Review Article:
REDUCING MATERNAL MORTALITY RATE (MMR) AND INFANT MORTALITY RATE (IMR): NON INSTITUTIONAL DELIVERY OR INSTITUTIONAL DELIVERY?

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ABSTRACT

Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) are indicators of health degree and successfullness of mother and child medicare. In Indonesia, the Maternal Mortality Rate, although decreasing, remains the highest in South-East Asia while Infant Mortality Rate is also the highest among neighboring countries. Situations that play important role toward high MMR & IMR in Indonesia are high number of delivery at home, domination of traditional birth attendants, low education and poor economy, lack of health providers, and unsufficient family planning program. The success of neighboring countries in reducing MMR and IMR is pursued by providing training for birth attendants to become skilled, early risk identification on pregnant woman by midwife, periodical home visit, and easy access on health care facilities. Key elements to decrease MMR and IMR are that every births must be assisted by skilled birth attendant, obstetric and neonatal complications must have sufficient treatment, woman on fertile age should have access towards pregnancy and abortion complication prevention. Cost is a problem that make most woman choose to deliver at home, so fund raising is needed. Mini delivery house can be developed from countryside clinic or other medical facilities that already exist. There must be supported by sufficient skilled birth attendants, strong commitment from the government and society component and also active participation from professional organization such as IDI, POGI, IBI, and woman organization in order to overcome MMR and IMR problems.

Keywords: MMR, IMR, Institutional delivery

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INTRODUCTION

Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) are indicators of health degree and successfullness of mother and child medicare. Definition of MMR (Maternal Mortality Rate) is the number of maternal deaths as a consequence of pregnancy and delivery process per 100,000 life births (Sauvarin 2006). Definition of IMR (Infant Mortality Rate) is the number of infant death in one year per 1,000 life births (AbouZahr and Wardlaw 2001). Maternal Mortality Rate in Indonesia is 307 (in 2003) and 209,8 (in 2005). Although decreasing, Maternal Mortality Rate in Indonesia is the highest in South-East Asia (Rochjati et al. 2002, Daly and Saadah 1999). According to the analysis from UNICEF, IMR in Indonesia was 60 in 1990, 46 in 1995, and 35 in 2003 (Sauvarin 2006). According to SUSENAS (National
Socioeconomic Survey). Infant Mortality Rate in Indonesia was 56 (in 1995), and 45 (in 2002). IMR in Indonesia was also the highest among neighboring countries. The problem is the unstable degradation of Infant Mortality Rate and limited data resulting in a notion that the degradation of infant death is not because of neonatal death (death between 0-28 days of age). Infants Mortality Rate in Indonesia especially happens in pregnancy and labor process. Maternal Mortality Rate influences baby’s quality so it directly influences the Infant Mortality Rate (Sauvarin 2006).

SAFE MOTHERHOOD ACTIVITY IN DECREASING MMR

One pillar from Safe Motherhood to enhance the decrease of MMR is Making Pregnancy Safer (MPS) with its strategy such as increasing the access/coverage of health care for mothers and newborns, developing effective partnership between mother and birth attendant, women involvement and enhancing up the role of community in improving mother education and providing a place for mother and child health care. MPS has three main elements, i.e., each delivery should be helped by a skilled birth attendant, obstetrics and neonatal complication must obtain proper health care, women of productive age must have access to pregnancy prevention and miscarriage complication (Laporan Perkembangan Pencapaian Tujuan Pembangunan Milenium Indonesia). However, in reality the problem is that Maternal Mortality Rate in Indonesia remains the highest in South East Asia and the decrease of IMR remains unstable. According to Millenium Development Goals 2015, the IMR is expected less than 125, therefore it is impossible to reach this goal.

CHARACTERISTIC OF DELIVERY IN INDONESIA

Delivery in Indonesia depends on several factors. The first is family. Family has a major role, so mother will never take decision by herself, resulting in delayed reference to the hospital, which, in turn, result in maternal death or unfavorable condition of the neonates, which sometimes ends in fatality either. The second factor is the place of delivery. Seventy-seven percent of pregnant woman in Indonesia have delivery at home (in 1997). This condition will cause incidence of complication either in pregnancy or delivery, such as haemorrhage, which in less than two hours should be referred to Puskesmas, fetal distress that need caesarean section, infection that need clean water and sterility of health tools, preeclampsia or eclampsia that need drugs like MgSO4 (Daly and Saadah 1999, McGeown 2004, Sauvarin 2006). In addition, Traditional Birth Attendant (TBA) also plays a role.

![Figure 1. Number of prevalence of modern Family Planning (FP) in East and South East Asia (UNFPA, 2005).](image)

Advantage from TBA is cheaper services and usually can stay longer with the mother to taking care of the baby. However, poor knowledge, specifically to determine if the delivery process goes normal or abnormal, bad sterility, especially when cutting the umbilical cord, can cause infection to the mothers or tetanus neonatorum to the baby (Prabowo 2006, Parsell 2006). Mothers in rural areas usually refuse to be sent to hospital or come late to hospital by reason of no expense so the limited budget cause maternal morbidity and mortality (Iskandar and Hull 1996).

Furthermore, education level influences the prognosis of mother and child at delivery process. With high education, mother can be self-supporting especially when the pregnancy and delivery process is predicted to be either normal or abnormal, or baby condition either good or bad, she can select herself the health care or hospital and has a high position of bargaining in the family. Whereas, if she is low educated, they will be very dependent on their husband, parents in law or other relatives, which may result in delayed visit to the hospital. They were unable so that they decide to undergo delivery at home, and their bargaining position is low. In addition, family planning is less successful due to the effect of low education, difficult access to health care, less and bad communication between health provider, myth and low economy. In 2005, FP prevalence was 55%, whereas FP field officer reduced from 36,000 to become 20,000 in 2005 up to 2007. Population growth each year was 1.6%, 3 – 4 million (BKKBN, 2007).
CAUSE OF HIGH AT HOME DELIVERY IN INDONESIA

Factors that contribute to high delivery rate in Indonesia are psychological, family, economy, education, geographical, and the location of health care. Positive impact is that mother wants to be comfortable for being close to supporting individuals, like husband and family. However, negative impact is that if complication occurs, it cannot be directly overcome. Family role is very important, for example in determining the place of delivery, and feeling of togetherness is strong. Unhappiness occurs when complication takes place, but it cannot be directly overcome. Education composition in Indonesia showed that more than 50% of Indonesia residents had their education at elementary school (finished/ not finished). This condition will cause resistance at health programs for mother and child. Geographical condition in Indonesia has an effect on the access to health care, for example, in archipelagic/oceanic condition, hilly hinterland, and bad transportation will cause high MMR and IMR. On the contrary, in big cities, where transportation is better, MMR and IMR are relatively lower (McGeown 2004, Prabowo 2006).

Table 1. Education composition in Indonesia (World Bank 2004)

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<tbody>
<tr>
<td>Gross</td>
<td>Primary</td>
<td>117.0</td>
<td>114.3</td>
<td>113.4</td>
<td>110.9</td>
<td>117.0</td>
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<tr>
<td>Enrollment Secondary</td>
<td>41.3</td>
<td>45.5</td>
<td>51.5</td>
<td>54.9</td>
<td>64.1</td>
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<tr>
<td>Ratio</td>
<td>Tertiary</td>
<td>-</td>
<td>9.5</td>
<td>11.3</td>
<td>14.4</td>
<td>16.7</td>
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<tr>
<td>Net</td>
<td>Primary</td>
<td>97.2</td>
<td>96.7</td>
<td>95.4</td>
<td>93.9</td>
<td>94.3</td>
</tr>
<tr>
<td>Enrollment Secondary</td>
<td>-</td>
<td>39.1</td>
<td>42.3</td>
<td>48.6</td>
<td>56.9</td>
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Access to health care and quality of health care influences coverage from health care place referred. As an example, access to national health care is 87.76 %. The highest is in Bangka Belitung, as high as 87.93 %, and the lowest is in Papua as low as 65.93%. Whereas, the quality of health care has a national coverage of 79.44 %, highest in Gorontalo 95.91 % and lowest in North Maluku 52.81 %.

INSTITUTIONAL DELIVERY

The advantages of institutional delivery compared to non institutional are as follows: health provider and facilities are ready and more complete; quicker and more accurate management. For example, post partum hemorrhage is managed in less than 2 hour, and the transportation goes well. Education to mother and family is more easy, for example, education for pregnancy complication and education for family planning. Weakness of institutional delivery is that it requires high expense compared to home delivery or non institutional one, and the locations is not always representative or easily reached.

AT HOME DELIVERY

The advantages of delivery at home are cheaper compared to institutional delivery and mother feels comfortable because she can be consorted by family members. On the other hand, the disadvantages of delivering baby at home are that the health provider and health care facility are not available and there is higher risk of complications. Complication handling, if occurs, cannot be immediately conducted.

DELIVERY PROFILE IN SOME NEIGHBORING COUNTRIES

In Ceylon, maternal mortality rate from 1060 in 1946 become 25 in 1995. Infant Mortality Rate in Ceylon from 140 in 1946 become 13 in 1997 – 2000 (Abeykoon 2004, World Bank 2004). The early effort causing reduction of MMR & IMR above is the identification of early female pregnancy by midwife, periodical house visit, and easy access to health care facilities. In Ceylon, institutional delivery is 97.1 % whereas in home delivery is 1.8%. Post partum coverage is high (77.7%), there is no TBA, and education is free of charge since 1945 (Abeykoon 2004). MMR in Bangladesh is as high as 450 and IMR as high as 60. Institutional delivery is...
only as high as 0.7 – 4.2 % (Tahana Health Center), whereas in house delivery is as high as 95%. Delivery by medical trained personal is 16 %. Husband holds main decision, bad sanitation, less clean water and low economy (World Bank 2004). In Malaysia, in 1957 midwife education was started on a large scale, producing about 2.000 midwives, until in 1960 – 1970 delivery by midwife exceeds delivery by TBA. In 1970 – 1990, 70 – 90% delivery was conducted with midwife assistance. MMR was only 39 in 1987, although delivery in house was as high as 80% that helped by midwife (Sauvarin 2006). In Thailand, in 1960, training of 7.000 midwives was conducted. In 1970 there were 18.000 midwives. In 1974 – 1981, MMR from 200 become 100. Whereas in 1985, MMR was 50 (Sauvarin 2006).

Observing health profile in some neighbouring countries above, strategies that must be done are providing location, better communication between society and health provider (mini delivery house). Better mini delivery house can be wide, clean, easy to reach, and the health equipment can be managed by countryside midwife, more effective and efficient collection of the data on mothers to find whether the quality of health care is good, the existing patient invite other patients to come to health care (patient get patients); total health providers distributed especially in hinterland or remote area, post partum service and post natal care must be improved, access to health care place must be improved, for example, by providing free transportation with self-supporting society ; family planning program is reactivated, so that we can reduce the number of abortions, unwanted pregnancy, and good spacing (> 3 years); improve education level especially for woman, for example by giving free education for woman by government agency, private sector, or donation from outside country, improve economy condition by improving education; strong commitment and cooperation from government and society, for example, with free of charge delivery that carried out by professional organization like POGI, IDI, IBI, and woman clubs (Gilbert and Prabowo 2006, Sauvarin 2006, Sines et al. 2007).

CONCLUSION

Situations that play an important role in high MMR & IMR in Indonesia are high number of delivery at home, predominant traditional birth attendants, low education and economy, few health providers, and weak family planning program that is not acceptable. Institutional delivery can reduce MMR and IMR by accurate management, more guaranteed mother and baby safety, more efficient and effective education to mother and her relatives, prevention of delayed decision, and prevention of delayed referral and management. Support for successful institutional delivery would involve special place (mini delivery house) that is representative and easily reached, available transportation and free delivery, good post partum and post natal care, and strong commitment from the government and society component. Things of interest that need attention are expense a causative of problem, a large part of woman are forced to select delivery at home, mini delivery house is derived from countryside clinic or other medical facilities that already exist, and fund problem can be overcome with self-supporting society, contribution of government, and overseas aids. Active role of professional organization like IDI, POGI, IBI, and woman clubs are required to overcome MMR and IMR problem.

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