarta, some 300 are in Yogyakarta city. In the study, 50 of these

were operating private practices and, overall, 10 percent of the nurses in the province were operating private practices illegally. Seventy percent of these were providing prenatal care while an unknown percentage were also helping with labor and delivery.

4.1.4 Facilities

The need to treat obstetrical emergencies emphasizes timely attendance at a facility which can deliver the appropriate clinical care. The use of facilities for delivery has increased over time. Over the five-year period prior to the 2007 survey (IDHS 2007), 46 percent of women used a facility, with the majority of these (80 percent) in private facilities, including the clinic of a private midwife. Increased use of facilities for delivery since the 1986-89 IDHS have also reflected the preference for private facilities. Under current government definitions, facilities include:

- *polindes* (village delivery posts—often the home of a village midwife);
- *puskesmas* with beds;
- private midwifery clinic;
- hospitals, including general, specialist, religious, military, private and public facilities; and
- NGO facilities (very rare, but found in Bali and South Kalimantan).

While most facility-based births are in the private sector, those with severe obstetric complications are typically seen in public sector facilities. The percentage of admissions with near miss¹² or maternal death is far higher in the public sector facilities (only 9 percent of near miss and 1.6 percent of the maternal death cases were in private facilities). Vascular dysfunction, measured in terms of blood units transfused, hypovolemic shock, or massive hemorrhage, was the major problem in the near-miss cases.

The number of facilities does not, in isolation, indicate the capacity for treatment—with medical equipment and supplies a significant determinant of quality of care provided. A study in NTT interviewed 477 midwives operating at either a government community health center or at a *polindes* (AIPMNH-NTT 2008). Only 10 percent had a sterilizer, 10 percent had resuscitation equipment and 61 percent had a midwife kit while 89 percent had a delivery kit. In addition, project reports from the child health sector have found facilities often have stockouts of drugs (including tetanus vaccines) and other basic consumables—such as gloves and cotton gauze. The World Bank's Workforce Study (forthcoming) found that only 54 percent of private midwives had Hepatitis B in stock, and 16 percent did not have an internal water source.

In a 2004 study by the Kuningan District Health Office (MNHP 2004), 80 percent of the midwives interviewed did not have the magnesium sulphate (MgSO₄) supply recommended by the MoH. Yet another study (Setiarini et al 2003) found incomplete supplies of emergency drugs and equipment in EONC facilities in 36 health centers in the Serang district of West Java. Not all the health centers had emergency resuscitation equipment for newborns. Diazepam was missing in eight facilities and MgSO₄ in 27 of the facilities.

Bappenas has set a standard that for every 500,000 population, there should be one CEONC facility and four BEONC facilities¹³ in accordance with WHO standards. However a national profile on hospitals issued by Binkesmas shows there is great variability. Papua has no BEONC or CEONC facilities per 500,000 while Jakarta has only half the number of desired BEONC facilities (2.3 per 500,000) but five times the number of CEONC facilities (1 per 100,000). Of the data presented on 27 provinces (Hermiyanti 2008), only four had the appropriate ratios of CEONC and BEONC facilities to population. In 2007, 165 hospitals out of the targeted 235 hospitals had CEONC in place.

¹² Near –miss is the term used to refer to severe maternal morbidity that should have resulted in death but did not. At present, there is not a standardized definition but a working group within WHO is discussing it.

¹³ CEONC: Comprehensive Emergency and Obstetric Neonatal Care. BEONC: Basic Emergency Obstetric and Neonatal Care.

In Indonesia, there are 1,033 general hospitals which can serve as centers for emergency obstetrical treatment. Of this number, 13 belong to the MoH, 388 are operated by the districts and provinces, 110 are owned by the police and military, 71 belong to other government institutions and 451 are privately owned. Besides the general hospitals, there are 288 specialty hospitals, including 57 maternity hospitals and 74 maternal and child hospitals (MoH 2008).

A quality of care study in 10 hospitals in Yogyakarta by the Badan Mutu Pelayanan Kesehatan or BMPK (Health Service Quality Agency) found that many of the hospitals did not adhere to CEONC criteria. Among the findings:

- in the emergency room, staff were not trained in the appropriate emergency maternal health interventions and did not have adequate midwifery staff coverage over the 24 hour period;
- the system for receiving referrals was not clear or orderly;
- there was no reporting mechanism in place to report to the dinas (district health agency) from the hospital; and
- blood supply within the hospitals was problematic.

4.2 Maternal Health Finances and Insurance

The World Bank has recently completed the Health Public Expenditure Review (World Bank 2008) and also the Indonesia Health Financing Study (Rokx et al 2009), both of which offer a detailed picture of health expenditures in Indonesia. The following section only summarizes economic issues associated with maternal health.

The macro finance picture for maternal health in Indonesia shows significant areas where existing systems do not support optimal program structures. Among the issues identified by a health financing group at Gadjah Mada University in Yogyakarta include:

- **excessive reliance on central level budget funds for MNH program implementation.** This lack of diversity leaves MNH programs vulnerable to external shocks, such as when the central budget had to be re-aligned because of oil pricing supports;
- **inefficient channeling of allocated funds.** Fund disbursement can be too late in the year resulting in districts not having enough time to spend the funds or inability to fund planned programs. As of August 2009, the central level budget for MNH had not yet been distributed even though it was planned for a January distribution;
- **low absorption of funds into the province and district budgets.** In 2006, Ministry of Health data showed that West Papua, one of the poorer provinces in Indonesia, only spent 46.3 percent of its budget (personal communication, Laksono, October 2009); and
- **limited ownership at the district level for the provision of MNH funds because of a reliance on the central government.** One of the paradoxes in Indonesia is that the government has recognized the need for increased funding for maternal health and has allocated special funds. As a result, district governments have reduced allocations, resulting in an overall stagnation of funding levels. In addition, even in areas where the district government has made a political commitment to increased funding for maternal health, such as Bogor in West Java, the allocation of the funds is such that there has not been a discernible positive impact on reducing the MMR.

4.2.1 Service Charges and Costs

The fees for services related to maternal health care vary according to the province and the class of services provided. Under a 2007 initiative, the MoH began a system of Indonesia Diagnostic Related Groupings that was to provide some parameters for allowable costs at all facilities. For a normal delivery, they set allowable costs ranging from US\$70 at a Class C hospital to US\$154 at a Class A hospital. For a Cesarean section, the costs range from US\$128 at a Class C hospital to US\$282 at a Class A hospital (Pujiyanto 2009). Table 4-1 summarizes the widely divergent costs for deliveries across facilities. For a normal delivery that had severe complications, Nadjib et al (2006) found costs ranged from a minimum of US\$9 at Pandeglang hospital to a maximum of US\$896 at Serang hospital.

Averaging the three data points, a cost for a normal delivery was US\$111, which exceeds by more than US\$40 what the local government has allotted for a normal delivery at a Class C hospital.

The charges for C-sections show even greater discrepancy; the average for a C-section is US\$423, which is 1.5 times greater than what the government allocated for C-section at a Class A hospital and almost 3.4 times greater than the allocation for a C-section at a Class C hospital. Analyzing the data above found that the costs for drugs and services were the largest proportionate contribution to the overall fee. Services included administrative fees, laboratory fees, consultations and, when appropriate, fees for the use of an operating room.

Table 4-1: Summary of Inpatient Costs at Different Types of Facilities¹⁴
(All Costs in US Constant Dollars)

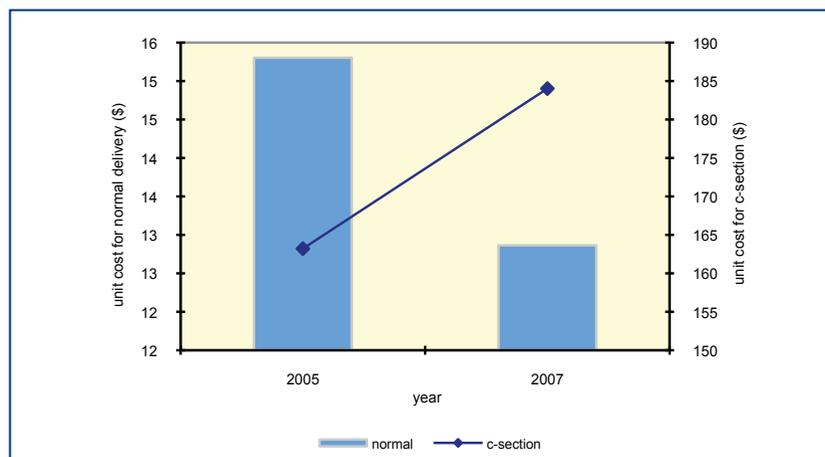
Facility	Type of Service		
	Normal Delivery	Normal Delivery With Complications	C-Section
Pandeglang Public Hospital			
Min	\$31	\$9	\$247
Max	\$229	\$351	\$595
Average	\$82	\$169	\$340
Serang Public Hospital			
Min	\$41	\$109	\$251
Max	\$204	\$896	\$848
Average	\$89	\$354	\$435
Kencana Military Hospital			
Min	\$61	\$113	\$265
Max	\$446	\$402	\$856
Average	\$163	\$275	\$494
IND-DRG Guidelines			
Class C	\$70	1	\$128
Class B	\$117		\$216
Class A	\$154		\$282

Source: Pujiyanto (2009) and Nadjib/IMMPACT (2006).

In a 2008 presentation, the MoH indicated the prior health insurance scheme for the poor had paid US\$5,730,659 for 374,468 deliveries in 2005 for an average cost of US\$15.30. This rose to US\$7,534,396 for 585,711 deliveries in 2007, which had reduced the per delivery cost to US\$12.86 in 2007 (Figure 4-6). They had also paid just over US\$204,666 for 1,254 C-sections in 2005 (US\$163 per C-section), while in 2007 they had paid US\$1,037,344 for 5,637 C-sections, an increase in the average cost to US\$184 per C-section (MoH 2008b).

¹⁴ To convert to dollar costs, the Bank of Indonesia average monthly exchange rate for the year was used. For 2006, the exchange rate was IDR8,408 to US\$1. In 2008, it was IDR9,626 to US\$1.

Figure 4-6: Change in Unit Cost Reimbursed by Askeskin/Jamkesmas for C-Section and Normal Delivery (2005-2007)



Source: Pujiyanto(2009) and Nadjib/IMMPACT (2006).

Among the policy issues evident in the structuring of fees are the following:

- **variability of fees depends on the province and district.** This can depend on gross budget allocations for health from the government and whether there are donor programs active in the area that are focusing on health systems and maternal health;
- **there is a lack of transparency in the fees charged.** Consumers are unable to plan on allocating household resources for payment of fees because there is no uniformity in the fees charged. It can vary depending on who is on staff at the facility and whether some of the services are procured out of the facility (such as the purchase of medications); and
- **payment options vary.** Some private midwives do not accept insurance of any kind and operate on a strict cash basis, others accept payment over time and still others will do payment in-kind for part of the fees.

4.2.2 Provider Reimbursement

Under *Jamkesmas*, re-imbusement to a midwife for normal deliveries varies from US\$16 in Sulawesi to US\$25.50 in West Java and US\$27.70 in NTB. There is also an additional small re-imbusement for transportation, approximately IDR10,000 to IDR15,000, or a little over US\$1.00 (Bappenas 2007). In Yogyakarta, re-imbusement for a normal delivery at a private midwifery practice currently ranges from US\$36.80 to US\$46.30. Midwives interviewed for this study stated that this was an appropriate fee and covered all their costs. The primary issues they faced were extended re-imbusement time frames between four to six weeks and no re-imbusement if they managed the delivery but ultimately referred the client to a facility.

Acceptance of *Jamkesmas* by private providers varies depending on location. Many midwives in Banten province do not accept insurance. On the other hand, a recent focus group in Yogyakarta found that all the midwives interviewed—including those providing only private services—accepted *Jamkesmas* (Chee et al 2009). Re-imbusements between providers, when referral takes place, varies. Some hospitals share re-imbusements with midwives when the latter refers a woman to the hospital. Some midwives, however, do not get any re-imbusement for their time spent assisting in delivery while the hospital where the child is ultimately born does.

4.2.3 Government Social Health Insurance Schemes for the Poor

Indonesia has had various programs during past decades to deliver free or subsidized health care to the very poor, the poor and the near poor but the programs have always suffered from low utilization. Of the 16.7 percent of the population that were classified as poor in 2004, only 8.6 percent used the existing health scheme for the poor. That same year, of those who were in the program, only 41 percent used it for inpatient care (Kosen 2009). Another 2004 study done in West Java (Nugraheni et al 2004), however, found no difference in utilization of skilled birth attendants between the poor and the near poor, both groups which had access to subsidized care. Instead, the researchers found that cost of transportation and longer distance to the facility, rather than their economic status, were barriers to accessing care for the study groups.

Since the change over from Askeskin (Health Insurance for the Poor), the number of beneficiaries has increased from 36.1 million in 2004 to 76.4 million in 2007. Utilization has begun to increase: the bed occupancy rate in Class C public hospitals is almost 90 percent and hospital admissions (for all illnesses) increased from 562,167 in 2005 to 2,413,139 in 2007 (Mukti 2008). A number of new features were introduced under *Jamkesmas* including:

- the use of block grants to the *puskesmas* level;
- the use of outside verifiers under the management of the district health services; and
- a focus on reducing the maternal mortality ratio.

However, there remain OOP costs associated with inpatient care, such as the use of a medication that is not on the *Jamkesmas* formulary. In interviews with *Jamkesmas* clients in Yogyakarta, researchers found that clients were very concerned about the OOP expenses they would incur during hospitalization. Concern over costs that are not covered is often cited by consumers as one of the contributing factors to their reluctance to use this system (personal communication, Thabrany, May 12, 2009).

In addition to national SHI programs, there are regional health insurance plans. These are designed to provide subsidized services to the near poor who might not qualify for *Jamkesmas* or to provide coverage for the poor who have not enrolled in *Jamkesmas*. Some of the provincial and district schemes are described in Box 4-1 below.

Box 4-1: Provincial and District SHI Schemes

In Yogyakarta, *Gerakan untuk Kesejahteraan Balita* (GARBA) began in August 2008. As of February, 2009 there were approximately 104,000 children under the age of five and pregnant women who were receiving program services. Private midwives can provide care after determining that the clients are eligible for services. Their reimbursement for antenatal care and delivery is similar to that of *Jamkesmas*; they receive approximately IDR350,000 to IDR400,000 for a delivery.

Because only 48 percent of the eligible population were covered under *Jamkesmas*, the South Sumatra governor has initiated a program called *Berobat Gratis* which is designed to fill in the gaps. However, the program has limitations and conditionalities. Clients must be referred for services by a primary provider and the primary care sites are the public sector; services rendered by a private provider must still be paid for as OOP expenses. Other programs can be found in Kota Balikpapan in Kalimantan; Jembrana, Bali; Sinjai, Sulawesi and in Purbalingga, East Java. The East Java program uses a differentiated premium subsidy depending on income and has increased the utilization of overall primary care services (Mukti 2008).

In addition to SHI schemes, different pilot programs have tried to address utilization in other ways. One pilot program that operated in ten districts in East and Central Java provinces, focused on stabilizing the incomes of midwives (performance-based contracting) coupled with demand creation (issuing of coupon books) that have had promising results but which have not been institutionalized at the national level (Menelaws 2000). Other programs, such as the pilot capitation program in Tabanan, Bali (JPK-Gakin) had more mixed results. In that program, the heads of the *puskesmas* were pleased they no longer had to do the administration for the program, including deciding who qualified as poor. One study found, however, that “although the JPK-Gakin scheme does secure the *right* of the poor to get medical treatment at the hospital, it cannot secure the *actualization* of it” (Arifianto et al 2005).

Conditional direct cash transfers have also been developed as a means to target the poor, in particular pregnant women. In 2007, 6.5 million households with pregnant women received US\$87.50 annually per pregnant woman. The average amount per household was US\$153 (depending on the number of young children). These funds were disbursed only as long as certain health indicators were met, including four prenatal visits, using iron tablets during pregnancy and delivery with a trained professional. This policy raised concerns about mistargeting and whether qualified citizens were incorrectly excluded (ILO 2007).

These pilot projects and continued reform of insurance mechanisms indicate that Indonesia has yet to find the appropriate formula where cost is not a barrier to access, while at the same time allowing for fair compensation to providers.



Section 5: Utilization of Services



Section 5: Utilization of Services

Indonesia has invested significant resources in increasing the percentage of deliveries attended by skilled providers. A high level of skilled birth attendance is a prerequisite to achieving MDG 5. The initial concept of village midwives focused on their placement as a way of improving access to skilled birth attendants. However, over time, their basic role has expanded and they now also deliver three other key services, including immunization, family planning and curative care. There exist no national figures for overall utilization of village midwives for delivery but project-specific data from around the country indicate a similar underutilization for delivery services.

Various studies on the workload of village midwives has found widely divergent rates of deliveries per midwife across Indonesia. Several studies found delivery rates averaging around three to four babies per month (UNICEF 1997, Daly et al 1998) while, on the other hand, a *Depkes* study (1998) found that in East and Central Java, 25 percent of BDD midwives attend six or more deliveries per month. Ten years later, those numbers remain approximately the same. A 2008 data analysis from NTT revealed that, on average, one village midwife assisted with 30 deliveries during the year, or less than three per month. From a group of 330 midwives surveyed, 59 percent assisted at fewer than 25 deliveries within the year (AIPMNH-NTT 2008).

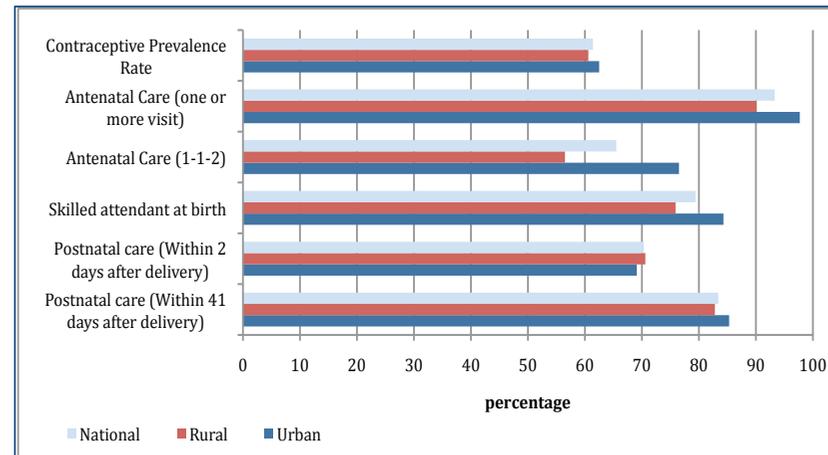
In a comparison of obstetricians and midwives, Makowiecka et al (2007) concluded that the latter were underutilized. Given the total numbers of midwives available and total estimated number of births, each midwife could average 45 births per year outside Java/Bali and about double that in Java/Bali (2006 data) and still cover all births. Makowiecka's study found that an optimal annual workload for an obstetrician is between 100 and 125 normal deliveries a year. If this figure were applied to Indonesian midwives, it would confirm that they are underutilized. The risk is that their capacity to manage complications and recognize the need for referral may be compromised because they come across these situations so infrequently.

The density of coverage of midwives and their length of service also affect utilization rates. The IMMPACT article on midwifery provision and uptake of maternity care found that in the study site one-third of women living in villages with a density of two to four midwives per 10,000 population gave birth with a health professional, while only 23 percent of women did so if they were living in villages without a midwife (Achadi et al 2007). Utilization of a midwife can increase over time, as the community develops a trust in her skill levels. One finding from recent research suggested that there was a positive correlation between the use of a health professional for birth with the length of stay of a village midwife in her village, increasing significantly between one year and more than five years (Makowiecka et al 2007).

5.1 Continuum of Care

There is variability in the continuum of care—while there is almost universal coverage for antenatal care, this declines for delivery with a skilled provider and is even less for postnatal care within the two days after delivery (Figure 5-1).

Figure 5-1: Continuum of Care



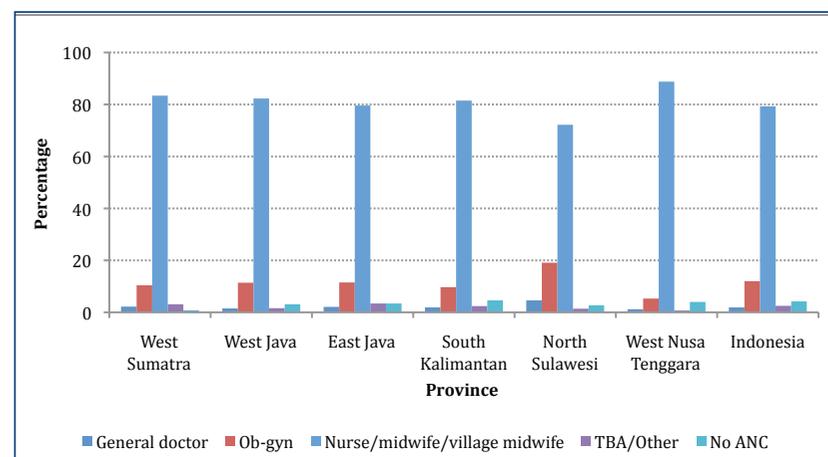
Source: IDHS 2007.

5.2 Antenatal Care

Antenatal care remains an important element in good pregnancy care as it has a role in the early detection of complications, (such as increasing hypertension and treating anemia, a factor in hemorrhage). According to the 2007 IDHS, for their last birth in the five years preceding the survey, 93 percent of women received antenatal care from a trained provider. The IDHS indicates that 77 percent of women were given iron supplements during pregnancy but how many of those were consumed is not calculated even though compliance is known to be an issue with iron tablet distribution.

In a six province study, the authors found that in West Java, 11 percent of antenatal care visits were conducted by Ob-Gyns compared to 83 percent conducted by midwives. In NTB province, 5 percent of antenatal care was conducted by Ob-Gyns versus 89 percent of visits being conducted by midwives during the year 2004-2007. Interestingly enough, this same study found that general physicians were significantly less used for antenatal care than specialists (Atmarita 2005).

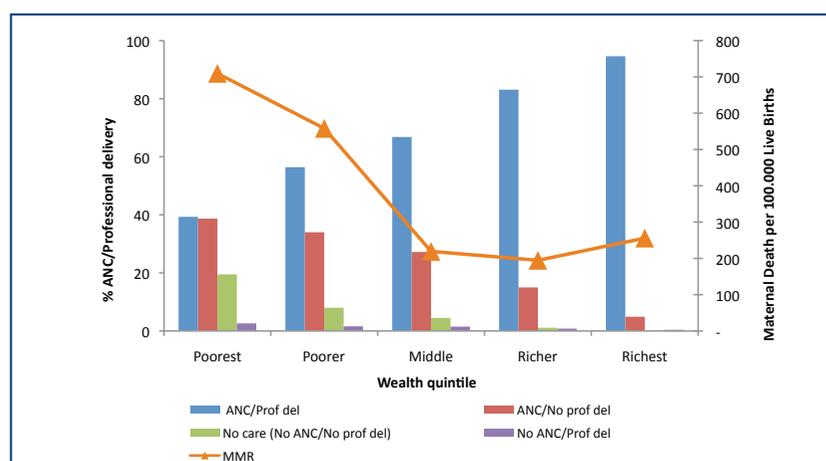
Figure 5-2: Antenatal Care by Health Professional (2007)



Source: IDHS 2007.

In Figure 5-3, among the poorest quintile, almost an equal percentage of women did and did not use a service provider for delivery although both groups had antenatal care. In the next quintile, where approximately 90 percent received antenatal care, almost sixty percent then went on to deliver with a skilled birth attendant.

Figure 5-3: Uptake in Antenatal Care/Professional Delivery and Maternal Mortality by Wealth Quintile in Indonesia

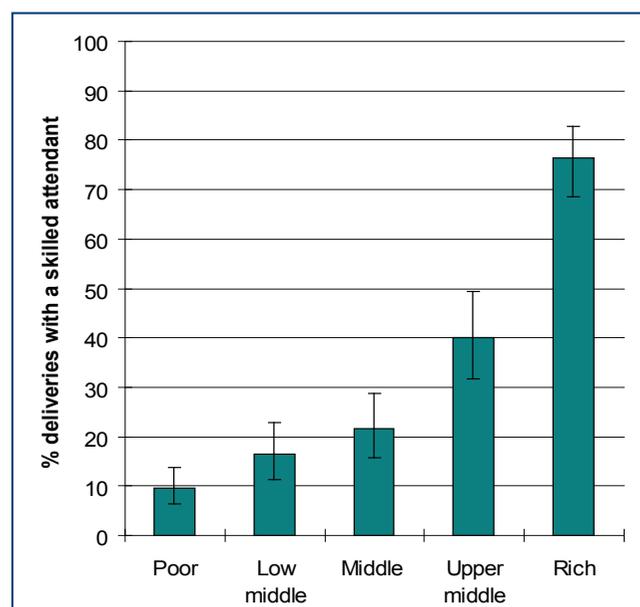


Source: Maternal Mortality Rate by Quintile was from Graham et al (2004) and IDHS (2002-2003).

5.3 Use of Skilled Providers at Birth

A paper that examined IDHS data from 1991 to 2002, noted skilled attendance at birth was 69 percent with the poorest two economic quintiles registering the greatest gains at 11 percent per year (Hatt et al 2007). Interviews with MoH staff on the current situation support this; they noted that the most significant gains in births attended by skilled providers continues to be in the lowest quintiles and the disparity between the rich and the poor is narrowing. However, in Figure 5-4 below, IMMPACT data from Serang and Pandeglang shows that the highest quintile is almost seven times more likely to deliver with a skilled birth attendant than women in the poorest quintile. The researchers found the poorest quintiles still register the greatest maternal mortality rates, estimating maternal deaths at 706 per 100,000 live births in the poorest quintile in those two districts.

Figure 5-4: Difference in Percentage of Deliveries with a Skilled Attendant by Wealth Quintile in Pandeglang and Serang, Banten Province

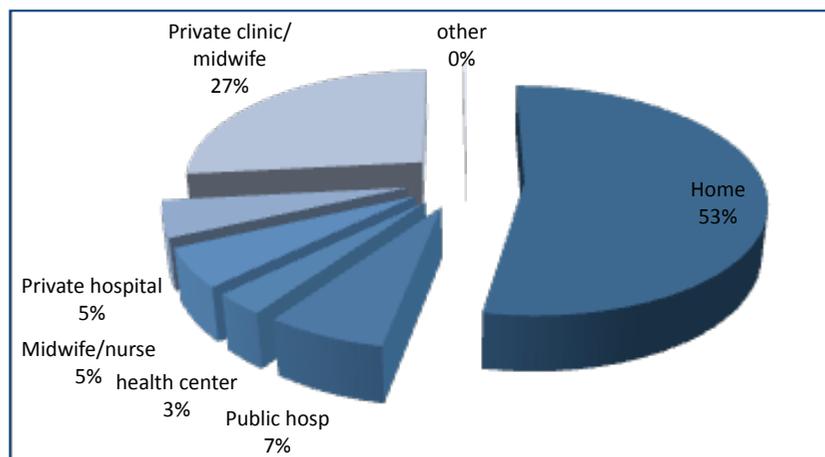


Source: IMMPACT (2003)

For Banten province overall—which includes the Serang and Pandeglang districts—74 percent of women delivered by a health professional according to the 2007 IDHS. However, this number hides intra-province and district discrepancies, which the IMMPACT analysis uncovered. For example, for those women who lived in villages less than five kilometers from hospitals, 66 percent delivered with a skilled attendant. For those women who lived more than 60 kilometers away, only 9 percent delivered with a skilled attendant. IMMPACT data would indicate that the poorest still deliver at home, delivering in a hospital only because of the referral for complications. There is also a split in urban versus rural rates, with 76 percent of rural women delivering at home.

The data on women who accessed these skilled providers can also be disaggregated. Nationally, most women still deliver at home, followed by delivery in a midwife's home. According to the 2002 IDHS, 40 percent delivered in a facility. This has increased to 46 percent in the 2007 IDHS. In the 2002 IDHS, government facilities accounted for 9 percent of the births, with an additional 5 percent in the village midwife's home. Private facilities accounted for 31 percent with all other births occurring in the home. In the 2007 IDHS, public facilities accounted for 10 percent of the births, private facilities accounted for 36 percent and all other births were in the home.

Figure 5-5: Place of Delivery (2007)



Source: IDHS 2007.

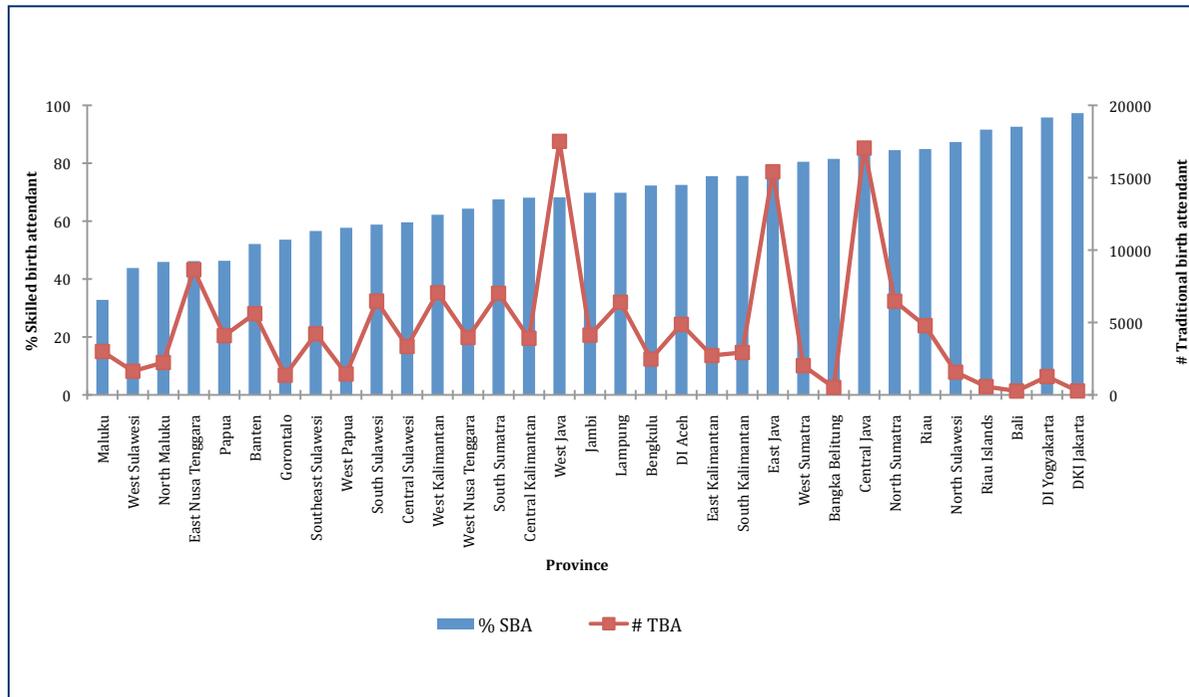
Changes in the number of TBAs is also a factor in the increased use of skilled birth attendants. In the provinces with the fewest number of TBAs, the percentage of births by skilled attendants is the highest (Figure 5-6). It is interesting to note that the three provinces with the highest number of TBAs (East, West and Central Java) still average 76 percent of births attended by a skilled provider. This is a possible reflection of the current national policy which encourages a partnership between the midwife and the TBA, in recognition of the continued important cultural role TBAs have in the birth process in Indonesia.

Box 5-1: ...and then she died

Ibu D was a 40 year old housewife with an elementary school education who was expecting her tenth baby. All her previous children had been born full-term, at home, with the help of a TBA. The birth intervals between her children were between two to four years. She received her first antenatal care when she was just two months pregnant, having gone to a private practice. The remainder of her care she received at the *posyandu* in her village. The TBA helped her deliver the baby spontaneously after three hours of labor but became concerned when she could not deliver the placenta and Ibu D had soaked through three cloths with blood. The family called for the midwife, who was able to deliver the placenta manually but who still thought the patient should be referred to a hospital because of so much blood loss. However, the family members didn't think they could make that decision because her husband was not home. He came home within a short while, recognized the gravity of the situation and organized transportation. She was transported to a nearby hospital and a midwife worked for two hours trying to stop the bleeding. Just before midnight, the bleeding worsened and then she died.

The MoH has not yet created a formal policy instrument that encourages facility deliveries but acknowledges it is an upward trend. The ministry expects that the increase in use of facilities will be primarily registered within the private sector and in urban areas first, before rural women who rely on government services make the shift to delivering at facilities (personal communication, Dr. Lukman, Depkes, April 2009). According to current policy, the definition of facility includes a puskesmas with beds, a private midwifery clinic and any hospitals.

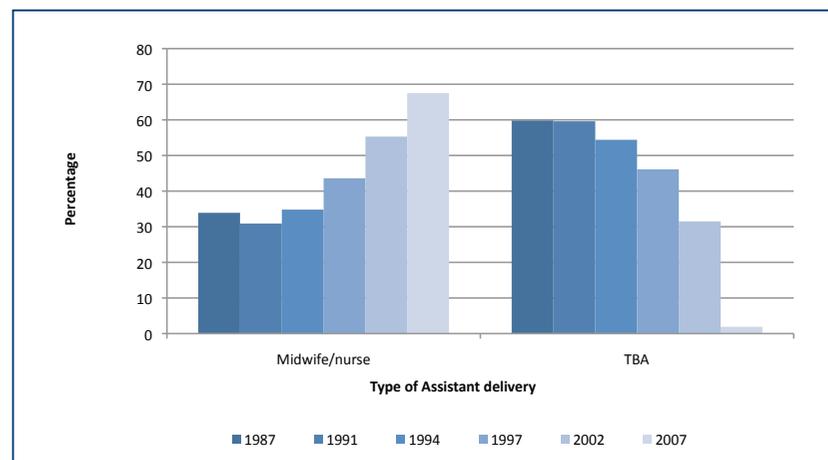
Figure 5-6: Percentage of Skilled Birth Attendant vs. Number of TBA (by Province)



Source: Percentage of Skilled Birth Attendant: IDHS 2007; Number of TBA: Survei Potensial Desa (PODES), 2008, World Bank staff calculation.

Indonesia has successfully made the transition from a reliance on TBAs for delivery to the use of the skilled provider. However, there are differences in the regions. During recent field work, in Cianjur district in West Java, 85 maternal deaths were recorded for 2008 and 84 of those had been deliveries assisted by a TBA (Chee et al 2009). Figure 5-7 below shows the transition from TBA to use of skilled provider for delivery over time.

Figure 5-7: Birth Assisted by Midwife Versus TBA (1987-2007)



Source: IDHS 1987-2007.

Box 5-2: Traditional Birth Attendants

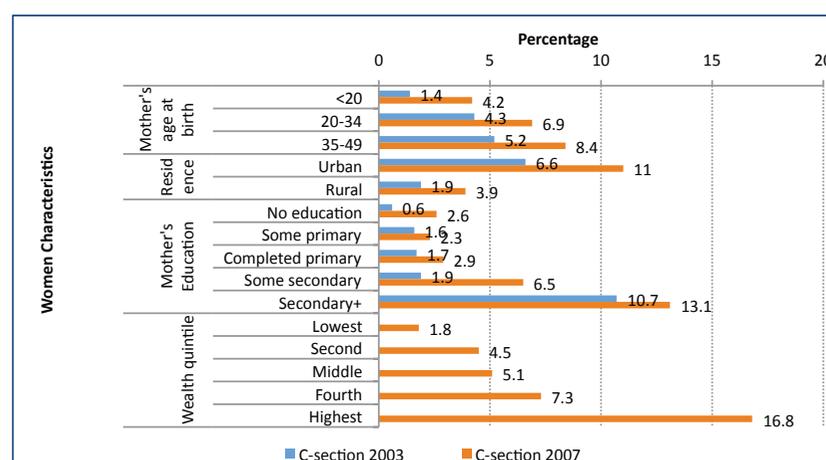
Forty percent of Indonesian women still deliver with TBAs (UNICEF 2008a). The government considers this on-going use of *dukun bayi* as one of the significant contributing factors to the continued high maternal mortality ratio. Women state they prefer to use TBAs because they offer a full range of services, including massage after the birth, cleaning the home and looking after other children. Although TBAs do charge less than trained midwives, economic considerations do not appear to be as compelling as cultural comfort as the paramount motivation for their enduring place in delivering babies. During the last four decades, as Indonesia has struggled to reduce maternal mortality, the government has used a wide range of approaches to mitigate the use of TBAs. The government no longer provides skill training to TBAs, after global research indicated this approach did not realize any gains in reducing maternal mortality. Currently, the government and other donors are pursuing two approaches. The first is to create a partnership between TBAs and the midwives. This partnership can include remuneration or simply public acknowledgement. UNICEF is piloting this approach in Sulawesi. The UNICEF program acknowledges the cultural imperative behind the use of TBAs, they continue to assist in all the traditional ways however they have turned over the actual delivery to trained midwives. Early results from this approach are encouraging and other districts, such as in Aceh province, are also piloting the partnership approach.

A second approach is to draw children of TBAs into the clinical practice arena. Ford Foundation started an innovative program, in which children of TBAs would receive training as midwives and thus be able to embody both the cultural and clinical within one provider. However, recent field visits to Bogor district in West Java found that children of TBAs had not completed enough basic education to qualify for this program. In addition, Bogor health officials also stated that there continued to be young TBAs practicing. This is different from other districts in West Java where the natural attrition of TBAs dying or leaving their practices has facilitated the shift to the use of trained midwives. Until there is a shift away from demand for TBAs by consumers, it is likely they will continue to have a pivotal role in maternal care in Indonesia.

5.4 Uptake on Cesarean Section and Utilization Patterns

The national C-section rate is an important indicator for measuring access to comprehensive emergency care. This is often the result of a skilled attendant recognizing complications and making timely referral to the appropriate level of service. The normative C-section rate for Indonesia should be a minimum of approximately 5 percent and a maximum of 15 percent (WHO 2008). Data from Indonesia indicate that the population-based C-section rate in the rural setting is 3.9 percent versus 11 percent in urban areas (IDHS 2007). The changes in C-section rates from 2002 to 2007 are disaggregated in Figure 5-8. Essentially, wealthy women with education and who live in urban areas have greatest access to Cesarean birth.

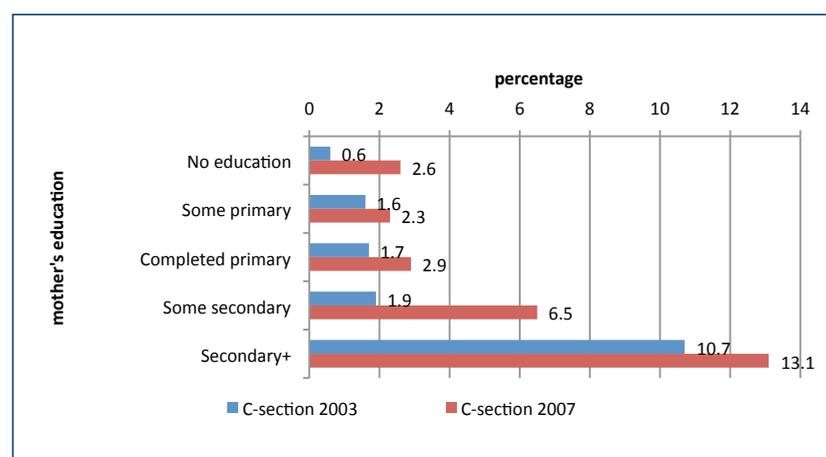
Figure 5-8: Percentage of Deliveries by Cesarean Section



Source: IDHS 2003 and IDHS 2007.

Figure 5-9 below shows that those women with higher educations had a greater percentage of deliveries by C-section. In fact, their rate of Cesarean birth is approaching the upper limits of WHO normative standards.

Figure 5-9: Percentage of Deliveries by Cesarean Section (by Maternal Education Levels)



Source: IDHS 2003 and 2007.

The density of midwives was also associated with increasing numbers of C-sections. In villages with no resident midwives, 0.4 percent of all births were by C-section compared with 3.7 percent in villages with more than six resident midwives (Achadi et al 2007). This discussion underlines how important it is to monitor not only the skilled birth attendant rate but also the rate of C-section, particularly among those women living in poverty, in the rural areas and with lower education levels.

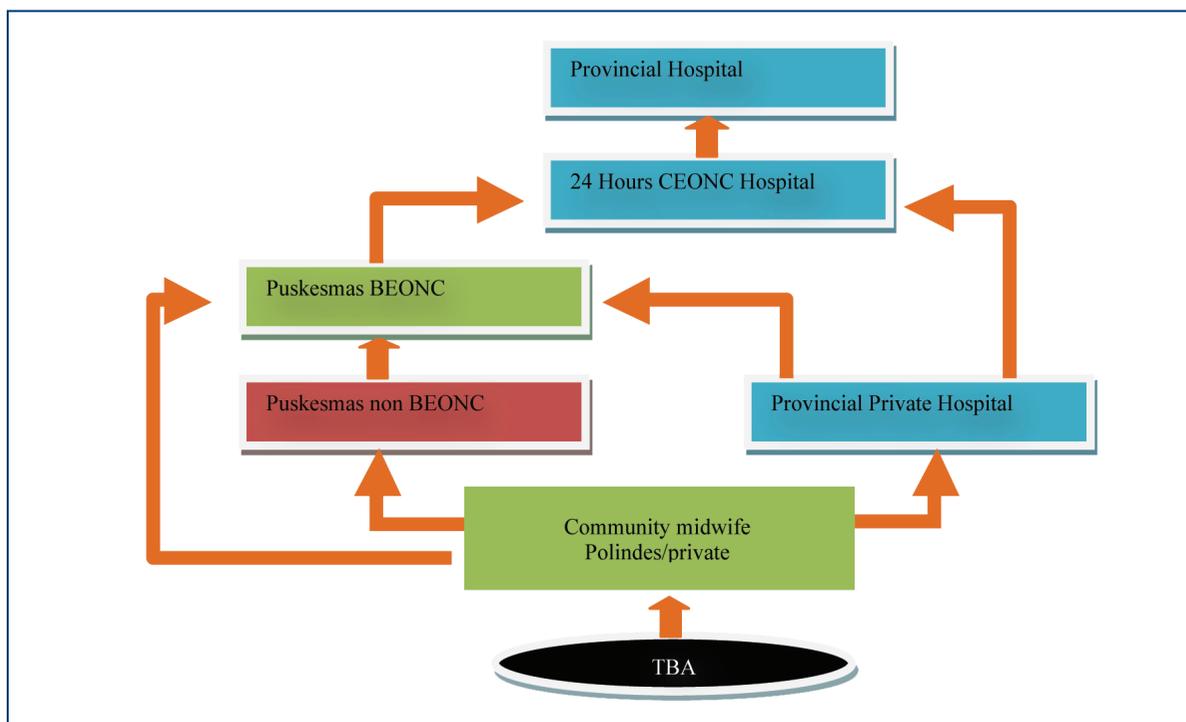
5.5 Referral

The referral system, as set out by government policy, states that individual midwives should first refer a woman to a *puskesmas*, after they have stabilized the patient (Figure 5-10). The *puskesmas* should then at least be able to further stabilize patients before they are referred to a *puskesmas* with

BEONC. A *puskesmas* with BEONC level of care is theoretically equipped to handle moderate complications. BEONC services include the supply of oxytocin, antibiotics, oral and intravenous sedatives; dilatation and curettage for incomplete abortion, manual removal of placenta and vaginal delivery assistance by vacuum extraction (MoH 1998).

The final level of referral is to a district hospital, where CEONC is accessible 24 hours per day, 7 days per week. District hospitals are expected to be staffed with an obstetrician, anesthesiologist, a surgeon and a pediatrician. This staffing, coupled with the availability of surgical suites and blood supply, enables them to deliver comprehensive emergency case procedures such as blood transfusion and C-section, in addition to all BEONC services.

Figure 5-10: Referral System Linkages



The referral system is, however, presently flawed, with particular concerns about services at the *puskesmas* level. A 2008 study by JHPIEGO (Sushanty et al 2008) found concerns among 129 village midwives in Aceh and East and Central Java about referral systems to the community health center because of their perceived lack of ability to handle complications. Field work during this assessment found some traditional birth attendants were referring to other TBAs, which did not provide an increased level of service.

Other limitations within the referral system include:

- **delays in making the referral** on the part of the midwife;
- **referral to a facility that is not equipped to deal with the emergency**, resulting in a loss of critical treatment time; this happened even when cases were referred to hospitals as not all hospitals have the capacity or capability to treat obstetric emergencies;
- **multiple referrals.** In one case study from IMMPACT, a first-time mother was referred to three different providers, each 20 kilometers away from her home, with the family incurring the cost for transportation during each referral. Ultimately, she was found to have experienced

an intra-uterine miscarriage at the third facility, which then transferred her to a fourth facility 70 kilometers away. This time, emergency transportation was provided but she died in the ambulance *en route*, without a service provider or her family near her (D'Ambruoso, Achadi et al 2008);

- **refusal to act on the referral on the part of the family** because of fears of increasing costs;
- **the accepting provider at the hospital does not have the necessary skill level to determine the nature of the emergency;**
- **midwives are not usually present in hospital emergency rooms when patients arrive in extremis;**
- ***puskesmas* doctors have not implemented the appropriate procedures for stabilization** (even those within their purview such as vacuum extraction); and
- **few standardized protocols within the hospital for dealing with maternal emergencies** (MoH 2007a).

In addition to the limitation around utilization, there are also intrinsic institutional flaws that hamper the effectiveness of the existing system. The statistics below show some of the immediate flaws in the referral system:

- eighty percent of national public hospitals have had comprehensive emergency obstetrical complication (CEONC) training but the services are irregular (WHO 2006);
- only 2,499 out of a national total of 8,215 *puskesmas* have inpatient beds. Of those with beds—which is one of the criteria for BEONC—only 1,259 have received training in BEONC (personal communication, Dr. Lukman, April 2009). This is only approximately 15 percent of all *puskesmas* (WHO 2006); and
- eighty percent of 1,215 hospitals¹⁵ have an Ob-Gyn (Hermiyanti 2008).

The current governance of the health system also is a possible contributory factor to the flawed referral system as community health centers and hospitals are now managed by different agencies.

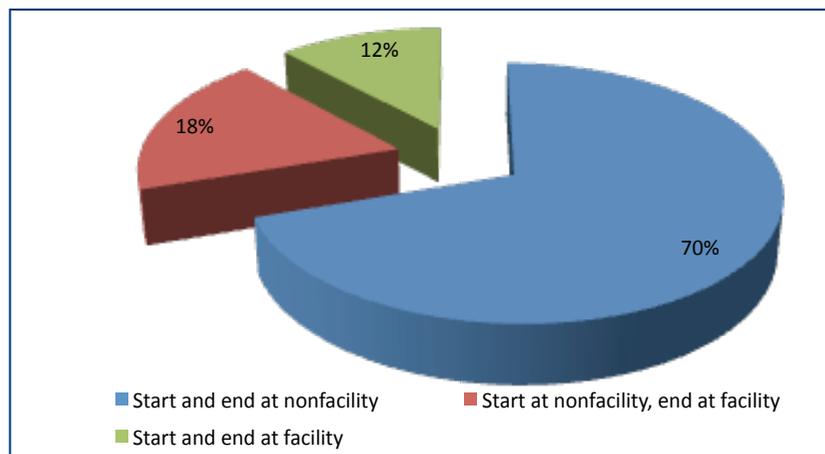
The MoH's Directorate of Hospitals (*Yanmedik*) covers medical care in hospitals and the Directorate of Community Health (*Binkesmas*) oversees community level care (*puskesmas and below*). There appears little communication between the hospitals (including public hospitals) and the health workers at *puskesmas* or BDD at polindes level. Further complicating the situation is that hospitals fall under, and report to, the authority of the local government administration while *puskesmas* report to the District Health Offices. There is, as yet, no systematic routine for ensuring that leadership of hospital and community health services coordinate on resource mobilization and allocation or policies and program implementation.

Some of the flaws in the referral system are illuminated if the data on place and time of death is examined—with fewer deaths occurring in a facility.

The IMMPACT data show that the smallest percentage of maternal deaths were among women who started and ended their labor and delivery in a facility (12 percent) as compared to the 70 percent among women who began and ended their delivery within the home setting (Figure 5-11). Those who began their labor but who ended up in a facility—usually the result of complications—had half again as many deaths as those who had begun their labor in a facility.

¹⁵ This number is higher than the 1,033 national general hospitals because it includes specialty hospitals that are maternity hospitals.

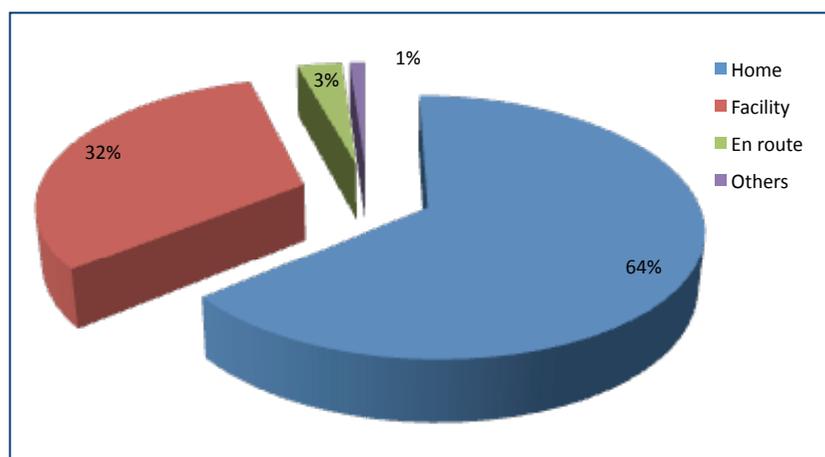
Figure 5-11: Community-related Death Data (by Place of Delivery and Time of Utilization) (Serang and Pandeglang District)



Source: IMMPACT 2004-2005.

Anecdotal evidence from members of POGI cites late referral as one of the primary contributing factors for 20 maternal deaths that occurred in a Tangerang hospital, as the women arrived already in critical condition. In the data from IMMPACT, the largest percentage (64 percent) of women died at home, followed by facilities but 3.2 percent died *en route*, which is related to the referral system (Figure 5-12). In Bantul, DI Yogyakarta, the Maternal Child Health program analyst discussed 25 deaths that have occurred most recently—in 2008 and the first quarter of 2009. Only three were attributable to poor management by midwives. The other 22 deaths were in the hospital and resulted from either late referral or poor adherence to standard protocols within the hospital setting (Abt Associates forthcoming).

Figure 5-12: Place of Death of Pregnancy-related Death (Serang and Pandeglang District)



Source: IMMPACT 2004-2005.

Box 5-3: ...and then she died

Mrs. I was a 20 year old with an elementary school education who was expecting her second child with her 22 year old husband, who worked as a driver. Her first son was born when she was 16 by vacuum extraction at a community health center with the help of an obstetrician. During this pregnancy, she received antenatal care three times, starting at the beginning of her third trimester. She started labor at home and delivered at 3.00 in the afternoon, with the help of a TBA. Half an hour later, alarmed at the significant amount of blood loss, her family called the midwife. When the midwife arrived, she found the patient already slipping into shock and the placenta retained. She started Mrs. I on Ringers Lactate and referred her to the nearest hospital. That hospital refused to accept her as they were unable to deal with the extreme shock so they immediately referred her to another hospital, without any further stabilizing treatment. During this time, she continued to bleed profusely and her shock was worsening. At six in the evening, *en route* to the second hospital, her condition worsened and then she died.

Death can, however, occur at any time during the delivery process. Of the total number of deaths analyzed by IMMFACT, a little over 20 percent of women died antepartum while almost 40 percent died within the first 24 hours of delivery. It is important to note that, in many cases, the midwife only remains with the mother for a limited period postnatally, usually between two to six hours. Thus the referral system needs to be sufficiently comprehensive that it can be responsive in the event of a postnatal complication that needs more extensive intervention.

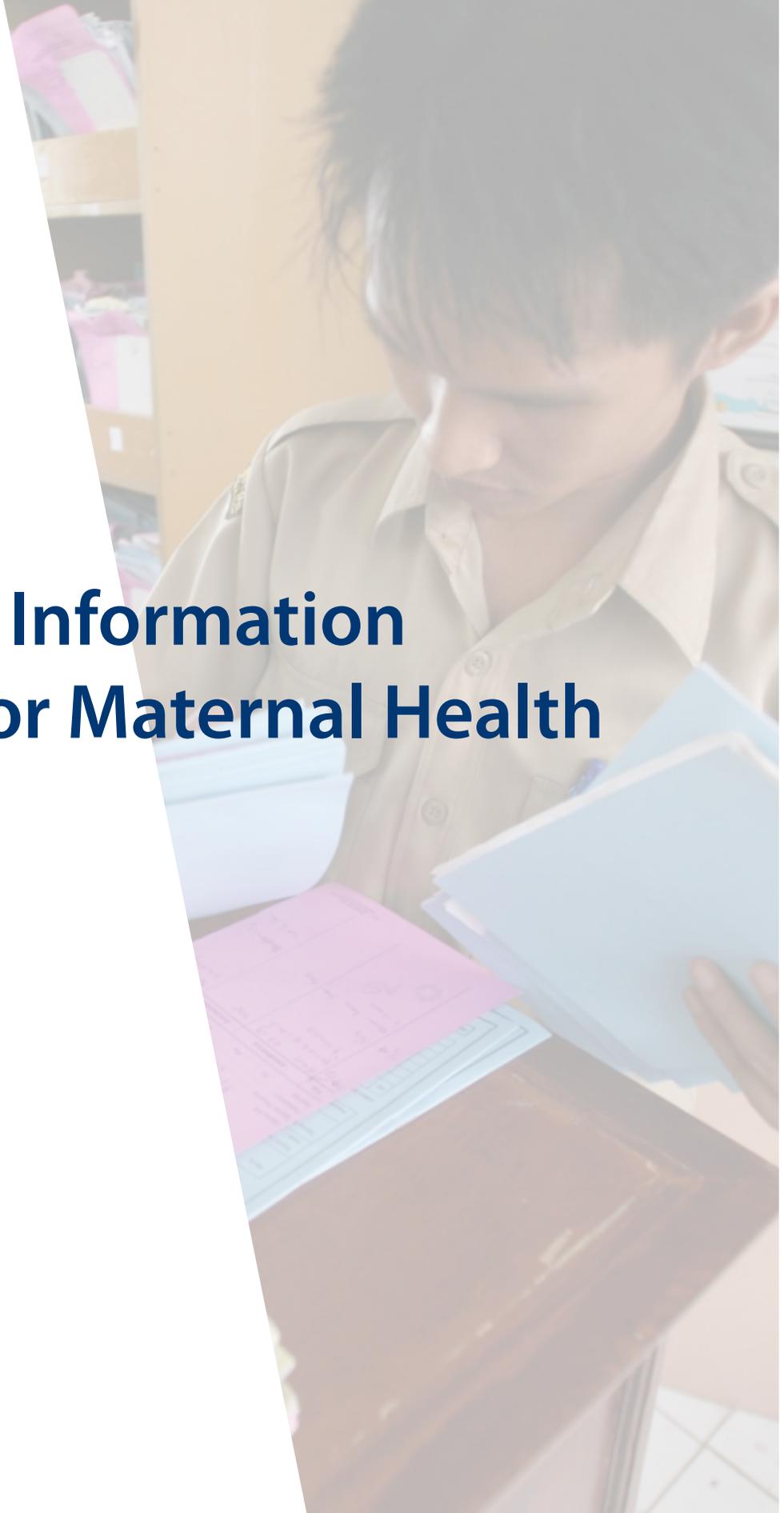
Box 5-4: ...and then she died

Mrs. U was a 40 year old housewife pregnant with her seventh child. Her husband is 45 and works as a teacher. Her last pregnancy had been five years ago but both her fifth and sixth pregnancies had ended in fetal death. All of her pregnancies were assisted by a TBA who had had some training and she delivered all her babies at home. This time, she had been in labor for about 12 hours alone at home when her family called the TBA she had always used. Within half an hour of the TBA's arrival, the baby was born dead and she was unable to deliver the placenta. The family then called for the midwife, who came to the house and used emergency measures trying to stabilize her. Unable to do so, she called for an ambulance, which arrived almost two hours later and which took over an hour to get to the hospital. Once there, the family was instructed to purchase blood as there was an insufficient supply on hand. As they were setting out to buy the blood, Mrs. U's condition worsened and then she died.





Section 6: Information Systems for Maternal Health



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6.1 Reporting and Recording

Data reporting from health facilities in Indonesia is notorious for its lack of validity and accuracy.

Despite government prioritization to improve the system and to develop the human resources necessary to implement a robust health information system, it remains weak. Under decentralization, this already weak system has become even more fragmented. This fragmentation and incomplete databases are currently driving the MoH to re-emphasize routine surveillance as part of its Making Pregnancy Safer strategy.

The need for data is not to be underestimated as “audits for near misses, maternal deaths and newborn deaths can lead to tremendous improvements in quality of care at scale” (Shankar 2008). Accurate accounts of these events are essential and could be aided by registration and tracking of pregnancies at the community level, which is what Indonesia is emphasizing in its current strategies.

The data collection systems in Indonesia are extensive, with the health system collecting data on nine indicators immediately pertinent to maternal health:

1. coverage of antenatal care (ANC)—first visit and fourth visit;
2. coverage of deliveries assisted by health personnel;
3. coverage of obstetrics and neonatal complications addressed;
4. coverage of postnatal and neonatal visits;
5. number of community midwives providing basic delivery care;
6. number of health centers providing BEONC;
7. number of hospitals providing CEONC;
8. number of maternal deaths covered by Health Information System; and
9. the Contraceptive Prevalence Rate (CPR).

In Indonesia, data collection begins at the community level and is captured at a posyandu through village health committees (if they exist), surveys authorized by civil authorities, and private sector providers. This is then aggregated at the village level by the village midwife into reports on program activities, morbidity and utilization rates. These reports get combined at the health center level by the midwife coordinator and are then recapitulated at the district level by the Subdirector for Family Health or Community Health. Hospital data are captured in different forms and sent to a different subdirector.

Forms used at the *puskesmas* also collect a range of population data on birth outcomes. These include number of pregnancies, delivered by whom, any complications experienced, treatment of those complications (for example, the provision of oxytocin and referrals), outcome of treatment (if known), birth outcome of the baby, birth weight (and sometimes Apgar¹⁶ scores). The same data can be recorded in multiple formats—for example a pregnant woman visiting a health center can have her data recorded in the general visit register, the pregnant woman register, the delivery cases register and the cohort register.

¹⁶These are five factors used to evaluate the baby's condition and each factor is scored on a scale of 0 to 2, with 2 being the best score: activity and muscle tone, pulse, reflex irritability, skin coloration, and respiration (breathing rate and effort).

In a recent review of the District Health Information Systems done by the Health Services Project in North Sumatra and West Java (Qomariyah et al 2008), a number of data collection weaknesses were found:

- **varying methods for reporting the information captured by private sector providers to the public health system.** In some cases, private sector midwives report data directly to their professional organization and, in other cases, report to the village midwife;
- **multiple recording of the same data on different forms;**
- **differing understandings of what definitions mean.** For example K4 was thought to be any visit after the second antenatal visit, or an antenatal visit in the last trimester;
- **differing understandings of the definition of a maternal death; and**
- **nonstandardized reporting formats that had been manually altered.**

A significant institutional flaw with recording data is that much of what the private sector does is not adequately integrated into the district-level health information systems. While private midwives report they collect data in their practice and pass it to their catchment area *puskesmas*, doctors do not have such an organized system. In addition, clinical data from referrals is often lost when a client is transferred to a hospital.

Maternal and Perinatal Death Audits remain significant sources of information that are underused by district health offices. During this assessment, audits were collected from Bogor, Cianjur and Bandung. The information on age, parity, cause of death, classification of provider during delivery was easily extracted from the audits and provided an immediate snapshot of trends or patterns. However, none of the district health offices analyzed the audits this way. While individual audits are examined in detail as a learning tool, it is the cumulative information that is more useful for programmatic planning purposes.

In the 2009 data from Bogor on verbal autopsies (see Annex 1), sixteen of the 45 deaths occurred in women who used TBAs as their first provider. Thirteen out of 45 deaths occurred in women who had more than four previous pregnancies. Eleven of the cases were managed by three levels of service, with the woman and family being referred to midwives, private doctors and hospitals. In Bandung, more than one-half of the maternal deaths registered in 2009 occurred when a TBA was the primary provider. The government has used these audits as a tool for almost 20 years but the format is still less than optimal. The form is extensive, requires family input (as it is the midwife who usually fills out the form and if she was not present when the complication arose, she needs to rely on family recall and the cause of death is not always medically verified. Nonetheless, it remains a very important data source that needs greater exploitation.

6.2 Vital Registration

As with many developing countries, the vital registration system in Indonesia is still in an embryonic form. Of the standard empirical measurement tools which include death registration, health facility statistic reporting, censuses, population-based surveys and surveillance, Indonesia uses them all to some extent. The Ministry of Home Affairs (MoHA) is presently conducting a pilot study to register all deaths. MoH is, however, not satisfied that the tool being used will adequately capture maternal deaths.

The MoH is looking at maternal audits and increased community surveillance as tools to capture data on maternal deaths, however, these are not conducted for every death in a facility, nor are they used for a death in the home. Over 200 Maternal Death Audits were reviewed as part of data

collection for this assessment. In all cases, the forms were incomplete and missing key data. They were completed by the midwife involved in the case or occasionally by physicians at the hospital. Most did not include family information, although a few had timelines of action reported by the family. The cause of death was reported by medical personnel but not necessarily based on complete clinical observations. District health officers suggested that reporting was incomplete and that a number of maternal deaths were unrecorded.



Section 7: Conclusions



Section 7: Conclusions

7.1 Summary

The Government of Indonesia and donors have consistently focused on midwives and community-based interventions to address the persistently high maternal mortality. However, the accumulated evidence would suggest that providing midwives alone is too narrow a strategy. Many women who die have been managed by a health professional before death and death can occur antepartum, during labor, delivery or in the postpartum period.

The Ronsmans (2009) study summarized the problem, suggesting “that increasing the uptake of skilled care at delivery is a necessary, if not sufficient, condition for achieving lower levels of maternal mortality, but the word to emphasize here is “skilled”. The persistently high levels of maternal mortality among wealthier women who give birth with a health professional are worrying. Some of these women will have sought care too late for the midwife or doctor to be able to prevent death. However, midwives may not be skilled enough at managing complications, even when women seek help early.”

Box 7-1: The Malaysian Example: A Regional Model for Indonesia to Consider

As Indonesia moves forward and intensifies its program to combat maternal mortality, it can look within the region for successful strategies to adopt. In 60 years, Malaysia has reduced its MMR from 1,085 to 19. Malaysia, like Indonesia, focused on the use of midwives as a core strategy in achieving this reduction. In Malaysia, “midwifery was professionalized through legislation and certification based on stringent training criteria” (Patmanathan et al 2003) and is backed by an active network of nurse supervisors. Although Indonesia has begun to focus on competency and certification, the supervision network and support has been identified as a key element missing in the program.

Maternal death audits are another important tool in Malaysia, “maternal death investigations have been systematized with standard formats and procedures that mandate involvement of supervisory nursing and medical personnel from hospitals and rural health clinics, as well as community leaders.” There is also a national committee that analyzes collated findings on an annual basis (Patmanathan 2003). Audits in Indonesia are not consistently used and rarely does the data collected get used to change protocols. An improved use of the data could help districts interrupt the cycle of death.

The third phase of improvement in Malaysia was marked by shift in focus to “improving the quality of care, including referrals and ... ensuring that available health services were utilized appropriately” (Patmanathan et al 2003). This phase has also been marked by a shift of rural women giving birth in public sector hospitals. The referral system in Indonesia, while developed, is not working strongly (delayed referrals, referrals to inappropriate levels of service) and many women still do not deliver in facilities. As Indonesia pursues strategic changes and a more rigorous application of policy, they might well realize the same improvements in MMR as Malaysia did.

Clearly, midwives alone are not the answer to maternal mortality reduction. Indonesia has not yet identified the appropriate mix of interventions to have the necessary impact to drive down maternal mortality rates. The issues that remain are critical to resolve if Indonesia is to accelerate reduction of maternal mortality. These issues include:

- **addressing the human resource gap.** Underutilization of midwives for normal delivery care and underutilization of family practice doctors for maternal health in general need to be redressed;
- **making emergency obstetric care more available,** particularly for poor women when they arrive at public hospitals. This would necessitate more rigorous implementation of existing emergency obstetrical care policies;
- **enhancing the linkages between the community-based delivery facility (such as a village midwife or a private midwife facility) and hospital services.** The question is how to improve coordination such that the timing of referral, the reception of the referred patient and the time to management is shortened, and the quality of care by the hospital is improved;
- **the quality of care throughout the system, starting with providers and including all types of facilities, is standardized** through accreditation, certification and sanction by professional organizations in order to improve quality; and
- **better utilization of the opportunities present under the national health insurance plan** to develop incentives for providers to attend to the needs of the poor and near poor and improved utilization of the program by eligible clients.

7.2 Proposal for Future Activities

Despite supportive policies and strong political will, maternal mortality in Indonesia remains stubbornly high. To successfully begin to reduce these deaths, there is an emerging consensus that Indonesia needs to make political and programmatic changes to have an impact on maternal mortality.

Four areas identified for priority action, together with suggested policy areas for research, review and implementation are as follows:

- **improving coordination between public and private sector services at provincial and district levels.** Increase research into near miss and maternal death for a better understanding of the local contributing factors. Use this analysis to determine whether factors such as access to SHI, ANC, and place of delivery had an impact on outcome;
- **strengthening coordination between community-based services and hospital services:**
 - improve vital statistics registration, particularly for deaths among women of reproductive age;
 - address the unmet need for access to emergency obstetric care among the large majority of the population; and
 - conduct a hospital assessment for maternal health to identify barriers to care within the facility context;
- **reducing financial barriers to utilization of maternal health services:**
 - review the social insurance coverage amounts to expand what is re-imbursed and to cover the true cost of having a delivery with a skilled provider; and
 - review re-imburement mechanisms in the case of referral upwards to a hospital for complications;
- **improving clinical skills and quality assurance:**
 - improve the quality of the skilled provider, particularly the village midwife by building on existing initiatives (such as *Bidan Delima*) and linking quality of care to accreditation and certification; and
 - look at the implementation of the comprehensive emergency obstetric services to find areas of improvement.





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Annex



Annex 1: Maternal Death Verbal Autopsies

Bogor District (2009)

No	Name	Age	Preg. History	ANC	Time of death	Cause of death	Provider				Procedure	Baby status	Note
							First	Second	Third	Fourth			
1	Ne	29	G2P1A0	6	30 minute post partum	Other causes	Private hospital				Vacuum Extraction	Stillbirth	
2	Tt	28	G4P3A0	3	1 day post partum	Eclampsia	Midwife	District hospital			SC	Well	
3	En	23	G3P2A0	2	8 hour post partum	Post partum bleeding	TBA	Midwife	District hospital			Well	
4	Asr	36	G3P2A0	3	2 hour post partum	Undiagnosed	TBA					Well (twin)	
5	Fat	25	G3P2A0	3	4 hour post partum	Post partum bleeding	TBA	Midwife	Puskesmas			Well	Midwife not available, died on the way to district hospital
6	Ph	20	G1P0A0	1	40 week pregnancy	Eclampsia	Puskesmas	Private hospital	Maternity hospital			IUFD	
7	Rd	21	G1P0A0	3	9 day post partum	Other causes	Midwife					Well	Midwife recommended referral, patient did not go hospital
8	lh	30	G3P2A0	6	4 hour post partum	Post partum bleeding	TBA	Midwife	District hospital			Well	Ob-gyn cannot be contacted at district hospital
9	IS	27	G2P1A0	5	12 hour post partum	Post partum bleeding	Private hospital				SC	Well	
10	Ul	16	G1P0A0	2	6 week pregnancy	Dehydration	District hospital					IUFD	
11	Mam	22	G1P0A0	3	6 day post partum	Eclampsia (post SC)	District hospital				SC	Well (twins)	
12	A	42	G7P6A0	6	3 hour post partum	Eclampsia, bleeding	TBA	Midwife	Private hospital		Vac Extr	Well	
13	Nan	42	?	?	2 hour post partum	Post partum bleeding						Stillbirth	No assistance during delivery
14	Suh	27	G1P0A0	3	33 hour post partum	Pre-eclampsia	Midwife	Private hospital	District hospital	Private hosp	SC	Stillbirth	Rejected at first - 2 hospitals because first hospital was full
15	ld1	24	G2P1A0	1	Aterm	Post partum bleeding						No data	Went 3 times last week to hospital with bleeding
16	ld2	35	G3P2A0	3	3 hour post partum	Post partum bleeding	TBA	Midwife	Puskesmas			Well	
17	ES	20	G1P0A0	9	28 day post partum	Other causes	Midwife					Well	Died in hospital

No	Name	Age	Preg. History	ANC	Time of death	Cause of death	Provider				Procedure	Baby status	Note
							First	Second	Third	Fourth			
18	Ng	21	G1P0A0	2	8 day post partum	Pre-eclampsia (post SC)	?	Ob-gyn	Private hospital	SC	asphyxia	Was in ICU for 8 days	
19	Asr	25	G6P5A0	1	24 week pregnancy	Other causes					IUFD	Died on the way to hospital	
20	SN	18	G1P0A0	0	10 hour post partum	Eclampsia	Midwife	District hospital		Vac Extr	Stillbirth		
21	Feb	20	G1P0A0	3	5 hour post partum	Post partum bleeding	TBA	District hospital	Private hospital	Private hospital	Well	First hospital was full, 2nd hospital no electricity	
22	NA	26	G1P0A0	5	3 day post partum	Other causes	Midwife	District hospital		SC	Well	Went home post SC before formally discharged	
23	Oh	21	G1P0A0	7	36 hour post partum	Pre-eclampsia	District hospital			SC	Well	ICU was full	
24	SA	17	G1P0A0	5	23 day post partum	Bleeding, infection	TBA	Midwife	Private hospital	Private hospital	Well	Poor handling of bleeding at hospital	
25	TH	20	G1P0A0	5	4 day post partum	Other causes	TBA	District hospital			Well		
26	Ais	38	G7P3A3	5	7 hour post partum	Eclampsia	Midwife	District hospital		SC	Well		
27	Rn	32	G4P3A0	>>>	10 minute post partum	Post partum bleeding	Lung hospital	Military hospital			Well		
28	lp	39	G10P4A5	4	Aterm	Post partum bleeding	Midwife	Private hospital			IUFD	Patient died before SC	
29	RL	29	G2P1A0	0	17 hour post partum	Other causes	Midwife	Private hospital			Well		
30	Yan	23	G2P1A0	5	4.5 hour post partum	Post partum bleeding	TBA	Midwife	District hospital		Well		
31	SL	42	G4P3A0	3	6 hour post partum	Post partum bleeding	Maternity hospital				Well		
32	Zh	35	G10P8A1	0	3 hour post partum	Post partum bleeding	TBA				Well	Husband refused to call bidan	
33	Nl	30	G3P2A0	3	18 hour post partum	Other causes	TBA	Midwife			Well	Refused referral to hospital	
34	Nhy	27	G3P2A0	0	3.5 hour post partum	Post partum bleeding	TBA				Well		
35	Dh	20	G1P0A0	4	37 week pregnancy	Other causes	Puskesmas				IUFD	Died on the way to hospital	
36	Ah	32	G7P6A0	2	In labor	Other causes	TBA				IUFD		
37	Kn	38	G4P3A0	11	(?)	Obstructed labor	Midwife	Private hospital		SC	No data		
38	ES	38	G6P5A0	5	3 hour post partum	Post partum bleeding	TBA	Midwife			Well	Died on the way to hospital	
39	ARD	35	G3P2A0	0	24 week pregnancy	Bleeding, infection	District hospital				IUFD		

No	Name	Age	Preg. History	ANC	Time of death	Cause of death	Provider			Baby status	Note
							First	Second	Third		
40	Eg	33	G8P7A0	?	No data	Post partum bleeding	Midwife	Military hospital	SC	Stillbirth	
41	Lnh	23	G1P0A0	1	1 day post partum	Eclampsia	Ob-gyn	District hospital		Well	
42	Ym	32	G4P2A1	6	1 hour post partum	Post partum bleeding	None			Well	TBA came to cut the cord, died on the way to hospital
43	lis	17	G1P0A0	2	34 week pregnancy	Eclampsia	Nurse assistant			IUFD	Midwife came but patient had died
44	SW	15	G1P0A0	0	6 hour post partum	Gemelli	TBA	Midwife		First one OK	Second baby died, midwife failed to diagnose twin pregnancy
45	?	36	G2P1A0	7	2 hour post partum	Post partum bleeding	Midwife	Private hospital		Well	

Bandung District

No	Name	Age	Preg. History	Time of death	Cause of death	First	Second	Third	Procedure	Baby status	Note
2008											
1	Dd	21	G2P1A0	30 day post partum	Undiagnosed	Midwife				No data	
2	Nj	27	G3P2A0	32 week pregnancy	Pre-eclampsia	Midwife	District hospital	Provincial hospital		IUFD	
3	Im 1	20	G1P0A0	21 hour post partum	Eclampsia	Ob-gyn			SC	Died 18 hr post birth	
4	Im 2	30	G1P1A0	6 day post partum	Other causes	RSHS			SC	No data	Breech, fetal distress, premature
5	En	39	G5P4A0	36 week pregnancy	Undiagnosed	Midwife	Provincial hospital			IUFD	Admitted to neurology ward
6	Nn	29	G5P4A0	3 hour post partum	Post partum bleeding	No assistance	Private hospital			Well	
7	Mm	31	G8	2 hour post partum	Other causes	Ob-gyn			SC	Well	
8	li	38	G5P4A0	24 week pregnancy	Eclampsia	Midwife	Private hospital	Private hospital		IUFD	Refused by both hospitals
9	Mo	36	G4P3A0	Post partum	Post partum bleeding	Midwife				Well (twins)	Died on the way to hospital
10	Eu	36	G3P2A0	16 week pregnancy	Undiagnosed	No assistance				IUFD	
11	Yy	29	G3P2A0	2 hour post partum	Post partum bleeding	TBA	Midwife	Private hospital		Well	Died on the way to provincial hospital
12	Im 3	27	G2P1A0	2 hour post partum	Post partum bleeding	TBA	Midwife			Well	Died on the way to district hospital
13	li	28	G2P1A0	2 hour post partum	Post partum bleeding	TBA	Midwife	Provincial hospital		Well	Died on the way to provincial hospital
14	S	32	G3P2A0	Impartu	Post partum bleeding	Midwife	Private hospital			IUFD	
15	Tt 2	42	G3P2A0	12 hour post partum	Other causes	Provincial hospital				Stillbirth	
16	Ne	30	G3P2A0	28 week pregnancy	Eclampsia	District hospital				IUFD	Died on the way to provincial hospital
17	En	27	G2P1A0	Post partum	Post partum bleeding	No assistance	Puskesmas			Found dead	
18	Fh	39	G7P6A0	6 hour post partum	Post partum bleeding	Midwife	Private hospital			Well	No blood supply at hospital
19	Sr	32		Impartu	Prolonged labor	Midwife				IUFD	Not referred
20	A	34		Post partum	Post partum bleeding	Midwife	Private hospital		Hysterectomy	Well	

No	Name	Age	Preg. History	Time of death	Cause of death	First	Second	Third	Procedure	Baby status	Note
2008											
21	Te	31		3 hour post partum	Post partum bleeding	TBA	RSUD			Well	
22	En	34	G4P2A1	2 hour post partum	Post partum bleeding	TBA	Midwife	Private clinic		Well	
2009											
1	Er	30	G2P1A0	Post partum	Post partum bleeding	TBA	Midwife	RSHS	Hysterectomy	Well	
2	Ai	25	G2P1A0	9 hour post partum	Post partum bleeding	Midwife	Midwife (2)	BEONC -> hospital		Well	BEONC 30 minutes and then referred to private hospital
3	Nr	29	G2P1A0	2 hour post partum	Post partum bleeding	Midwife				Stillbirth	Died on the way to private hospital
4	Hi	26	G2P1A0	1 hour post partum	Post partum bleeding	TBA				Well	Died on the way to district hospital
5	N	29	G2P1A0	Post partum	Prolonged labor	Midwife				Stillbirth	Breech position, died on the way to private hospital
6	OS	?	?	Post partum	Post partum bleeding	TBA	Midwife	Hospital		Well	Unclear whether patient reached the hospital
7	Ya	26	G4P3A0	5 day post partum	Infection	GP				Asphyxia	Has TB and heart condition
8	Hn	33	G7P6A0	1 day post partum	Post partum bleeding	TBA				Asphyxia and died	
9	Rn	21	G1P1A0	14 hour post partum	Other causes	Ob-gyn				Well	
10	li 2	26	G2P1A0	5 hour post partum	Post partum bleeding	TBA	Midwife	District hospital		Well	Died in front of hospital
11	li 3	16	G1P1A0	15 day post partum	Infection	TBA	Provincial hospital		ICU	Died 10 hrs after birth	Family brought patient to hospital
12	Tn	23	G1P1A0	39 week pregnancy	Prolonged labor (?)	TBA				IUFD	
13	On	27	G3P2A0	8 day post partum	Other causes	Ob-gyn			SC	Well (twins)	Provincial hospital
14	Lu	37	G2P1A0	Post partum	Undiagnosed	Ob-gyn			SC	Stillbirth	Private hospital
15	El	32	G3P2A0	7 hour post partum	Post partum bleeding	GP			Vac Extr	Well	District hospital
16	Im 4	24	G2P1A0	3 hour post partum	Post partum bleeding	TBA					Died on the way to district hospital
17	Pp				Post partum bleeding	TBA	Midwife			Birth defects	
18	Yn	25		Post partum	Suicide	TBA				No data	
19	Su	16		Post partum	Undiagnosed	TBA				No data	
20	ld	33		28 week pregnancy	Pre-eclampsia	Midwife	District hospital			IUFD	

Note: G (number of pregnancy), P (number of delivery), A (number of abortion)

Cianjur District

No	Name	Age	Preg. History	ANC	Time of death	Cause of death	First	Second	Third	Fourth	Procedure	Baby status	Note
2008													
1	Rb	40	G5P4A0	No data	In labor (?)	Obstructed labor	Midwife	District hospital				IUFD (?)	
2	Rn	30	G3P2A0	No data	20 week pregnancy	Abortion	TBA	District hospital				Abortion	
3	Yn	30	G2P1A0	No data	18 day post partum	Post partum bleeding	Midwife					Well	
4	Cn	40	G9P7A1	No data	30 minute post partum	Post partum bleeding	TBA	Nurse assistant				Well	
5	Tn	34	G3P2A0	No data	30 day post partum	Other causes	TBA					Well	
6	Il	24	G2P1A0	No data	1.5 hour post partum	Post partum bleeding	TBA	Midwife				Well	
7	Sm	36	G5P4A0	No data	In labor	Antepartum bleeding	Midwife	District hospital				IUFD	No blood supply at hospital
8	Lm	38	G6P4A1	No data	1 hour post partum	Antepartum bleeding	District hospital				SC	Well	
9	Hs	35	G7P5A1	No data	14 hour post partum	Post partum bleeding	TBA	Midwife	District hospital			Stillbirth	
10	EI.2	25	G2P1A0	No data	In labor	Antepartum bleeding	Midwife	Puskesmas	District hospital			IUFD	
11	Et	30	G3P2A0	No data	6 hour post partum	Post partum bleeding	TBA	Midwife				Well	Delayed decision making by family
12	Cc	25	G5P3A1	No data	5.5 hour post partum	Post partum bleeding	TBA	Midwife	District hospital			Well	
13	Bd	40	G6P5A0	No data	4 hour post partum	Post partum bleeding	TBA					Well	Midwife was not available
14	Mn	24	no data	No data	8 day post partum	Other causes	TBA	Midwife				Well	Died in hospital
15	Ik	30	G1P0A0	No data	36 week pregnancy	Prolonged labor (?)	Midwife	District hospital				No data	
16	Ai	?	G2P1A0	0	Post partum	Post partum bleeding	TBA					Well	Unmarried mother
17	En	32	G2P1A0	No data	1 hour post partum	?	TBA					Well	
18	Ir	26	G2P1A0	No data	Post partum	Post partum bleeding	?	Nurse asst	GP			Well	Died on the way to hospital

No	Name	Age	Preg. History	ANC	Time of death	Cause of death	First	Second	Third	Fourth	Procedure	Baby status	Note
2008													
19	Yy	24	G1P0A0	No data	26 week pregnancy	Other causes						IUFD	
20	?	?	?	3	?	Eclampsia	Midwife					IUFD	Family refused referral
21	Pp	36	G5P4A0	No data	20 week pregnancy	Abortion	TBA					Abortion	
22	Nn	23	G2P1A0	No data	Post partum	Post partum bleeding	TBA	Midwife	District hospital	District hospital		Well	
23	Id	?	G5P4A0	No data	2 hour post partum	Post partum bleeding	TBA	TBA				Well	
24	Hr	33	G5P3A1	No data	5 hour post partum	Post partum bleeding	TBA	District hospital				Well	
25	El1	37	G3P2A0	No data	In labor	Eclampsia	TBA	Puskemas				IUFD	Died on the way to hospital
26	It	30	G5P2A2	No data	12 hour post partum	Post partum bleeding	TBA	Midwife				Well	Already died when midwife arrived
27	Am	45	G13P12A1	No data	21 day post partum	No diagnosis	TBA					Well	Birth delivery was assisted by midwife
28	Rn	24	?	No data	3 hour post partum	No diagnosis	TBA					Well	
29	Sl	25	G2P1A0	1/month	?	No diagnosis	TBA					No data	Died after 4 days in hospital
30	Is	31	G3P2A0	No data	?	Prolaps uteri	TBA	Midwife	District hospital	District hospital		Well	
31	Nj	28	G2P1A0	No data	?	Post partum bleeding	TBA					Well	Midwife was not available
32	Ya	37	G8P7A0	No data	28 week pregnancy	Pre-eclampsia	Midwife	District hospital				IUFD	
33	Ft	19	G3P0A2	2	12 hour post partum	Eclampsia	Midwife	District hospital				IUFD	Delayed decision making by family
2009													
1	Ch	41		No data	36 week pregnancy	Other causes						IUFD	
2	Ky	26		No data	32 week pregnancy	Other causes						IUFD	Died suddenly at home
3	Ls1	40		no data	26 week pregnancy	other causes	midwife	Dt Hosp					Died after 5 days in hospital

No	Name	Age	Preg. History	ANC	Time of death	Cause of death	First	Second	Third	Fourth	Procedure	Baby status	Note
4	Rh	23		3	In labor	Pre-eclampsia	Midwife	District hospital				IUFD	Died after 2 days in hospital
5	L.N.	18		No data	23 hour post partum	No diagnosis	Midwife	District hospital				Well	
6	Eu	35		No data	2.5 hour post partum	Post partum bleeding	TBA	TBA	Midwife			Well	
7	Ms	26		No data	In labor	Antepartum bleeding	TBA	Midwife				IUFD	Died on the way to hospital
8	Sp	35		No data	2 days post partum	No diagnosis	Ob-gyn			?		Well	Delivery in district hospital
9	On	18		No data	Prolonged labor		TBA	Midwife				IUFD	Refused referral to hospital
10	Mm	23		No data	Post partum	No diagnosis	TBA					Well	
11	Ye	24		No data	In labor	Eclampsia	Midwife					IUFD	Refused referral to hospital
12	Ls 2	22		No data	4 hour post partum	No diagnosis	TBA	Midwife				Well	Already died when midwife arrived
13	Ls 3	40		No data	32 week pregnancy	Other causes	District hospital					IUFD	Died after 4 days in hospital
14	Ad	35		No data	5 day post partum	Post partum bleeding	TBA	District hospital				Well	Died after 5 days in ICU
15	An	31		No data	33 day post partum	Other causes						Well	Died at home
Note: G (number of pregnancy), P (number of delivery), A (number of abortion)													

