ORIGINAL RESEARCH

Maternal mortality and severe morbidity in rural Indonesia
Part 1: The community perspective

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Abstract
Introduction: Based on the premises that maternal ill health and social disadvantage are inextricably linked and that local knowledge can provide important insights into this phenomenon, we developed a community-based audit of maternal mortality and severe morbidity in a rural Indonesian district.
Aims & objectives: The study aimed to demonstrate the "community perspective" as a valid source of information for health planning. The objectives were to engage communities in critical assessments of access to care and quality of care in obstetric emergencies and to generate recommendations for reform.
Methods: Four independent groups of women and other individuals typically involved in obstetric emergencies in villages participated in assessments of cases of maternal death and severe disability. Key care processes and determining mechanisms were identified through framework analysis of the discussion narratives.
Results: One repeated and persistent theme related to how social health insurance (SHI) failed to mediate financial barriers to access and quality. Despite being designed to protect poor individuals from the catastrophic costs of care, SHI was frequently seen to be instrumental in constraining access to quality services. The scheme was inadequately socialized, inequitably distributed, complex and bureaucratic, and led to delays and discriminatory care in the time-limited emergencies. In addition, people not officially classified as poor, but for whom emergency delivery care may have remained unaffordable, reportedly used SHI. Other problems identified included poor birth preparedness, a lack of midwives in villages, and shortages in emergency transportation. Recommendations for health insurance reform, improved resources for village health workers, and investments in community public health infrastructure were developed and disseminated.
Conclusions: In this setting, access to good quality care is constrained by inadequate district health resources and commodified care provision. Health system reform to promote universal access to essential delivery care services may be an effective means to improve outcomes among rural women. The community perspective yielded rich and vivid in-

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sights into the complex interactions between care users and providers in emergencies. Routine community evaluation can inform contextually relevant implementation solutions that promote the equitable provision of emergency delivery care.

Introduction

Death and disability in pregnancy and childbirth

Maternal mortality is the leading cause of death among women of reproductive age (WRA) (UN, 2009). Since the 1990s, approximately 550,000 deaths related to pregnancy, delivery, and/or its management have been reported annually (WHO & UNICEF, 1996; WHO *et al*, 2001; 2004; 2007). Reductions were observed for the first time in 2008, with estimates suggesting that 358,000 maternal deaths occurred in that year (WHO *et al*, 2010). The inherent imprecision of measurement (Graham *et al*, 2008), however, makes trend analysis problematic and considerable uncertainty characterizes information on the levels of maternal mortality.

Maternal mortality does not occur randomly. Over 99% of deaths occur in developing countries (WHO & UNICEF, 1996; WHO *et al*, 2001; 2004; 2007; 2010). Within both poor and rich countries, higher mortality is consistently observed among disadvantaged groups (CEMD, 2001; Graham *et al*, 2004). Each year, an additional 20 million women survive complications in pregnancy and childbirth but are left with chronic and debilitating morbidities (e.g., obstetric fistulae and mental health disabilities) (Filippi *et al*, 2006). Furthermore, the social and economic consequences of maternal death and disability, such as household disintegration and reduced income-generating capacity, are borne disproportionately by poor families and communities (Ahmed & Holtz, 2007; Gill *et al*, 2007; Bazzano *et al*, 2008).

Research suggests that over 80% of maternal mortality is preventable with access to skilled birth attendance and emergency obstetric care (MacDonagh, 2005; Paxton *et al*, 2005; Ronsmans & Graham, 2006). Despite the content of these approaches being well-defined (WHO, 2004a; WHO *et al,* 2009), in low income countries only 40% of deliveries are attended by a skilled birth attendant (WHO, 2011a) and only one in three women in rural areas receive this care (WHO, 2011b). Research groups and development agencies are beginning to converge in recognition of the need for implementation solutions that prioritize the equitable provision of life-saving delivery care (Freedman *et al*, 2007; CSDH, 2008; Navarro, 2009; Amnesty International, 2010).

This study sought to respond to these concerns and was based on two mutually reinforcing premises. First, maternal ill health and social disadvantage are inextricably linked. It is therefore reasonable to consider maternal ill health to be socially as well as biomedically constructed and determined. The second premise was that the perspectives of those for whom emergency delivery care has most direct relevance (i.e., those who seek care and those who provide it) can provide important insights into causation and remedy. Individual understanding of health, illness and risk arises from lived experiences in which biomedical causes are contextualized by socially constructed meanings (Williams & Popay, 2006). Subjective perspectives may therefore offer more complete interpretations of health problems, reflecting both social and biomedical dimensions, as well as the mechanisms that mediate their interrelation (Blaxter 1983; Popay & Williams, 1996; Williams, 2003).

Aims and objectives

The study aimed to demonstrate the utility of the "community-perspective" as a valid source of information for health planning. The objectives were to engage with individuals in rural villages to conduct critical assessments of access to care and quality of care in obstetric emergencies and to develop recommendations for health planning. This paper presents the results of the assessments. A separate article in this issue describes the process of implementing a participatory community-based audit (D'Ambruoso *et al*, 2013).

Context

The research was conducted in Serang district, on Java, Indonesia. Indonesia is a lower-middle income country with a population of 227 million (World Bank, 2010). Over 110 million people live rural and remote areas, 39 million are estimated to

live in poverty, and 69 million are classified as vulnerable to poverty (World Bank, 2006; BPS & Macro, 2008). Indonesia has a long tradition of community participation in maternal and child health (Nobles & Frankenberg, 2009). During the primary health care (PHC) movement of the 1970s, the government capitalized on this tradition, formalizing social networks and investing in village health infrastructure and human resources. A network of primary health centers was established and over one million volunteer community health workers (CHWs) were enlisted to provide basic preventative care (Berman, 1984; WHO & World Bank, 2000; Utomo *et al*, 2006).

In 1999, following the Asian economic crisis, PHC was radically re-defined and decentralization policies were implemented with vigor. Decentralization devolved public service administration from central to district level to foster more locally relevant governance. After the crisis, social health welfare (*Jaring Pengaman Sosial-Bidang Kesehatan, JPS*) was also introduced (Rabasa & Chalk, 2001; Kristiansen & Santoso, 2006), which entitled poor families to free basic care in health centers and to the lowest level of inpatient care in hospitals (Sparrow *et al*, 2008). In 2005, *JPS* was replaced by a social health insurance (SHI) scheme called *Askeskin* (*ASuransi KESehatan untuk Keluarga miskIN*, Health Insurance for Poor Families) administered by the state-owned insurance corporation, *PT-Askes* (Sparrow *et al*, 2008).

In rural areas, village midwives provide integrated maternal and child health (MCH) services coordinated by health centers (Berman, 1984; Shankar *et al*, 2008). Qualified midwives receive government contracts that reduce their public salary incrementally over three to six years; during this time, midwives are expected to remain in villages and develop private practices (Gani, 1996; Shrestha, 2007). Owing to issues of social isolation and problematic retention, there are fewer and less experienced midwives in rural villages (Ensor *et al*, 2008; Makowiecka *et al*, 2008) and most deliveries occur in homes without professional assistance (Acadia *et al*, 2007). Poverty adds a further dimension. Poor women in Serang are seven times less likely to have access to professional delivery care (Ronsmans *et al*, 2009). And, despite the national decline in the maternal mortality ratio (MMR) from 650 deaths per 100,000 live births in 1990 (WHO & UNICEF, 1996) to 245 in 2011 (Lozano *et al*, 2011), an MMR of 2,303 was detected among the poorest women delivering in hospitals in Serang in 2009 (Ronsmans *et al*, 2009).

The study was undertaken in four villages in Serang. Serang is a rural district with a population of 1.8 million people, 36 sub-district health centers, one public hospital, and 753 trained midwives (Izati *et al*, 2005). The study was conducted as part of a larger project on care in obstetric emergencies (D'Ambruoso, 2011), and was conceived following a confidential inquiry conducted with Indonesian service providers (D'Ambruoso *et al*, 2009) and a verbal autopsy survey of the relatives of women who had died during pregnancy and childbirth (D'Ambruoso *et al*, 2010). These studies suggested that detailed assessments of emergency delivery care, from a range of perspectives, have the potential to provide useful information on how and why adverse maternal health outcomes occur. As a result, the present study sought to conduct an in-depth, participatory examination of care from the critical perspectives of those who use and provide these services.

Methods

Audit groups

Permission to conduct the research was obtained from the district health authority. Four rural villages were then selected, two with and two without a recorded maternal death in the previous twelve months (Table 1). In each village, village health workers invited individuals to an introductory meeting where the purpose of the study, planned activities, and outputs were described. Those who wished to participate were signed up and informed consent was obtained. In two villages, groups C1 and C2 were convened to represent people typically involved in obstetric emergencies: WRA, family members, neighbors, village leaders, village midwives, CHWs and traditional birth attendants (TBAs). Acknowledging the potential for focus group discussions (FGDs) to become biased towards those with more power and autonomy (Krueger, 2000), in the other two villages, the groups were convened to represent WRA only.

Table 1: Characteristics of villages in which audit groups were recruited

Audit group	C1	C2	W1	W2
Population (n)	4692	3483	4947	4196
Farming households* (%)	78	90	52	90
Unemployed (n)	32	70	19	175
Village health posts† (n)	5	8	5	5
Village midwives (n)	1	1	1	1
Volunteer health workers (n)	10	35	15	15
TBAs (n)	3	2	3	1
Women receiving ANC‡ (%)	82	52	76	68
Deliveries attended by health professionals§ (%)	68	77	57	68
Infant mortality rate** (per 1000 live births)	0	1	0	0
Maternal deaths††	1	0	0	1

* A group of people living in a physical/census building, or part thereof, who make common provision for food and other essentials of living from farming, not necessarily the owner of the land
† Semi-mobile clinics that provide general preventative, community-based outreach and MNCH care on particular days
‡ One or more visit(s) to a midwife during the antenatal period
§ Nurses, paramedics, doctors and midwives who have attended formal education and qualification to these cadres
** Number of infant (≤ 1 year of age) deaths per 1000 live births
†† Deaths from obstetric complications of pregnancy, delivery, postpartum in the previous 12 months

Sources: Dinas Kependudukan dan Catatan Sipil, Kabupaten Serang, 2007; PODES Kabuapaten Serang, BPS, 2004; Pemantauan Wilayah Setempat Kesehatan Ibu dan Anak Puskesmas Kramatwatu, Kecamatan Kramatwatu, Serang, 2008; Pemantauan Wilayah Setempat Kesehatan Ibu dan Anak Puskesmas Ciruas, Kecamatan Ciruas, Serang, 2008.

These groups (W1 and W2) were comprised of women of different obstetric histories and delivery care utilization profiles (Table 2). The groups operated independently of one other during the course of the study.

Cases

Six cases were selected from a previous study (D'Ambruoso *et al*, 2009) to represent a range of circumstances, events, complications, and outcomes (Table 3). As part of the previous study, for each case, interviews had been conducted with family and community members, formal and traditional health workers, and the woman herself (if she survived). The interviews contained information on the general characteristics of the woman and family, care in the antenatal period, the onset and progression of the delivery complication, delivery attendance, and hospital admission (if applicable) until discharge or death. To convey this information to participants, storyboards were prepared for each case with key circumstances and events presented pictorially and chronologically. These were presented to the groups at the outset of the meetings with an accompanying narrative (see Sidebar).

Data collection

The groups reviewed one case per meeting using the FGD method (Krueger, 2000). Meetings were held at the same time and place each week in participants' homes (C1 and W2), the village leader's home (W1), and the village hall (C2). Meetings lasted 1.5 to 2.5 hours with lunch or refreshments. In each meeting, the case was presented, a discussion

Table 2: Characteristics of audit groups

Audit group	C1	C2	W1	W2
Participants (n)	8	9	9	9
Average age (years)	40	41	33	33
Female (%)	67	78	100	100
Married (%)	75	89	100	22
Had junior high education or above (%)	50	56	88	22
Average time in community (years)	37	38	25	31
Average number of children per participant	2	5	2	2
Pregnant women (n)	1	0	2	1
WRAs (n)	1	1		
Family members (n)	1	2		
TBAs (n)	2	2		
CHWs (n)	2	2		
Village secretaries (n)	1	1		
Village midwives (n)	1	1		
Nulliparous (n)			0	2
Participants with 1-2 previous pregnancies (n)			6	2
Participants with >2 previous pregnancies (n)			3	5
Participants delivered with TBA only (n)			1	2
Participants delivered with TBA & midwife (n)			4	4
Participants delivered with midwife only (n)			4	1

N.B.: Six participants dropped-out due to work or family commitments; replacements were recruited by the second meeting. Table 2 describes the final membership profile. Participants in audit groups C1 and C2 are categorized by their role in the community; participants in groups W1 and W2 are classified by obstetric histories and delivery care utilization profiles. Obstetric histories were not taken for WRA in groups C1 and C2. Family members comprised husbands and mothers-in-law.

facilitated, and a case assessment completed. The case assessment framework was based on a classic conceptualization of delayed treatment in obstetric emergencies, the "three delays" model (Thaddeus & Maine, 1994). The model posits that delays can occur in the decision to seek care, the journey to care, and/or the provision of good quality care in a facility. The assessment framework prompted participants to identify the positive and negative contributions of individuals, families and communities, village midwives, and health systems for each phase of delay (Table 4). Topic guides based on the framework were also used to structure the discussions.

During the meetings, the salient elements were written down on large pieces of paper so that all participants could see the evolution of the assessment; the presumption was that this would most closely capture the collective assessment of the group. To improve the acceptability of the process, and to promote ownership and inclusion, we also invited suggestions for modifications from participants at regular intervals.

At the end of the series of case reviews, a final session was held with each group to determine whether the results of an initial analysis were found to be plausible, to gather feedback on the process, and to develop recommendations for planning.

Table 3: Case profiles

Characteristics		Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Background	**Age**	27	27	25	31	25-36 (estimated)	37
	Gravidity	2	0	3	2	3	2
	ANC consultations	> 4	2	2	0	0	1
Complications & Outcomes	**Complication**	Hemorrhage	Eclampsia	Hemorrhage	Obstructed labor	Hemorrhage	Hemorrhage
	Maternal outcome	Death	Severe morbidity[*]	Death	Severe morbidity	Death	Death
	Neonatal outcome	Survival (twins)	Death	Survival	Death	Death	Survival
Labor & Delivery	**Onset of labor**	Home	Home	Home	Home	Home	Home
	Place of delivery	Home	Hospital #2[†]	Home	Hospital	Home	Home
	Place of death	Home	-	Home	-	Hospital	Home
	1st delivery attendant	TBA	VMW[‡]	TBA	TBA	TBA	TBA
Delivery Attendance	**Other attendant/s**	Nurse[§]	-	2nd TBA + healer[**]	MW[††] + OB/GYN	VMW	MW
	Time to MW arrival	-	-	-	1 hour	2.5 hours	3 hours
	Time to 1st referral facility	-	1 hour	-	4 hours	4.5 hours	-
	Transportation	-	Loaned car	-	Public transportation	Ambulance	-
Delays	**Phase 1: decision to seek care**	Referral forbidden by TBA	Cost concerns	Did not call MW	Cost concerns	Cost concerns	No midwife
	Phase 2: journey to care	-	Time to find car	-	No delay	Ambulance delay	-
	Phase 3: care in facility	-	Referral to a 2nd hospital	-	Admission denied	No blood supplies	-

[*] Defined as "a very ill pregnant or recently delivered woman who would have died had it not been that luck and good care was on her side" (Say, Pattinson and Gulmezoglu 2004, p. 1).

[†] Denotes a second hospital accessed after a first hospital denied admission.

[‡] Denotes a village midwife, who is responsible, but not necessarily resident in, the village

[§] Nurse was 70 years old and blind

[**] Refers to a person who practices traditional or alternative medicine within their communities. Traditional healers do not typically have formal education in medicine, and provide traditional care and treatments, such as herbal medicines, holy water, etc.

[††] Denotes a midwife available in the emergency by virtue of circumstance or chance, and not with official responsibility for the village.

Table 4: Example case assessment

		Determining factors		
		Individual, Family, & Community	**Village Midwife**	**Health System**
DELAYS	**Phase 1: decision to seek care**	*X TBA forbade family from calling midwife in the emergency*	*✓ Midwife convinced family of the need for referral*	*X Family had health insurance, but did not know how to use it*
	Phase 2: journey to care	*X No preparation for delivery complications with transportation*	*✓ Midwife helped to arrange transportation in the emergency*	*X No village emergency transportation available free of charge*
	Phase 3: care in facility	*X No preparation for delivery complications with money or health insurance*	*✓ Midwife accompanied woman to hospital, convinced hospital staff to admit*	*X Hospitals did not have blood supplies. Family had additional journey/costs to buy blood*
FOCUS ISSUE(S) & RECOMMENDATIONS				
Social health insurance • *Poor women and families should arrange SHI in the antenatal period* • *SHI cards should be distributed by village heads* • *Women and families should be informed of the value and function of SHI* • *Hospital staff should be trained to accept patients who do not pay for care directly* *Blood supplies in hospitals* • *Blood supplies should be available in hospitals at all times* • *Blood products should be included within SHI entitlements*				

✓ Positive contribution
X Negative contribution

Sidebar: Example case storyboard and narrative (abridged)

Case 4: IBU RAHMI*
COMPLICATION: Obstructed labor
OUTCOME: Severe morbidity

ANTENATAL: Ibu Rahmi never sought ANC. She planned to deliver with TBA.

COMPLICATION: Ibu Rahmi went into labor at 4pm. The delivery was breech. She went to a TBA. The village midwife was called at 5pm, but she could not attend. Another midwife was called at 6pm. When this midwife arrived she examined Ibu Rahmi and gave fluids. By this time, the baby had died, undelivered.

REFERRAL: The midwife advised referral but the family were concerned about costs. The midwife explained that a poverty certificate (*SKTM*) would help with the costs of care. The woman's father obtained *SKTM*. The family left for hospital at 7pm.

HOSPITAL: The family arrived at 8pm but was refused entry. The midwife negotiated for admission with the hospital staff. At 9pm, an obstetrician delivered a stillborn baby. Afterwards, the woman wanted to leave because the nurses treated her badly and because the family worried about further costs. The woman discharged herself the following day with a catheter still in place. Later, the midwife established that the family had *Askeskin* but had not known how to use it.

* Pseudonym

Glossary of Indonesian terms

Bayi meninggal	Baby dead
Kasus	Case
Pulang	*Go home*
Rumah sakit	Hospital

Twenty-four FGDs were conducted in the course of this study.

With the permission of participants, the meetings were audio-recorded and transcribed. The transcripts were translated from Bahasa Indonesian and the indigenous languages Javanese and Sundanese into English for analysis. Following the fieldwork, an independent group (Grampian Racial Equality Council) verified the data. A selection of the Bahasa Indonesian transcripts was compared with the audio recordings, and a selection of the English transcripts back-translated and compared with the Bahasa versions. Both assessments verified the data as satisfactory reproductions of the discussions.

Analysis

Framework analysis of the discussion narratives was performed during and after the focus group meetings. The analytical schedule consisted of a reiterative coding of data according to the "three delays" framework and emergent themes. Coding continued until a sufficient degree of thematic saturation occurred. The coded data and thematic framework were then used to develop sequentially descriptive and explanatory accounts of access, quality, and outcomes (Pope & Mays, 20006).

Ethical considerations

Informed consent was sought from all participants. Participants were informed about the research, outputs, what involvement entailed, and the risks and benefits of participating. Individuals were assured that participating had no bearing on healthcare available to them or their families and that they were free to leave at any time and for any reason. Participants were reimbursed for time in meetings: 30,000 Rupiah (Rp.) (~3 USD) was paid to CHWs, WRA, TBAs and family members, and 50,000 Rp. (~6 USD) to midwives and community leaders. To protect participants' identities, all identifying information in study documents was removed. The storyboards and narratives were also made anonymous to protect the identities of the women in the cases. Cases were selected from a district external to Serang to minimize the likelihood of their being known to the participants. The Faculty of Public Health Research Ethics Committee, University of Indonesia and the Research Governance Committee, University of Aberdeen approved the study protocol.

Results

The case assessments and data analysis are arranged according to the "three delays" thematic framework (Table 5). Quotes are used to illustrate the analysis. Because participants often shared personal experiences, whether a quote related to personal experience or the case being reviewed is indicated if it is not directly implied.

Deciding to seek care

Birth preparedness: In the cases reviewed, most women had received antenatal care (ANC), although some did not receive complete information on their risk status during the consultation(s). In other cases, women did not seek care due to fears over costs, despite ANC being provided free of charge at village health posts. Poor birth preparedness was common as a result. In the discussions, women were often looked upon poorly for failing to seek ANC.

> *Facilitator: Why didn't [Case 4] go to the village health post [for ANC consultation]?*
>
> *All: (Laugh)*
>
> *Woman: Because she was stupid (laugh).*
>
> [Group W2, meeting on Case 4]

Preferences for TBAs: In the cases assessed, TBAs were typically the first choice of delivery attendant when complications arose. Several reasons were identified for these preferences: tradition, the more "complete" care TBAs provide, and shortages of midwives in villages. Cost was also a significant factor. Participants informed us that midwives charge up to 450,000 Rp. (~45 USD) for delivery attendance, while TBAs charge 10,000 to 150,000 Rp. (~1-15 USD) for intra- and post-partum care. TBAs can also be paid post-hoc and in installments. TBAs were described as "dominant" in the provision of delivery care in villages as a result.

> *TBA: The cost for the midwife is 450 thousand rupiah (~45USD) ... people are afraid, how can they get that amount of money? While the TBA's cost is up to us, it*

Table 5: Themes emerging from framework analysis of discussion narratives

Delay	Themes	Sub-themes
Phase 1: decision to seek care	Birth preparedness*	• Birth preparedness lacking • ANC access/uptake good • ANC perceived to be unaffordable • ANC consultation provided incomplete information on risk status
	Preferences for TBAs ("*TBA dominance"*)	• TBAs called first in emergency • TBAs preferred due to reasons of cost, tradition, availability and/or acceptability • TBA does not call or forbids calling midwife in emergency • TBAs do not cooperate with village midwives • Deteriorating condition of woman during TBA care
	Availability of village midwives ("*Poor care for poor people"*)	• Village midwife unavailable • Village midwife delivery care unaffordable • Village midwife lacked responsibility to the poor • Attending midwife not officially responsible for the woman or village • Attending midwife stabilized woman and facilitated referral • Deteriorating condition of woman during midwifery care/search for midwifery care
	SHI in villages ("*Poor care for poor people"*)	• SHI poorly socialized (any/all: lack of understanding, changing systems) • *SKTM* used in lieu of *Askeskin* • *SKTM* complicated to arrange in the emergency • *SKTM* only partially arranged prior to admission • *Askeskin* procedures (identification, listing) • *Askeskin* administrative errors, reductions in lists of identified individuals • *Askeskin* cards withheld by village officials • *Askeskin/SKTM* used by non-poor/relatives of officials
Phase 2: journey to care	Transportation	• Emergency transportation unavailable/unaffordable • Use of public transportation • Community transportation networks limited
Phase 3: care in facility	SHI in hospitals ("*Poor care for poor people*")	• Admissions staff claims that hospital full • Admissions health workers negotiate for entry of women with inability to pay • Admission of women in critical conditions • Admission as paying patient, SHI only partially arranged • Admission as paying patient, to speed up process • Differentiated services for paying/non-paying patients • Payment of "guarantee-money"/bribes • Early self-discharge to avoid costs • Blood/other supplies sought/bought outside hospital • Reimbursements for hospitals treating SHI patients incomplete • Reimbursements for patients using SHI incomplete • System constraints (any/all: low pay, understaffed, lack of equipment/supplies)

* Advance planning and preparation for delivery

N.B.: Underlined text denotes theme substantiated by participants' personal experiences.

is not enforced. For example, if you have 10 thousand rupiah, then you can pay 10 thousand rupiah.

[Group C1, meeting on Case 1]

In each of the cases, unexpected delivery complications quickly progressed beyond the capabilities of attending TBAs. Several responded by calling other TBAs, healers, or CHWs, while others forbade calling midwives. Participants attributed the lack of cooperation between midwives and TBAs to TBAs' unwillingness to compromise their social standing, aversions to sharing payments, and fears of being held responsible for a woman in a severe condition.

Facilitator: Why didn't the TBA report to the midwife?

Woman: Because she felt she could manage [the hemorrhage of Case 3] herself, and she was also afraid to share the money. It is usually like that.

[Group W2, meeting on Case 3]

Village midwives: Delivery complications often progressed for some time before a midwife was called. Village midwives were often unavailable and attending midwives were often not officially responsible for the woman or village. Women were often in critical condition by the time midwives arrived. Attending midwives usually attempted to stabilize women, made referrals, helped to arrange transport and SHI, accompanied women and families to hospitals, and helped with admissions. Participants acknowledged these contributions, but also referred to the general unavailability of village midwives and their lack of responsibility to the poor.

Woman: The midwife was late. There was a 2-hour period. If the midwife had arrived on time maybe [Case 5] would have been saved.

[Group W1, meeting on Case 5]

Woman: I don't think the midwife is going to help us if we don't have money....

[Group W2, meeting on Case 1]

Social health insurance in villages: Emergency obstetric care was usually unaffordable for many families in the cases assessed and SHI was often required. Many poor families had not been issued SHI cards and those who had often did not know how to use them. Low use and poor knowledge were also expressed by participants.

Woman: There's no proper information about SHI here! ...

Facilitator: The midwife said that people have been told?

Woman: Yes ... but nobody ever uses it.

[Group W1, meeting on Case 3]

Facilitator: Did the change from JPS to Askeskin make people confused?

All: Yes we are all confused.

[Group W1, meeting on Case 5]

In lieu of SHI, an interim fee waiver called *SKTM* (*Surat Keterangan Tidak Mampu,* explanation letter of no capability) was often used. *SKTM* is a poverty certificate issued by village authorities to verify poor status and clinical eligibility, with which a limited amount of free care can be obtained in a two- to four-week period. Several discussions focused on the complicated process of arranging *SKTM*. Participants informed us that several documents (including referral letters and identification cards) are required before *SKTM* can be issued. In the cases assessed, several families did not posses identification cards, and were often dependent on the availability of village heads, village health staff, insurance desks in facilities, and photocopy shops in villages to arrange the necessary paperwork. Women who required urgent or emergent referral sometimes did not have time to complete the SKTM application and several women presented at facilities with incomplete documents.

Woman 1: There is a lot of photocopying of papers, letters from the health center, SKTM, the SHI card, and also the letter from the hospital. All of those should be photocopied.

Woman 2: Family card too ... It's difficult. For example, if we have to take the patient [to hospital] at 12 o'clock, in the middle of the night, the photocopy place is already closed.

[Group W2, meeting on Case 4]

The difficulties associated with *SKTM* led to detailed discussion on SHI, examining why it was not used. Participants informed us that individuals are identified as eligible during observational visits by CHWs, according to criteria[*] and quotas set by the state-owned insurance company. Lists of identified households are then collated in health centers, and sent to *PT-Askes* in Jakarta where cards are issued and returned to villages for distribution. Drawing on personal experiences, participants described "administrative errors" and double entries of names when the lists are collated in health centers. These errors effectively reduce the number cards issued.[†]

Volunteer health worker: There is a lot of duplication of names in heath centers....

Village midwife: It's weird right? In other villages, there is a lot of duplication. And also in [a neighboring village] there is also duplication there....

Facilitator: But is the total amount or number [of Askeskin cards issued] the same?

Village midwife: The number? Well, yes, the total number of cards is the same ... but since it was mistyped, there is duplication.

[Group C2, Feedback meeting]

The entire village in which one group was convened had been excluded from access to both SHI and SKTM in this way.

Woman 1: We don't have SHI in our village....

Facilitator: So that means [this village] is not considered a less fortunate village?

Woman 2: That's not quite right, there are many unfortunate families here, but the data was mistakenly entered to [a neighboring village] instead of this village....

Facilitator: So, people here do not have JPS. What are peoples' opinions of this?

Woman 1, 3, 4 [three women speaking]: They all feel disappointed....

Facilitator: Can they still use SKTM?

All: No, they can't.

[Group W2, meeting on Case 2]

The cases involved real-life situations in which village officials withheld SHI cards from villagers. Participants informed us that officials anticipate that families would lose the cards because they do not understand their value or how to use them. Officials may also want to avoid causing upset in the community by failing to issue cards to all those identified as eligible.

Woman: If the cards are distributed, some people would have it some people would not. Maybe they would think, "Why were they given it, while I'm not?" because the card should go to all poor people.

[Group W2, meeting on Case 4]

Further discussions revealed that the relatives of village officials are often granted SHI and that officials are coerced into issuing *SKTM* certificates to the "non-poor."

Midwife: Sometimes rich people are also listed [for SHI]. Relatives of the village head are listed, while the poor are not.

[Group C1, meeting on Case 4]

Village secretary: The community here does not have any embarrassment to get SKTM while actually they do not deserve to have it. They confuse me. They say that this is [paid for by] the government anyway, so I have to sign...

Village midwife: Everybody wants it.

[Group C2, Feedback meeting]

Reaching care

Transportation: Transportation was often unavailable and/or unaffordable in the cases reviewed. Public transportation and rented motorcycles were often used. The discussions indicated that emergency transportation networks are not widely implemented in villages.

Facilitator: Has a transport network been implemented in this village? Is there a village ambulance here?

Village midwife: [Laughs] ... not yet.[‡]

[*] SHI eligibility criteria include housing materials, educational attainments, and occupations of family members.

[†] For example, if 100 people are identified as eligible for

[‡] In Indonesia, "not yet" is a phrase often used to avoid saying "no," which can be regarded as impolite. As such,

[Group C2, meeting on Case 5]

Receiving care

Social health insurance in hospitals

A repeated and persistent theme (that again did not focus solely on the cases but also drew on participants' experiences) was the lower standard of hospital care for patients using *Askeskin* or other forms of *SKTM*. In the cases reviewed, women arriving at hospital were categorized as *SKTM*/SHI or "general" (paying) patients. On establishing the use of SHI or *SKTM*, hospital staff often claimed that wards were full and midwives and CHWs often had to negotiate with hospital staff for admission. The participants also described hospital staff being rude to and/or ignoring patients using SHI and families being too afraid to ask questions.

Woman: If I went to information [admissions], they would say that they have no room, I did not…

Facilitator: Trust it?

Woman: Yes, I prefer to go to the ward directly.

Facilitator: But, can you enter the ward?

Woman: Yes, if they do not let me in, then I usually talk and beg.

[Group W2, Feedback meeting]

Village secretary: Before the patient is admitted, they will ask whether the patient is general or SHI. If the patient is [using] SHI, the service is different from general patients. That's why … the service is very slow, not fast, not responsive. We're not experiencing that once, but many times.

[Group C2, meeting on Case 1]

In the emergencies, some women were admitted as paying patients to gain entry to the facility and/or avoid the poor treatment associated with use of SHI. Women with incomplete insurance documents were also admitted as paying patients and became liable for the full costs of care. In addition, it was often necessary for family members to seek and buy medications and blood, outside the hospital due to insufficient supplies and/or pay informal fees, bribes, and "guarantee money" (ranging from 10,000 – 500,000 Rp. [~1-55 USD]) for medications and treatments. Some women discharged themselves from hospital early to avoid the poor treatment associated with inability to pay and the spiraling costs of care. Again, participants recounted comparable experiences.

Woman: Sometimes we have to pay the guarantee money. If it's not paid, then we would not be admitted, and we would not get the drugs.

[Group W2, meeting on Case 4]

Village secretary: If the patient needs three packages of blood, the Red Cross gives only one, so people could not stand to stay in the hospital any longer and they ask for discharge. This is the impact of SKTM.

[Group C2, meeting on Case 4]

The discussions repeatedly focused on poor women arriving at hospitals in critical condition and being turned away, or being accepted only after negotiation ("begging") and/or bribery, and subsequently being treated poorly and with contempt. Participants felt strongly about these issues, describing them as "inhumane." There were many references to "poor care for poor people," more than to any other theme in the analysis.

Perceptions of hospital staff and system constraints:

Discussions on why poor women received lower quality of care in hospitals focused on how perceptions of hospital staff were affected by broader system constraints. Participants informed us that hospitals often receive incomplete reimbursements for care provided to patients using SHI and that this may foster negative attitudes towards SHI patients, perceived to be receiving "free" care. Participants also referred to the large numbers of people, officially and unofficially, using SHI and the low salaries of hospital staff as contributing to poor quality care.

Woman: The hospitals always think that poor people want free services. Actually this is not free of charge because the government has paid for it. However, the hospital will not accept this. This is the problem.

[Group W1, meeting on Case 2]

in this context "not yet" may not mean that the implementation of a transportation network is necessarily forthcoming.

Woman 1: [Hospital staff] don't give help quickly, they just leave people without giving care.

Woman 2: Is it because the funds from the government have not come to the hospital? If so, there is no money in the hospital, and we all know that there are a lot of health insurance patients.

[Group W1, meeting on Case 2]

Facilitator: According to you, why does hospital staff act viciously to the poor?

Woman 1: Well…maybe because their salary is small?! …

Woman 2: Maybe they are overwhelmed with the patients, too many patients. Small salary, many patients, and the patients use SHI … they say "it's enough!" They too are human after all.

[Group W1, Feedback meeting]

Reimbursements for patients: In the cases reviewed, families made payments at various stages: for TBA and midwifery care; for arranging *SKTM* and *Askeskin*; for transportation; for hospital care, procedures, medications, and blood; and for bribes. Even when SHI was successfully arranged, families, like hospitals, often received incomplete reimbursements.

Facilitator: The CHW explained that [Case 5] had a SHI card, but it was lost. So the hospital refunded the money [spent on care]. How much was the refund?

Woman: 250,000 Rp. (~28 USD) … they only returned a quarter.

[Group W1, meeting on Case 5]

Recommendations

The participants developed recommendations for health planning (Table 6). Reflecting the content of the discussions, many of these focused on improving the administration, entitlements, and coverage of SHI. Participants recommended that village officials, religious leaders, village midwives, CHWs, and TBAs educate poor families about *Askeskin*, that transparency in the listing and allocation processes should be improved, and that more people should be eligible. Training and incentives for facility-based providers to accept poor patients (with and without SHI) were also proposed, as was the inclusion of blood transfusions, medications, and transport within SHI entitlements. Participants also recommended that full reimbursements be paid to facilities and patients to address the negative perceptions, and implications, surrounding the use of SHI.

Participants recommended that village midwives have responsibility for no more than one village, in which they ideally should reside, and that they should be provided with housing, transportation, cell phones, and incentives to provide services to the poor. Developing partnerships between midwives and TBAs, inclusive of fair payment mechanisms, were also recommended. Acknowledging existing tensions, the participants proposed that village officials and CHWs broker these partnerships. Further recommendations referred to utilizing social networks for more effective village-based care. Participants recommended that CHWs should receive salaries, cell phones, uniforms, and training for basic delivery care. In addition, government subsidies to encourage women to seek ANC at village health posts (e.g., with food for mothers and milk for babies) were recommended, as were village transportation schemes.

The recommendations were discussed, agreed upon, and disseminated in a newsletter among the audit groups (KKM, 2008), and in a policy brief presented to the District Health Office in Serang, and the Ministry of Health in Jakarta (KKM, 2010).

Discussion

The discussions provided detailed accounts of the microprocesses of care seeking and utilization. Many of the problems identified were seen to be beyond the control of individuals and could be attributed to the structure and operating conditions of the health care system. For example, women and families failed to prepare for delivery emergencies due to unavailable or unaffordable village midwifery services. Village midwives, in turn, neglected poor women in rural areas because low public salaries necessitated the maintenance of private practices. Responsibility for several villages also presented

Table 6: Recommendations

	Immediate term	Longer term
SHI	*In communities* o Repeat identification surveys and issue cards where necessary o Community officials to increase knowledge and awareness of SHI among women and families o Do not withhold cards o Educate poor and uninsured families on SHI entitlements *In health facilities* o Provide counseling and incentives for hospital staff to receive and treat poor patients/patients with SHI	*In communities* • Improve transparency in identification and listing processes • Extend eligibility quota • Extend entitlements to include blood, non-generic medicines, and transportation • Improve reimbursements to families • Simplify *SKTM* procedures *In health facilities* • Provide counseling and incentives for hospital staff to receive and treat poor patients/patients with SHI • Simplify the admission, care, and medication procurement processes for SHI users • Extend services for the poor in hospitals • Improve reimbursements to facilities • Strengthen quality of services, staff, and supplies for increased throughput
Village midwives & TBAs	o Provide counseling and incentives for midwives to routinely provide SHI counseling and assistance during ANC o Provide incentives for midwives to provide services to the poor, especially in obstetric emergencies o Train TBAs to promote birth preparedness and SHI	• Provide midwives with resources, such as housing, transportation, and increased salaries • Midwives should have responsibility for one village only, where they should ideally reside • Foster partnerships between TBAs, midwives, and CHWs, including development of fair payment mechanisms facilitated by village officials and CHWs
ANC & birth preparedness	o Community figures (village officials, village health workers, and religious leaders) to socialize birth preparedness among women and families o Encourage women to make contact with midwives and CHWs during pregnancy, and to negotiate delivery assistance and finances in advance, with counseling for SHI if necessary	• Provide CHWs with resources such as cell phones, salaries, uniforms, and training • Government subsidies with incentives for ANC attendance at village health posts with food for babies and milk for mothers • TBAs to receive training to promote birth preparedness and SHI
Emergency transportation	o Encourage women and families to make transportation arrangements during ANC at village health posts	• Have government-provided 24-hour dedicated emergency transportation and ambulances to rural and remote villages

serious constraints to the coverage that village midwives could realistically provide. Similarly, hospital staff turned away poor women, or treated them badly, as a result of the large numbers using SHI, coupled with insufficient reimbursements from *PT-Askes.*

SHI, designed to protect the poor from catastrophic costs of care, failed to mitigate these problems and often *introduced* barriers to access and quality in emergencies. In villages, SHI was inadequately socialized, inequitably distributed, and complex and bureaucratic to arrange. In facilities, its use led to discrimination and serious deficiencies in quality of care. Moreover, and despite the lower quality associated with its use, *Askeskin* was reportedly used widely by the non-poor. This suggests that there may be large numbers of people not officially classified as poor, for whom care remains unaffordable. *Askeskin* was recently replaced by an expanded scheme that targets 19 million impoverished households (DepKes, 2006). Despite this progressive development, it is insufficient, as the number of poor households reached 35 million in Indonesia in 2008 (BPS, 2008). In addition, initiatives that stimulate demand must be viewed as incomplete without concomitant supply-side strengthening (Lim *et al*, 2010).

The lack of midwives in villages was an important finding. Indonesia suffers from serious deficiencies in the numbers of sufficiently trained and competent health professionals (WHO SEARO, 2007), with approximately 26 midwives per 100,000 population (Hennessy *et al*, 2006) a third of the 75 per 100,000-target set by the Indonesian Ministry of Health (Kemenkes, 2010). Following national independence, providers were obliged to provide three years of public services. Under decentralization, however, many no longer retain civil contracts (Thabrany, 2006). This gives rise to increased flexibility within and between districts regarding human resources, but has effectively removed the ability of central government to monitor and evaluate coverage and quality (Heywood & Harahap, 2009). As stated by the WHO country office for Indonesia: "decentralization is one of many factors exacerbating long-standing problems with mal-distribution and reportedly low productivity and quality of health workers" (WHO Country Office for Indonesia, 2010).

Despite the intent to foster locally relevant governance, unintended and adverse consequences of decentralization have been observed in Indonesia and elsewhere. These include reductions in district health budgets, widespread privatization of public services, escalations in the numbers of health insurers, and increasing inequities in access and quality (Collins & Green, 1994; Homedes & Ugalde, 2005; Kristiansen & Santoso, 2006; Baso, 2007; Foley, 2008; Sparrow e*t al*, 2008; Halabi, 2009). Services that are organized and delivered according to decentralization policies that institutionalize commodified care provision may introduce an effect whereby the exclusion of those without the ability to pay for care becomes socially legitimate. This could account for the determining effects of the structure and operating conditions of the health care system on individual behaviors in the acute situations.

Study limitations

The interpretations should be considered in light of a number of study limitations. The cases were selected to represent a range of care pathways and complications. The selection was intended to facilitate generalizability and to ensure a varied meeting content. To avoid a predominately negative or punitive focus often associated with clinical audit (Sorensen *et al*, 2010), cases where women survived a delivery complication were examined, in addition to cases of death. Cases without complications and successful outcomes were, however, not selected for inclusion, which may have omitted relevant issues in the provision of successful emergency delivery care. The findings should therefore be considered in the context of adverse maternal health outcomes and delivery emergencies in rural areas.

The emphasis on access to care and quality of care may have imposed a health system focus on the assessments and obscured the influence of factors such as education, religion, gender, and so on. We took steps to minimize this by prompting participants to consider circumstances and events that occurred in the home and on the journey to care, as well as inside the facility. We also incorporated space within the topic guides and case assessment

frameworks for unsolicited issues to emerge and be examined. Otherwise, in the case storyboards and narratives, efforts were made to faithfully reproduce the original interviews (which were the basis of the case descriptions) to provide as complete accounts of the cases as possible. To foster valid and meaningful assessments, we also sought feedback from participants on the methods, meeting format, and preliminary findings, and made modifications in response.

Otherwise, our attempt to construct a "community perspective" may have inadvertently omitted certain viewpoints. In several of the early meetings, for example, the discussions suggested that religious leaders could promote health and educate local people about delivery care, SHI entitlements, and so on. As a result, at the outset of the study, we considered re-directing resources to establish religious leader groups. After careful consideration, however, we opted to maintain involvement in the groups with which we had already engaged. In addition, those who agreed to participate may have represented more informed, autonomous, or socially active individuals. We therefore recommend that participatory activities include a process of consultation with communities, with a view to the inclusion of marginalized individuals, as well as those who may be effective agents of change.

Finally, audit is a mechanism for continuous quality improvement in which care is evaluated and recommendations are formulated in a continuous cycle of implementation and re-review (Crombie, 1993; WHO, 2004b; South Africa Every Death Courts Writing Group, 2008). Authentic community participation should also occur within a context of continuous engagement, to contribute towards to the redistribution of political power and empowerment goals (Arnstein, 1969). The resources that were available to the study allowed for neither a long-term engagement nor the implementation and evaluation of recommendations generated. To address this, we developed aims and objectives to demonstrate the utility of the approach, for uptake on a more sustained basis. The results demonstrate the depth and coherence of information, the considerable analytical capabilities of communities, and the relative ease with which meaningful participation can be achieved when conducted according to principles of positive accountability. These findings contribute to a growing body of evidence on community participation for MCH in South Asia (Manandhar *et al*, 2004; Borghi *et al*, 2005; Kumar *et* al, 2008; Rath *et al*, 2010; Tripathy *et al*, 2010). We therefore recommend the method for routine (i.e., non-research) district health planning settings and the development of formal partnerships between communities and health authorities for this purpose.

Conclusion

In the cases reviewed, constraints on quality of and access to life-saving delivery care could be attributed to the operating conditions of the health system, which imposed social norms of eligibility for care based on ability to pay. These norms were subsequently maintained at the individual level among women, families and service providers. We therefore conclude that a health system characterized by commodified care provision and inadequate resources at district level can effectively legitimize exclusion from access to quality delivery care. Reform that promotes universal access to good quality life-saving care in obstetric emergencies may be an effective means to reduce avoidable mortality and morbidity in this setting. We acknowledge, however, that such reform will require shifts in prevailing paradigms of healthcare administration and financing. The findings are also suggestive of the positive potential of local audit. The community perspective yielded rich and vivid insights, situating the behaviors of individuals within wider social contexts. This allowed for detailed, multi-level analysis. Routine community evaluation may provide a means for the development of contextually relevant implementation solutions that promote the equitable provision of emergency delivery care.

Author contributions

LD devised the study design, contributed to data collection, led the analysis, and drafted the manuscript. EM and YI devised the study design, led the data collection, contributed to analysis, and contributed to versions of the manuscript. AK supervised analysis and contributed to the manuscript. AC conceived of the study and contributed to the manu-

script. The manuscript has been prepared on behalf of the Serang District Community Health Partnership for Maternal Health. Although not formally authors, the participants made substantial direct intellectual contributions: participants devised the study design (during implementation), led data collection, and contributed to the analysis.

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Abbreviations and acronyms

ANC	Antenatal care
Askeskin	*ASuransi KESehatan untuk Keluarga miskIN* (health insurance for poor families)
CHW	Community health worker
FGD	Focus group discussion
JPS	*Jaring Pengaman Sosial-Bidang Kesehatan* (social safety net for health)
MCH	Maternal and child health
MMR	Maternal mortality ratio
MW	Midwife present in village during the emergency (not officially responsible for village or woman)
OB/GYN	Obstetrician/gynecologist
PHC	Primary health care
PT-Askes	State-owned insurance company
Rp	Indonesian Rupiah
SKTM	*Surat Keterangan Tidak Mampu* (explanation letter of no capability)
SHI	Social health insurance
TBA	Traditional birth attendant
VMW	Midwife responsible for (but not necessarily resident in) village
WRA	Women of reproductive age

References

Achadi, E., Scott, S., Pambudi, E.S., Makowiecka, K., Marshall, T., Adisasmita, A., *et al.* (2007). Midwifery provision and uptake of maternity care in Indonesia. *Tropical Medicine and International Health*, 12(12): 1490-7.

Ahmed, S. & Holtz, S.A. (2007). Social and economic consequences of obstetric fistula: Life changed forever? *International Journal of Gynaecology & Obstetrics*, 99(S1): S10-5.

Amnesty International. (2010). Joint statement on maternal mortality and morbidity supported by 108 states. AI Index: IOR 42/002/2010. London: Amnesty International. Available at: http://www.amnesty.org/fr/library/asset/IOR42/002/2010/fr/8cf99348-485d-4a5d-bdb8-72d7123676fc/ior420022010en.html

Arnstein, S.R. (1969). A ladder of citizen participation. *Journal of the American Planning Association*, 35(4): 216–24.

Bazzano, A.N., Kirkwood, B., Tawiah-Agyemang, C., Owusu-Agyei, S. & Adongo, P. (2008). Social costs of skilled attendance at birth in rural Ghana. *International Journal of Gynaecology & Obstetrics*, 102(1):91-4.

Berman, P.A. (1984). Village health workers in Java, Indonesia: Coverage and equity. *Social Science & Medicine*, 19(4): 411-22.

Blaxter, M. (1983). The causes of disease: women talking. *Social Science & Medicine*, 17(2): 59-69.

Badan Pusat Statistik-Statistics Indonesia (BPS) & Marco International (2008). *Indonesia Demographic and Health Survey 2007.* Calverton (MD): Marco International. Available at: http://www.measuredhs.com/pubs/pub_details.cfm?ID=897&ctry_id=17&SrchTp=country

Baso, Z.A. (2007). The emerging impact of decentralisation on health systems. In Thanenthiran, S. & Khan, A. (Eds.), *Rights and realities: Monitoring reports on the status of Indonesian women's sexual and reproductive health and rights.* Kuala Lumpur: The Asian-Pacific Resource and Research Centre for Women (ARROW).

Borghi, J., Thapa, B., Osrin, D., Jan, S., Morrison, J., Tamang, S. *et al*. (2005). Economic assessment of a women's group intervention to improve birth outcomes in rural Nepal. *Lancet*, 366: 1882-1884.

Collins, C. & Green, A. (1994). Decentralization and primary health care: Some negative implications in developing countries. *International Journal of Health Services*, 24(3): 459-75.

Commission on Social Determinants of Health (CSDH). (2008). *Closing the gap in a generation: Health equity through action on the social determinants of health*. Geneva: World Health Organization. Available at: http://www.who.int/social_determinants/thecommission/finalreport/en/index.html

Confidential Enquiries into Maternal Deaths (CEMD). (2001). *Why mothers die 1997-1999: The fifth report of the Confidential Enquiries into Maternal Deaths in the United Kingdom*. London: RCOG Press.

Crombie IK, Davies HTO, Abraham SCS, Florey C. (1993). *The audit handbook*. West Sussex: John Wiley and Sons.

D'Ambruoso, L., Achadi, E., Adisasmita, A., Izati, Y., Makowiecka, K. & Hussein, J. (2009). Assessing quality of care provided by Indonesian village midwives with a confidential enquiry. *Midwifery*, 25(5): 528–39.

D'Ambruoso, L., Byass, P. & Qomariyah, S.N. (2010). "Maybe it was her fate and maybe she ran out of blood": Final caregivers' perspectives on access to care in obstetric emergencies rural Indonesia. *Journal of Biosocial Science*, 42: 213-241.

D'Ambruoso, L. (2011). *Care in obstetric emergencies: studies of quality of care, access to care and participation in health in rural Indonesia.* PhD Thesis. Aberdeen: University of Aberdeen.

D'Ambruoso, L., Izati, Y., Martha, E., Kiger, A., Coates, A. (2013). Maternal mortality and severe morbidity in rural Indonesia Part 2: implementation of a community audit. *Social Medicine*, 7(2): 68-79.

Departemen Kesehatan (Ministry of Health). (2006). *Keputusan Menkes (Ministerial Decree of Minister of Health) RI No. 332/Menkes/SK/V/2006.* Jakarta: Departemen Kesehatan Republik Indonesia.

Ensor, T., Nadjib, M., Quayyum, Z. & Megraini, A. (2008). Public funding for community-based skilled delivery care in Indonesia: To what extent are the poor benefiting? *European Journal of Health Economics,* 9(4): 385-92.

Filippi, V., Ronsmans, C., Campbell, O.M., Graham, W.J., Mills, A., Borghi, J. *et al.* (2006). Maternal health in poor countries: The broader context and a call for action. *Lancet,* 368(9546): 1535-41.

Foley, E.E. (2008). Neoliberal reform and health dilemmas. *Medical Anthropology Quarterly*, 22(3): 527-273.

Freedman, L.P., Graham, W.J., Brazier, E., Smith, J.M., Ensor, T., Fauveau, V. *et al* (2007). Practical lessons from global safe motherhood initiatives: Time for a new focus on implementation. *Lancet*, 370(9595): 1383-91.

Gani, A. (1996). Improving quality in public sector hospitals in Indonesia. *International Journal of Health Planning and Management,* 11: 275-96.

Gill, K., Pande, R. & Malhotra, A. (2007). Women deliver for development. *Lancet,* 370(9595): 1347-57.

Graham, W.J., Fitzmaurice, A.E., Bell, J.S. & Cairns, J.A. (2004). The familial technique for linking maternal death with poverty. *Lancet,* 363(9402): 23-7.

Graham, W., Ahmed, S.T., Stanton, C., AbouZahr, C. & Campbell, O. (2008). Measuring maternal mortality: an overview of opportunities and options for developing countries. *BMC Medicine*, 6:12.

Halabi, S.F. (2009). Participation and the right to health: Lessons from Indonesia. *Health and Human Rights*, 11:1.

Hennessy, D.A., Hicks, C.M., Kawonal, Y. & Hilan, A. (2006). A methodology for assessing the professional development needs of nurses and midwives in Indonesia: Paper 1 of 3. *Human Resources for Health*, 4:8.

Heywood, P. & Harahap, N. (2009). Human resources for health at the district level in Indonesia: The smoke and mirrors of decentralization. *Human Resources for Health*, 7: 6.

Homedes, N. & Ugalde, A. (2005). Why neoliberal health reforms have failed in Latin America. *Health Policy*, 71(1): 83-96.

Izati, Y., Pambudi, E. & D'Ambruoso, L. (2005). *A descriptive analysis of coverage and profile of midwifery services in Serang and Pandeglang districts.* Jakarta: Immpact Indonesia.

Kementerian Kesehatan (Ministry of Health) (2010). Rencana Strategis Kementerian Kesehatan Tahun 2010-2014 (*Strategic Plan of the Ministry of Health in 2010-2014*). Jakarta: Departemen Kesehatan Republik Indonesia.

Kemitraan Kesehatan Masyarakat (KKM)(Community Health Partnerships Project). (2008). *Power in partnerships: official record of the Community Health Partnerships Project conducted by Immpact, University of Indonesia.* Jakarta: Immpact Indonesia.al Indonesia.

Kemitraan Kesehatan Masyarakat (KKM) (Community Health Partnerships Project). (2010). *Realities and priorities: a community-based audit of maternal mortality and severe morbidity in rural Indonesia.* Policy Brief. Jakarta: Immpact Indonesia.

Kristiansen, S. & Santoso, P. (2006). Surviving decentralisation? Impacts of regional autonomy on health service provision in Indonesia. *Health Policy*, 77(3): 247-59.

Krueger, R.A. (2000). *Focus groups: A practical guide for applied research*. London: Sage Publications.

Kumar, V., Mohanty, S., Kumar, A., Misra, R.P., Santosham, M., Awasthi, S. *et al.* (2008). Effect of community-based behaviour change management on neonatal mortality in Shivgarh, Uttar Pradesh, India: A cluster-randomised controlled trial. *Lancet*, 372: 1151-1162.

Lim, S.S., Dandona, L., Hoisington, J.A., James, S.L., Hogan, M.C. & Gakidou, E. (2010). India's Janani Suraksha Yojana, a conditional cash transfer programme to increase births in health facilities: An impact evaluation. *Lancet*, 375: 2009-23.

Lozano, R., Wang, H., Foreman, K.J., Rajaratnam, J.K., Naghavi, M., Marcus, J.R., *et al.* (2011). Progress towards Millennium Development Goals 4 and 5 on maternal and child mortality: An updated systematic analysis. *Lancet*, 378(9797): 1139-65.

Makowiecka, K., Achadi, E., Izati, Y. & Ronsmans, C. (2008). Midwifery provision in two districts in Indonesia: How well are rural areas served? *Health Policy & Planning*, 23(1): 67-75.

MacDonagh, S. (2005). *Achieving skilled attendance for all; a synthesis of current knowledge and recommended actions for scaling up.* London; DFID. Available at: http://www.expandnet.net/PDFs/skilled-attendance-report.pdf

Manandhar, D.S., Osrin, D., Shrestha, B.P., Mesko, N., Morrison, J., Tumbahangphe, K.M. *et al*. (2004). Effect of a participatory intervention with women's groups on birth outcomes in Nepal: cluster-randomised controlled trial. *Lancet*, 364: 970-979.

Navarro,V. (2009). What we mean by social determinants of health. *International Journal of Health Services*, 39(3): 432-41.

Nobles, J. & Frankenberg, E. (2009). Mothers' community participation and child health. *Journal of Health and Social Behaviour*, 50(1): 16-30.

Paxton, A., Maine, D., Freedman, L., Fry, D. & Lobis, S. (2005). The evidence for emergency obstetric care. *International Journal of Gynecology & Obstetrics*, 88(2):181-93.

Popay, J. & Williams, G. (1996). Public health research and lay knowledge. *Social Science & Medicine*, 42(5): 759-68.

Pope, C. & Mays, N. (2006). *Qualitative research in health care.* Oxford: Blackwell Publishing.

Rabasa, A. & Chalk, P. (2001). Reinventing Indonesia: The challenge of decentralization. In: Rabasa, A., Chalk, P., (Eds.), *Indonesia's transformation and the stability of Southeast Asia.* Santa Monica (CA): RAND. Available at: http://www.rand.org/pubs/monograph_reports/MR1344.html

Rath, S., Nair, N., Tripathy, P., Barnett, S., Rath, S., Mahapatra, R. *et al*. (2010). Explaining the impact of a women's group led community mobilisation intervention on maternal and newborn health outcomes: The Ekjut trial process evaluation. *BMC International Health and Human Rights*, 10: 25.

Ronsmans, C. & Graham, W.J. (2006). Maternal mortality: Who, when, where, and why. *Lancet,* 368(9542), 1189-200.

Ronsmans, C., Scott, S., Qomariyah, S.N., Achadi, E., Braunholtz, D., Marshall, T. *et al* (2009). Professional assistance during birth and maternal mortality in two Indonesian districts. *Bulletin of the World Health Organization*, 87(6): 416-23.

Rosenfield, A. & D. Maine (1985). Maternal mortality - a neglected tragedy: Where is the M in MCH? *Lancet* 326(8446): 83-5.

Say, L., Pattinson, R., Gulmezoglu, A.M. (2004). WHO systematic review of maternal morbidity and mortality: the prevalence of severe acute maternal morbidity (near miss). *Reproductive Health*. 2004;1(1):3.

Shankar, A., Sebayang, S., Guarenti, L., Utomo, B., Islam, M., Fauveau, V. et al (2008). The village-based midwife programme in Indonesia. *Lancet*, 371(9620): 1226-9.

Shrestha, R. (2007). *The village midwife program and the reduction in infant mortality in Indonesia.* New York: Population Association of America.

Sorensen, B.L., Elsass, P., Nielsen, B.B., Massawe, S., Nyakina, J. & Rasch, V. (2010). Substandard emergency obstetric care – a confidential enquiry into maternal deaths at a regional hospital in Tanzania. *Tropical Medicine and International Health*, 15: 894-900.

South Africa Every Death Counts Writing Group. (2008). Every death counts: Use of mortality audit data for decision making to save the lives of mothers, babies, and children in South Africa. *Lancet*, 371: 1294-1304.

Sparrow, R., Suryahadi, A. & Widyanti, W. (2008). *Public health insurance for the poor in Indonesia: targeting and impact of Indonesia's Askeskin programme.* Cape Town: Annual Bank Conference on Development Economics.

Thabrany, H. (2006). Human resources in decentralised health systems in Indonesia. *Regional Health Forum*, 10: 75-86.

Thaddeus, S. & Maine, D. (1994). Too far to walk: Maternal mortality in context. *Social Science & Medicine*, 38(8): 1091-110.

Tripathy, P., Nair, N., Barnett, S., Mahapatra, R., Borghi, J., Rath, S. *et al*. (2010). Effect of a participatory intervention with women's groups on birth outcomes and maternal depression in Jharkhand and Orissa, India: A cluster-randomised controlled trial. *Lancet*, 375: 1182-92.

United Nations General Assembly. (2009). *Preventable maternal mortality and morbidity and human rights.* Resolution A/HRC/11/L.16/Rev.1. 16 June 2009. New York: United Nations. Available at: http://ap.ohchr.org/documents/alldocs.aspx?doc_id=15740

Utomo, I.D., Arsyad, S.S. & Hasmi, E.N. (2006). Village family planning volunteers in Indonesia: Their role in the family planning programme. *Reproductive Health Matters*, 14(27):73-82.

Williams, G. (2003). The determinants of health: Structure, context and agency. *Sociology of Health & Illness*, 25(3): 131-54.

Williams, G. & Popay, J. (2006). Lay knowledge and the privilege of experience. In Kelleher, D., Gabe, J., Williams, G. (Eds.), *Challenging medicine*, 2nd edition, pp122-45. London: Routledge.

The World Bank. (2006). *Making the new Indonesia work for the poor.* Jakarta/Washington: World Bank. Available at: http://siteresources.worldbank.org/INTINDONESIA/Resources/Publication/280016-1152870963030/2753486-1165385030085/Overview_standalone_en.pdf

The World Bank. (2010). *World Development Indicators*. Washington: World Bank. Available at: http://data.worldbank.org/data-catalog/world-development-indicators/

WHO & UNICEF. (1996). *Revised 1990 estimates of maternal mortality: A new approach by WHO and UNICEF.* WHO/FRH/MSM/96.11. Geneva: World Health Organization. Available at: http://whqlibdoc.who.int/hq/1996/WHO_FRH_MSM_96.11.pdf

WHO & the World Bank. (2000). *Indonesia Country Profile.* Geneva: World Health Organization. Available at: http://www.who.int/disasters/repo/9062.pdf

WHO, UNICEF & UNFPA. (2001). *Maternal mortality in 1995: Estimates developed by WHO, UNICEF, UNFPA.* WHO/RHR/01.9. Geneva: World Health Organization. Available at: http://whqlibdoc.who.int/hq/2001/WHO_RHR_01.9.pdf

WHO, UNICEF & UNFPA. (2004). *Maternal mortality in 2000: Estimates developed by WHO, UNICEF, UNFPA.* Geneva: World Health Organization. Available at: http://www.who.int/reproductivehealth/publications/monitoring/9241562706/en/index.html

WHO. (2004a). *Making pregnancy safer: The critical role of the skilled attendant. A joint statement by WHO, ICM and FIGO.* Geneva: World Health Organization. Available at: http://www.who.int/maternal_child_adolescent/documents/9241591692/en/index.html

WHO. (2004b). *Beyond the numbers: Reviewing maternal deaths and complications to make pregnancy safer.* Geneva: World Health Organization. Available at: http://www.who.int/making_pregnancy_safer/documents/9241591838/en/index.html

WHO SEARO. (2007). *Indonesia: National health system profile*. New Delhi: WHO SEARO.

WHO, UNICEF, UNFPA & the World Bank. (2007). *Maternal mortality in 2005: Estimates developed by WHO, UNICEF, UNFPA and the World Bank.* Geneva: World Health Organization. Available at: http://www.who.int/whosis/mme_2005.pdf

WHO, UNICEF, UNFPA & AMDD. (2009). *Monitoring emergency obstetric care: A handbook.* Geneva: World Health Organization. Available at: http://www.who.int/reproductivehealth/publications/monitoring/9789241547734/en/index.html

WHO Country Office for Indonesia. (2010). *WHO Indonesia Health Profile*. Jakarta: WHO Country Office for Indonesia.

WHO, UNICEF, UNFPA & the World Bank. (2010). *Trends in Maternal Mortality: 1990 to 2008. Estimates developed by WHO, UNICEF, UNFPA and the World Bank*. Geneva: World Health Organization. Available at: http://www.who.int/reproductivehealth/publications/monitoring/9789241500265/en/index.html

WHO. (2011a). *Global Health Observatory: Maternal and reproductive health*. Geneva: World Health Organization. Available at: http://www.who.int/gho/maternal_health/en/

WHO. (2011b). *10 facts on midwifery (number 4).* Geneva: World Health Organization. Available at: http://www.who.int/features/factfiles/midwifery/en/index.html