MATERNAL MORTALITY IN INDONESIA:
Barriers and Interventions for Preventing

Riska Apriliyanti
Indonesia

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KIT Health (ROYAL TROPICAL INSTITUTE)
Vrije Universiteit Amsterdam
Amsterdam, The Netherlands

Maternal Mortality in Indonesia: Barriers and Interventions for Preventing

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by

Riska Apriliyanti
Indonesia

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Abstract

Background: Indonesia is one of the countries which high maternal mortality. In 2012, there were 359 maternal deaths per 100.000 live births (95% CI: 239-478) in 2012 (SDKI 2012).

Objective: This study aims to explore barriers in reducing maternal mortality and reviewing the effectiveness of health interventions in Indonesia.

Methods: This study uses the Three Delay Model by Thaddaeus and Maine (1994) to identify the barriers in reducing maternal mortality in Indonesia. This study is a literature review study. Data were compiled through journals, reports, online search engines, and academic national/international websites.

The Findings: the study shows that all areas of Three Delays Model contributed to maternal mortality especially the third delay. Cultural factors, such as perception of need of health care, unsafe abortion, women's status, education, perceived accessibility, and perceived quality of care, were still influenced women deciding to seek health care (first delay). Reaching health facilities (second delay) were affecting by accessibility of health facilities like health care centers distribution, infrastructures, and costs that made difficulty for rural populations. Receiving adequate and appropriate treatment in time (third delay) is affected by quality of care include staff and equipment in health facilities that unadequate in Indonesia. Both government and community already handled delays even though more improvements are still needed.

Recommendation: This study recommends improving quality of care to strengthen health system especially maternal health. Development of Poverty reduction and multisectoral approaches are also important to reduce maternal mortality in Indonesia.

Key Words: Maternal Mortality, Indonesia, Barrier, Intervention, Three Delays Model.

Word Counts: 13,068

List of Abbreviations and Indonesian Terms

AIPI   Akademi Ilmu Pengetahuan Indonesia
(Indonesian Academy of Sciences)

ASEAN   Association of South East Asia Nations

Askes   Asuransi Kesehatan (Health Insurance)

Askeskin   Asuransi Kesehatan Keluarga Miskin
(Health Insurance Scheme for Poor People)

BAPPENAS   Badan Perencanaan Pembangunan Nasional

BEmONC   Basic Emergency Obstetric and Newborn Care

BKKBN   Badan Kependudukan dan Keluarga Berencana Nasional

BPS   Badan Pusat Statistik (Central Statistics Agency)

BOK   Bantuan Operasional Kesehatan
(Operational Health Support)

CEmONC   Comprehensive Emergency Obstetric and Newborn Care

CI   Confidence Interval

FHC   Flying Health Care

FP   Family Planning

GDP   Gross Domestic Product

HDI   Human Development Index

IJEPA   Japan Economic Partnership Agreement

Jamkesmas   Jaminan Kesehatan Masyarakat
(Community Health Insurance)

Kemkes   Kementerian Kesehatan (Ministry of Health)

KIA   Kesehatan Ibu dan Anak (Mother and Children Health)

MDG	Millennium Development Goal
MgSO$_4$	Magnesium Sulfate
MMEIG	Maternal Mortality Estimation Interagency Group
MMR	Maternal Mortality Ratio
MoH	Ministry of Health
MPA	Maternal and Perinatal Audit
MUI	Majelis Ulama Indonesia (Indonesian Religious Leaders Council)
NTT	Nusa Tenggara Timur
NU	Nahdatul Ulama
OOP	Out-of-Pocket
Puskesmas	Pusat Kesehatan Masyarakat (Community Health Center)
Pustu	Puskesmas Pembantu (village health posts)
Posyandu	Pos Pelayanan Terpadu (Community Health Extension Post)
Polindes	Pondok Bersalin Desa (Village Birth Facility)
PTT	Pegawai Tidak Tetap (Temporary Employees)
Pusling	Puskesmas Keliling (Mobile Community Health Center)
Pusling Air	Puskesmas Keliling Air (Water Mobile Health Clinic)
RI	Republic of Indonesia
TBA	Traditional Birth Attendant
TFR	Total Fertility Rate
SDG	Sustainable Development Goals

SDKI	Survei Demografi dan Kesehatan Indonesia (Indonesia Demographic and Health Survey)
SEARO	South-East Asia Regional Office
SKTM	Surat Keterangan Tidak Mampu (Poor Statement Letter)
UKS	Usaha Kesehatan Sekolah (School Health Units)
UNDP	United Nations Development Programme
UNFPA	United Nations fund for Population Activities
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization

Introduction

Indonesia is one of the countries which have a problem with high maternal mortality. Based on Indonesia Demographic and Health Survey (SDKI), there were 359 maternal deaths per 100.000 live births (95% CI: 239-478) in 2012. The number is higher than in other countries in Southeast Asia such as Malaysia, Thailand or Philippines with 29, 48, and 99 per 100.000 live births, respectively (AIPI 2013). It turned out to be impossible to reach the MDG 5 target of reducing this ratio to 102 per 100.000 live births in 2015.

In Indonesia, the main causes of maternal death are haemorrhage (30.1%), hypertension in pregnancy (26.9%), infection (5.6%), prolonged labor (1.8%), abortion (1.6%) and other causes (34.5%) (Kemkes 2015). According to the available statistics, haemorrhage is a major cause of maternal mortality and it could be worse in reality due to unreported cases. However, most causes can be prevented by improving access to health care facilities. Many pregnancy complications can be detected during routine antenatal care delivered by trained health care workers.

The government of Indonesia has tried to reduce maternal mortality in order to reach the fifth target of MDG (Maternal Health) by delivering several programs. For example, the government created special insurance for low income communities and provided basic health care facilities in every district. Specifically, in maternal health area, the government launched a program called 'Making Pregnancy Safer'. This program focused on preventing maternal death by recommending antenatal care with a minimum of 4 visits, by improving family planning, and by promoting delivery by a health care worker (BAPPENAS 2015).

In 2012, around 88.7% of childbirths were attended by health care workers, antenatal care coverage was about 73.5 percent, and the unmet need for family planning was 14.9 percent (SDKI 2012). Indonesia has made several improvements in health care services. However, the number of maternal mortalities is still higher than in other ASEAN countries.

I worked as a midwife at a clinic in West Java Province, Indonesia. I have experience in helping women with emergency problems during delivery. I learned that in many cases problems arise not only because of medical causes but also because of several factors that caused delay for women in getting adequate health services. Midwives are expected to be agents of change to prevent maternal mortality. Because of that, I chose this topic to explore problems that are faced by women and ultimately to decrease maternal mortality in Indonesia. The result of this research can contribute to help developing maternal health programs and to help reviewing several intervention programs that are already in place in Indonesia.

Chapter 1: Background Information

1.1 Geography and Demography

Indonesia is the biggest archipelago country in the world in terms of the number of islands. Indonesia consist of 13,466 islands. The geographical situation of Indonesia makes Indonesia to have enormous ethnical and cultural diversity across the country, with more than one hundred ethnic groups and languages. The country is located in Southeast Asia, between the Asian and Australian Continents. Indonesia's territory is divided into 34 provinces with 514 cities; 7,094 districts; 8,412 sub-districts and 74,093 villages. It has a land area of 1,922,570 km^2 and the sea area of 3,257,483 km^2. Indonesia shares borders with Malaysia and Singapore in the north, Papua New Guinea in the east, and Timor Leste in the southeast (BPS 2013; UNDP 2013).

Total population of Indonesia is estimated around 252 million people in 2014, making Indonesia be the fourth most populated country in the world after China, India, and United States. Because of the urbanization, half of population lives in urban areas (118 million people) and the rest are scattered in rural areas. There is no significant difference in male to female population ratio (1:0.99). More than 58 percent of people live on Java Island. Indonesia also is the biggest muslim majority in the world in terms of the number of population, with 87 percent of population is muslim (Kemkes 2015; BPS 2013).

Even though Indonesia was the fourth of the biggest populated countries in the world, the population growth decreased every year. For example, in 1960, Indonesia population growth was 2.6 percent and decreased until 1.2 percent in 2015 (World Bank 2015). It could be influencing of successfully of family planning program. TFR (Total Fertility Rate) of Indonesia also decreased from 5.7 to 2.5 between 1960 to 2000 (World Bank 2014). However, TFR hardly diminished over the past 10 years and it basically remained at 2.5 in 2014 (World Bank 2014).

Figure 1. Indonesia Map
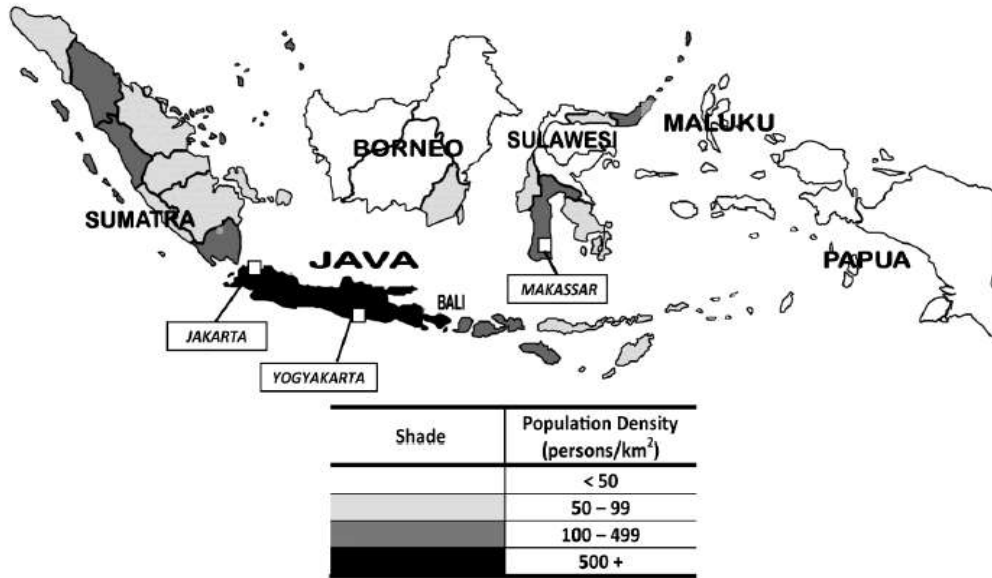
SOURCE: Dillon Zufri, adapted from http://siput.web.id/peta-buta-indonesia-degan-batas-provinsi/.

(AIPI 2013)

1.2 Socio Economic and Educational Characteristics

Indonesia is classified as lower middle-income country. Indonesia had Gross Domestic Product (GDP) of $888.5 billion in 2014 that made Indonesia to be the biggest economy in Southeast Asia. The GDP of Indonesia increased approximately by 5.8 percent between 2009 to 2013 (UNDP 2013). However, 11.3 percent of population live below the national poverty line and most of them do not have access to basic social services. The composition of the people living under the national poverty line are not equal in each province. Some provinces have higher percentage of people living under the national poverty line while others have lower percentage. For instance, in Papua, more than 30 percent of the population are categorized as living under the national poverty line, compared to Jakarta that only has 3.92 percent. Women have fewer opportunities to get access to adequate education, employment, and health services than men (UNDP 2013).

According to Indonesia Central Bureau Statistics (BPS), the Human Development Index (HDI) of Indonesia is 73.81 in 2013. The HDI measures the development of the basic human capabilities including life expectancy,

literacy, and income. This number increased 2.05 point from the previous year. In 2014, Indonesia's HDI was ranked 108 out of 187 countries (UNDP 2014). The increasing of Indonesia's HDI mostly resulted from the increase in literacy rate and life expectancy. In general, the literacy rate in 2014 is higher than 2013, although this rate varies in different areas. The composition of educational grade is also dominated by lower educational level. There were only 25.5 percent of people graduated from senior high school and only 7.5 percent graduated from academy or university. The life expectancy at birth was 70 years in 2013, the number varied for some regions, it could be more or less depending on public welfare in that specific area (Kemkes 2015).

1.3 Health System and Policy

The governmental system of Indonesia has changed from centralization to decentralization in 1999. This change influenced the health system and financing policy. By the decentralization, the central government shares financial authority with regional governments. Each province, district, and city have their autonomy. The central government is the source of financing while local governments implement the programs and manage budgeting. The success of public programs significantly depends on the capacity of local government. Some local governments have better capacity than others. This condition resulted to inequity of the quality of health services across the country. In addition, Indonesian government only allocated 3.45 percent of its budget to health services which is lower than the global average (BPS 2013). WHO recommends 5% to health sector in developing countries.

Before 2004, more than 60 percent of people did not have insurance and spend out-of-pocket (OOP) to get health care services. In 2004, Indonesia introduced Askeskin (Asuransi Kesehatan Keluarga Miskin/Health Insurance for Low Income Family) as implementation of the universal health coverage. Askeskin transformed to become Jaskesmas (Jaminan Kesehatan Masyarakat/Health Insurance Scheme for Community) in 2008 which was expected to cover low and middle income population (World Bank 2013).

Primary health facilities are the foundation of health system with hospital and other health care facilities as a complement. Health facilities are mixed between public and private sector. The Ministry of Health (MoH) has a duty to develop health care policy including management of health care programs, education, training, health services and recruitment of health care workers (AIPI 2013).

In the sub-district and district level, Puskesmas (Pusat Kesehatan Masyarakat/Community Health Center) and Pustu (Puskesmas Pembantu/Village Health Posts), as sub-Puskesmas, provide health services to people including maternal and child health services.

Puskesmas can perform Basic Emergency Obstetric and Newborn Care (BEmONC). Since 1989, at the village level there have been Polindes (Pondok Bersalin Desa/Village Birth Facility) which were managed by a village midwife. Polindes were made to replace traditional birth attendants (dukun) function. Every month, village midwife also gives services in Posyandu (Pos Pelayanan Terpadu/Community Health Extension Post) that were held in outreach areas to make sure people get health care access. The services of Posyandu include antenatal care, immunization, family planning, nutrition for children, monitoring child development, health education, and reproductive health consultation (AIPI 2013). In 2014, midwife ratio was around 50 per 100,000 populations (Kemkes 2015).

Community health volunteers (kader) help midwife to arrange posyandu, to mobilize people to come, and to promote health services. Hospitals are located in the city level as referral from puskesmas and can give Comprehensive Emergency Obstetric and Newborn Care (CEmONC). Every province has referral hospitals and teaching hospitals as the last reference especially for rare cases. Alongside the public sector, the private sector such as private practitioners (traditional healer or health workers), private clinics and private hospitals have important roles to offer health services (AIPI 2013). The summary of Indonesia health system can be seen in the figure 2.

Figure 2. Health System Levels in Indonesia

MoH Level from Central to Peripheral Level

Departemen Kesehatan (Depkes)
(Ministry of Health)
Central Level

Dinas Kesehatan Provinsi (Dinkes)
(Provincial Health Office)
Provincial Level

Dinas Kesehatan Tingkat Kabupaten/Kota
(District Level Health Office)
District Level

Pusat Kesehatan Masyarakat (Puskesmas) tingkat Kecamatan
(Sub District Level Health Center)
Village Level

Puskesmas Pembantu (Pustu)
Sub Health Center

Pondok Bersalin Desa (Polindes)
Village Midwife Clinic

Pos Pelayanan Terpadu (Posyandu)
Integrated Health Post

(SEARO 2011)

Chapter 2: Problem statement, Justification, Objective and Methodology

2.1 Problem Statement

Maternal mortality is the death of a woman during pregnancy, delivery or within 42 days after termination of pregnancy, whatever duration of pregnancy or cause of the death (WHO 2013). In the world, around 830 women die every day because of pregnancy and childbirth, it reached around 303,000 maternal deaths by the end of 2015 (WHO 2015). Developing countries contributed 99% (302,000) of global maternal deaths with sub-Saharan Africa accounting 201,000 and Southern Asia 66,000 (WHO 2015).

High number of maternal mortality is unacceptable. It shows inequities to access to health services and disparity between the rich and the poor people in some countries. Because of that, in 2000, the 189 United Nations member states decided improving maternal health as one of the Millennium Development Goals (MDGs). They had commitment to reduce 75 percent of Maternal Mortality Ratio (MMR) between 1990 and 2015 (WHO 2015). Indonesia had a target to reduce MMR from 390/100,000 (1991) to 102/100,000 in 2015 (BAPPENAS 2015).

Over the past 25 years, the world has made a stable progress by decreasing 44 percentage of MMR since 1990. Overall, it declined by 2.2% per year with variations between different regions. Southeastern Asia has successfully reduced MMR about 66 percent, and has become one of regions with high MMR declining after Eastern Asia (72%) and Southern Asia (67%) (WHO 2015). On the other hand, Indonesia stood at 359 deaths per 100,000 live births (95% CI: 239-478) in 2012 and it was impossible to meet MDGs target by 2015 (BAPPENAS 2015). Indonesia needs acceleration strategy in reduction of maternal death.

Actually, based on Indonesia Demographic and Health Survey (SDKI), Maternal mortality in Indonesia increased compared to 2007 from 228/100,000 live births (95% CI: 132-323). It cannot be concluded that Indonesia failed to reduce maternal mortality because of sampling differences between both years: only married women of reproductive age (15-49 years old) for 2007 and all women of reproductive age (15-49 years old) for 2012 (BPS 2013). Indonesia tried to improve health documentation system by changing measurement to make sure all cases were documented. The increasing number of MMR could be a result of improved documentation system that now registers most of maternal mortality cases. Lack of standard MMR documentation is a problem counting maternal death in

Indonesia. Several areas have different format for documentation. It is difficult to find accurate number.

The causes of women death such as complication during pregnancy and delivery can be prevented by routine antenatal care. Global causes of maternal mortality are hemorrhage (27.1%), hypertensive disorders (14.0%), sepsis (10.7%), abortion (7.9%), embolism (3.2%) and others (9.6%) (Say et al. 2014). The percentages may not represent the real causes because many cases go unreported such as abortion complication. Abortion is illegal in Indonesia except for some cases like pregnancy caused by rape or life-threatening pregnancy. However, the private clinics who offer abortion services are not difficult to find even though they will under-report because it is illegal in Indonesia (Afrida 2013). Abortion will be a problem for women in rural area without health care services. They usually choose traditional birth attendant to help them aborting their pregnancy which is usually unsafe abortion.

The government has tried to reduce unwanted pregnancy by family planning. In the past, Indonesia achieved International recognition for success in decreasing TFR (Total Fertility Rate) from 5.7 to 2.5 by family planning program (World Bank 2014). International donors and Government had shown strong commitment and support to family planning program that made the program successful. They used strong campaigns that promote the ideal family with only 2 children, and also provided contraception services at community level which are easy access by community. Family Planning succeeded reducing maternal mortality and increasing women empowerment (BKKBN 2012). However, because of the successful achievement, in 2000, International Donors have reduced their support sharply and only the government is left to fund the program (BKKBN 2012). As a result, unmet need for contraception in several areas remained around 14.87 percent and TFR was still 2.5 births per women in 2012 (BPS 2012).

The author aims to study barriers reducing maternal mortality, review the interventions in different parts of Indonesia and other countries, and make recommendations based on findings.

2.2 Justification

Maternal mortality ratio is one of the important indicators of the country's coverage and the quality of health care. High MMR can be a sign that health care needs improvement. Besides that, maternal death can influence the quality of family, especially children. For example, women who die after delivery will leave a baby who still need breastfeeding and mother's care.

The absence of the mother will influence the children's health and children future development. It is essential to significantly reduce maternal mortality. Actually, Maternal death can be prevented by detecting potential complications earlier. It helps women to get treatment before the complications become serious problems.

Since 1991, government had commitment to decrease maternal mortality. They applied several programs such as safe motherhood, making pregnancy safer, public insurance, and alert village to prevent maternal death. They created cooperation with other countries and International NGO to help them run the program (Kemkes 2015). However, the government of Indonesia still had some difficulties in implementing some health programs due to limited budget and human resources, and shortage of health facilities. Furthermore, socioeconomic factors also hinder cooperation between health care facilities and communities.

After MDGs, Indonesia has another challenging set of goals which is Sustainable Development Goals (SDGs) that include reducing maternal death to 70 per 100.000 live births by 2030 (Kemkes 2015). The government of Indonesia must work hard to meet this next target. Effective program is needed to anticipate high maternal death. However, many problems around maternal death do not only result from direct causes, such as bleeding or hypertension in pregnancy, but also result from other conditions, such as delay in getting health treatment, a situation that is common in developing countries. Understanding some factors that affect the delay of pregnant women reaching health services is important, because it will help the policy maker and government to improve their health system.

According to Thaddaeus and Maine (1990), having adequate care in time can stop factors that lead to maternal deaths in developing countries. Comprehensive system to evaluate maternal care is important to identify the best improvement to save women's lives. The three delay model, developed by Thaddaeus and Maine, can help to identify the main problems in receiving adequate maternal health care in time. Furthermore, reviewing several interventions in Indonesia and other countries can help to learn more about the effectiveness of programs and make recommendations based on findings. Exploring determinants of maternal mortality is important for identifying the problems and also evaluate capability of programs to handle the problems.

2.3 Objectives

2.3.1 General Objective

The overall objective of this thesis is to explore the barriers related to reduce maternal mortality in Indonesia and to review available interventions to prevent it. This will help the development of recommendations to improve the health situation of pregnant women in Indonesia.

2.3.2 Specific Objective

- Describe trends and correlations of maternal mortality in Indonesia
- Identify factors affecting maternal mortality
- Analyse interventions to deal with maternal mortality in Indonesia and in other countries
- Develop recommendations to reduce maternal mortality in Indonesia

2.4 Methodology

2.4.1 Methods

The study design of this research is literature review. Data were compiled through journals, reports, published and unpublished documents concerning maternal mortality, grey literatures, international online search engines (such as PubMed, Google scholar), and academic national/international websites (Ministry of Health of Republic Indonesia, WHO, UNDP, UNFPA, World Bank). Type of resources can be qualitative, quantitative, mixed methods and literature review. The data were searched by manual or hand searching in search engine and used snowball technics from the references in the literatures.

Search terms were the combination of two or three words and can be seen in table 1. Searching strategy is limited to on English or Indonesia literatures and did not limit the year of publication in order to extend the possibility of getting information. All collected literatures were reviewed manually the documents by reading the abstracts in order to decide which documents will be included in the analysis.

Table 1. Search Terms of Methodology

Summary of search terms		
Separated by 'OR'	AND	Separated by 'OR'
maternal mortality; maternal death; maternal health; maternal care; reproductive health; family planning; antenatal care; health seeking behaviour; health system; health policy; insurance; heath care facility; perception; midwife; health care worker; MDG; three delays model; reduction of MMR Angka kematian ibu; kematian ibu; keluarga berencana; bidan.		Indonesia; Filipina; Malaysia; India; Nepal

2.4.2 Analytical Framework

Three Delays Model (Thaddaeus and Maine 1994) is used in this research because this model helps to understand determining factors that lead to delay in receiving health treatments. Based on Three Delays Model, the delays in receiving health treatment can be categorized into: (1) delay in deciding to seek health care, (2) delay in identifying and reaching health facilities, (3) delay in receiving adequate and appropriate treatments. These delays are influenced by some factors namely: (1) socioeconomic and cultural characteristics, (2) accessibility of health facilities, and (3) quality of care. The summary of Three Delays Model can be seen in the figure 1.

Based on original framework by Thaddaeus and Maine (1990), a delay can be a result of one or combined factors. For example, the first delay is to decide seek health care, which may be influenced by socioeconomic/cultural factors, perception of health care services and quality of cares. Another example, the second delay identify factors to reach medical services include transportation, cost and distance. Finally, the third delay relates to quality of care to get appropriate treatment in time and service from health care facility include staff, equipment and management.

The study by Belton et al. (2014) used three delays model approach in Indonesia. The study was more qualitative study which learned about maternal mortality in Eastern Indonesia. Most of study was using three delays model as a framework had qualitative or quantitative for study

design. Limited number of study used literature review design to describe maternal mortality in Indonesia.

Figure 3. Three Delays Model

Factors Affecting Utilization and Outcome

Phases of Delay

| Socioeconomic/Cultural Factors |

| Accessibility of Facilities |

| Quality Care |

| Phase I: Deciding to Seek Care |

| Phase II: Identifying and Reaching Medical Facility |

| Phase III: Receiving Adequate and Appropriate Treatment |
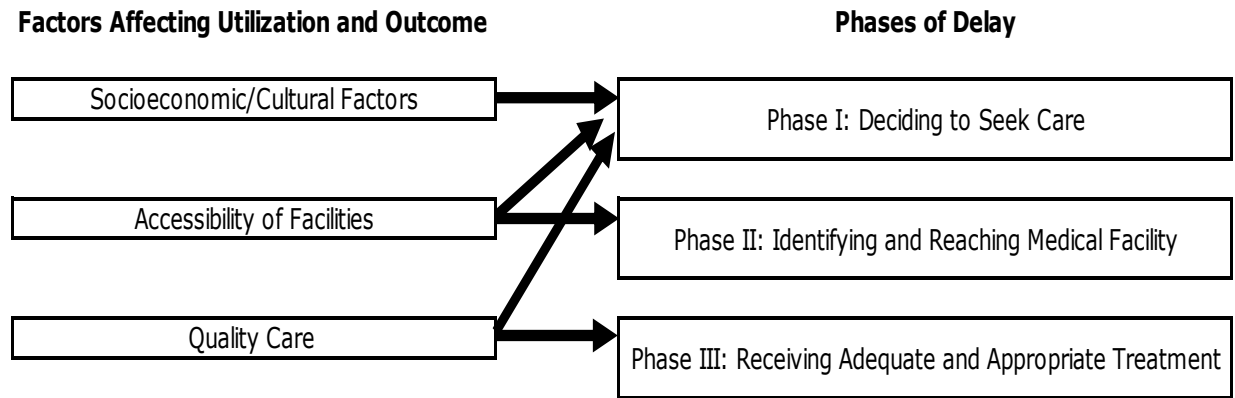
2.4.3 Study Limitation

The major limitation of this study is the lack of published literature on maternal mortality in Indonesia. Another problem is many of studies from Indonesia are quantitative which do not give depth exploration on the situation behind the numbers. Some of materials also outdated due to lack of literatures in this topics.

Chapter 3: Study Results

3.1 Maternal Mortality Trend

3.1.1 Maternal Mortality Trend in Indonesia

Since 2000, Indonesia tried to reduce maternal mortality to reach MDGs target which is 102 per 100.000 live births (BAPPENAS 2015). Government implemented Family Planning (FP) as key factor to improve women health and family planning succeed to decrease MMR every year. Between 1997-2007 periods, MMR was reduced significantly (BAPPENAS 2015). However, it increased again in 2012 because of changing of health system from centralization to decentralization in Indonesia that made changing condition in population. The trend of MMR can be seen in the Figure 4.

Figure 4. Maternal Mortality Trend in Indonesia
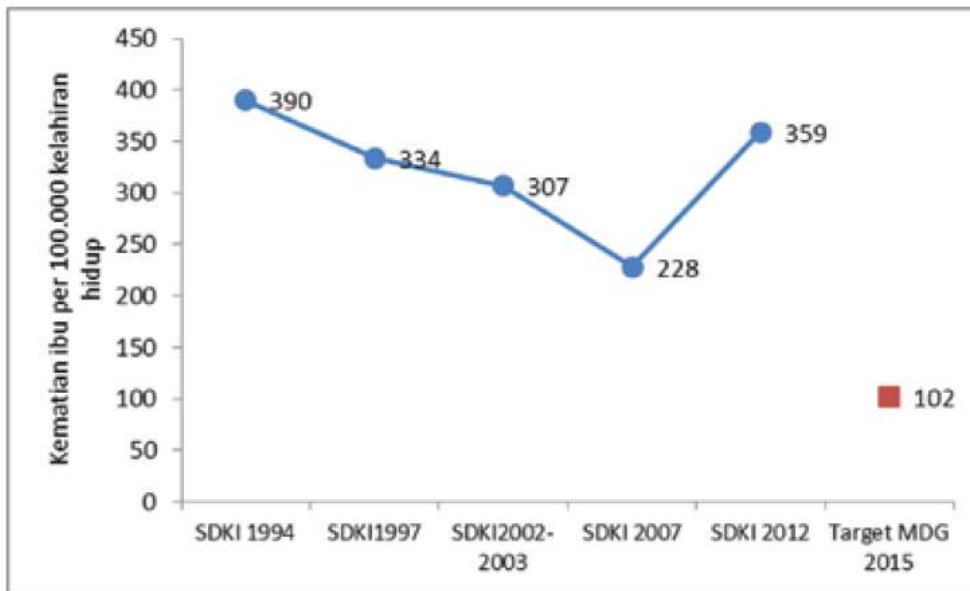
Sumber: BPS, SDKI 1994-2012

(BAPPENAS 2015)

3.1.2 Maternal Mortality Ratio in ASEAN Countries

Compared to other ASEAN countries, Indonesia is one of countries that had higher MMR. In 2010, MMR was estimated 220 per 100.000 live births, better than Cambodia and Laos (AIPI 2013). However, Indonesia is to be the third rank from bottom for MMR. Indonesia calculated 9600 women die from complication of pregnancy or delivery in 2010 (AIPI 2013). The lifetime risk of maternal death in Indonesia is 1 in 201 women, compared to other

countries such as Malaysia with 1 in 1300 women (AIPI 2013). The summary of MMR in ASEAN can be seen in the Table 2.

Table 2. Maternal Mortality Ratio in ASEAN Countries (2010)

Country	MMRatio	Range of MMRatio Uncertainty		Lifetime Risk of Maternal Death: 1 in	Number of Maternal Deaths
		Lower Estimate	Upper Estimate		
Brunei Darussalam	24	15	40	1,900	2
Cambodia	250	160	390	150	790
Indonesia	220	130	350	210	9,600
Laos	470	260	840	74	670
Malaysia	29	12	64	1,300	170
Myanmar	200	120	330	250	1,600
Philippines	99	66	140	300	2,300
Singapore	3	2	7	25,300	2
Thailand	48	33	70	1,400	400
Vietnam	59	27	130	870	860

SOURCE: MMEIG (2012).

(AIPI 2013)

3.1.3 Maternal Mortality Ratio at Regions in Indonesia

The ratio of maternal mortality had variation between different regions in Indonesia. Table 3 presents data from the National Statistics Agency (BPS) and it is sorted out by UNFPA based on data completeness. The uncorrected MMR results was the data before examination of data collection because some data were under-reported (UNFPA 2012). The correction is included examining causes of Matenal Death and calculating by experts (UNFPA 2012). After doing follow-up, MMR was 278 per 100.000 live births in 2012 based on UNFPA research (UNFPA 2012). Sulawesi was the highest region of MMR with 459 per 100.000 liver births while the lowest regions was Java-Bali with 227 per 100.000 live births (UNFPA 2012). The result of MMR based on region can be seen in the Table 3.

Table 3. Maternal Mortality at Regions in Indonesia

Number of deaths in months	REGION					Indonesia
	Sumatera	Java-Bali	Kalimantan	Sulawesi	Eastern Indonesia	
Number of deaths in 17 months	1738	3333	587	979	888	7524
Number of deaths in 12 months	1227	2353	414	691	627	5311
Number of Live Births in 12 months	1.072.588	2.371.448	280.717	345.556	331.845	4.402.154
Uncorrected Maternal Mortality Ratio per 100.000 kelahiran hidup	114	99	148	200	189	121
Maternal Mortality ratio per 100.000 Live Births	261	227	340	459	434	278

(UNFPA 2012)

3.1.4 Characteristics of Maternal Mortality in Indonesia

According to Figure 5, that based on follow-up study by UNFPA, most of women who died of maternal causes had completed secondary school education background: 47.9 percent (UNFPA 2012). Actually, the number of women with no education or elementary school had a slightly lower percentage which was 45.1 percent (UNFPA 2012). More than half of maternal mortality took place in Rural locations (63.6%) (UNFPA 2012). Most of cases were happened in public hospitals about 41.9 percent (UNFPA 2012).

Figure 5. Characteristics of Maternal Mortality in Indonesia
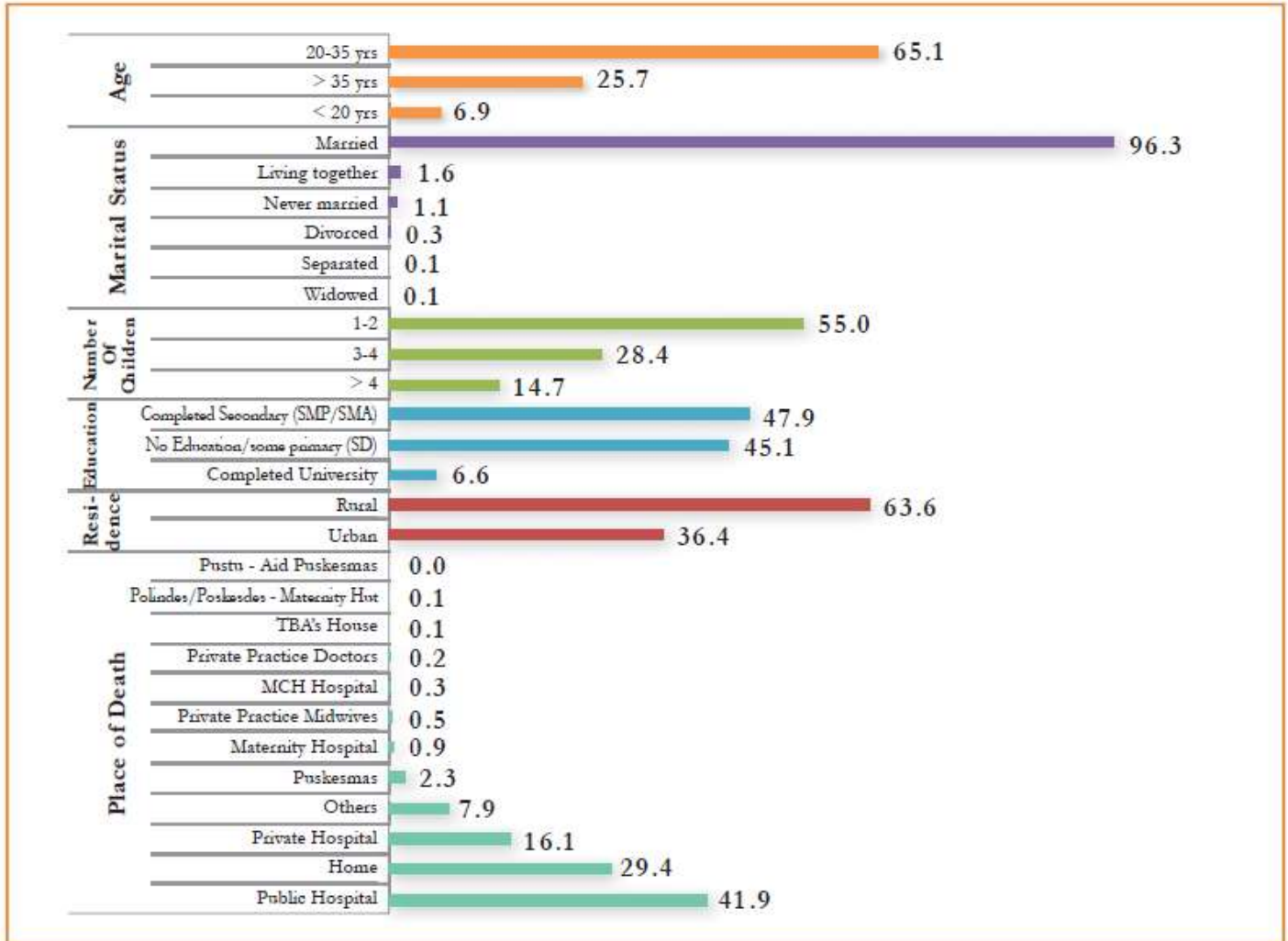
Data Source : Follow Up Study SP 2010

(UNFPA 2012)

3.2 Factors Affecting the First Delay

3.2.1 Perception of Need of Health Care

Health care seeking behavior is related to how people perceive some illness (Thaddeus & Maine 1994). In many cases, women in developing countries who get maternal complication will start with self-care. After that, they seek the services of traditional birth attendants and lastly going to health care facility if the condition does not improve (Thaddeus & Nangalia 2004). Perception that a condition is abnormal is important to recognize that they need skilled health worker to help them. It also contributes to first delay because people are late to identify that they need specialized treatment.

The study in West Java, Indonesia found that women believed pregnancy and childbirth were normal experiences and they were not considered as a disease or pathological condition (Agus et al. 2012). Pregnancy and childbirth were part of life cycle and do not need special treatment during antenatal and delivery process. They did not think complication or something would happen during their pregnancy or delivery. Because of that, women failed to anticipate danger signs immediately. For example, many women think headache was normal in pregnancy. They did not recognize it had correlation with danger signs (Agus et al. 2012).

Cultural belief sometimes makes women miss to identify a sign of complication in pregnancy or childbirth. Variety of cultures such as in Benin, Mexico and Morocco believe bleeding after birth is healthy and it is required for cleansing process. It will become complicated when bleeding excessively and it delays going to health facility. However, there are no definite measurements to detect normal or abnormal bleeding at community level (Thaddeus & Nangalia 2004). In Indonesia, people used number of pieces of cloth, consistency and color of blood to measure bleeding. It made people confusing to identify the critical condition of women and due to cause of maternal death.

Recognition of danger signs is also essential for seeking care behavior. In Nigeria, people think sign of complication like bleeding or headache was related with supernatural or mystical phenomenon. Because of that, they will look to shaman or traditional healer that had more experience in that situation (Kureshy 2002). Furthermore, people in North Sulawesi had a belief that blood from childbirth could attract spirit or evil creature (kuntilanak or Pontianak) to come because of the smell of the blood and take the baby. This was also responsible for fear to transport women with critical condition at night. Many of these beliefs contributed to women's lives because they hinder prompt access to health care services (Cedercreutz 1999).

3.2.2 Unsafe Abortion

According to Health Law (Law 23/1992, Article 15), abortion can be performed to save women's life and rape cases in Indonesia (Surjadjaja & Mayhew 2011). Abortion must be done by qualified doctor specialist like gynecologist or obstetrician. Some clinics in Indonesia offer abortion after contraceptive failure but the women must bring their husbands to prove their marital status. However, both Criminal Law and Islamic Law forbid abortion. Abortion is still debated in political, religious and social

communities (Surjadjaja & Mayhew 2011). In several islamic countries where religion is part of law and legislation like Iran, abortion is permitted for several conditions including fetal abnormalities and social or economic difficulties at certain stages in pregnancy (Hedayat 2006).

Indonesia has variations in beliefs and practices based on different Islamic organizations. Abortion was absolutely forbidden as declared by Indonesian Religious Leaders Council (MUI). On the other side, another organization, Nahdatul Ulama (NU) recommended that abortion can be permitted in emergency situation like threat to the women's life, rape and incest. Abortion may be done for good reasons and before 120 days of pregnancy because they assume that fetus does not have a soul at this stage (Surjadjaja & Mayhew 2011). Inconsistency in the legality of abortion makes it a dilemma for medical practitioners to render abortion services. Consequently, many maternal deaths were due to abortion and they were underreported (Surjadjaja & Mayhew 2011).

It is estimated that 2 million abortions were performed in Indonesia per year and 60 percent take place in rural areas (Utomo ID & Utomo A 2013). Because of legality aspect and social norm, women could not have access to get abortion service except under special condition. Women with unwanted pregnancy prefered to do self-abort by drinking several medicines like cytotec tablets (a stomach-ulcer medication), menstrual regulation drugs, herbal drinking (Jamu) or young pineapple juice. If it failed, they would visit traditional healer or traditional birth attendant to perform abortion by forced stomach massage. Around 11 percent of maternal deaths were related to unsafe abortion complications based on Indonesia Household Health Survey in 1995 (Utomo ID & Utomo A 2013). In remote areas, it was more difficult to get abortion services especially for single women who were most in need of it. Legal health facilities only gave a service for married women with emergency situation.

3.2.3 Women's Status

Women status especially economic and socio-cultural is characterized by their capability for decision making and access health services (Thaddaeus 2004). Women's position can be seen in the household in terms of decision making, regarding reproductive such as family size and economic resources like income, house, food and wealth. Women's status is related to education and occupation. Lack of women's power can ultimately result in maternal mortality because of delay to seek care. In rural communities, men Usually have more control in the household with regard to family income, so women have limited power to decide on seeking care. Women from Betawi ethnic in

Jakarta had more limited opportunities than men in education, employment and marriage (Widayatun 1991).

The low status of women is sometimes a result of culture in terms of education. For instance, women in north coast of Java usually marry earlier than women in other areas in Java because of cultural patterns that support marrying at young age. People believe that women must be married between 15 to 19 years old. If it was not, they will be titled as *perawan tua* (old maids) that is really humiliating both for the girl and her family. In Indramayu, they had ceremony once a month to accommodate young women and men searching for their marriage partners, this is called *jaringan* (Widayatun 1991). Women must drop out from the school due to married reason. They also have low status in family because of their lower education than their husband.

Furthermore, in the north coast of Java, there is a perception that divorced women are more attractive and this has influenced the high number of divorces in that area. The girl's families have a custom to marry off their daughters in harvest season to get money and they are usually separated at the end of season. This tradition pushes young girls to marry early (Widayatun 1991). They have low education and low status in family and this makes them dependent on their husbands or family. In emergency condition, husband and family decide to seek care when the women do not have power to ttend at health facilities.

3.2.4 Education

Education can improve communication between married couples, and makes women to be part of decision making and also implement it in their daily activity. Women are more independent and have significant role in her family if they have higher education and income than their husbands. They do not have big gap with their husband in the household. Women's status usually is measured by their full involvement in education and their occupation. Furthermore, education can delay earlier marriage and increase payment for women. They are more autonomous and have same status with her husband in family. Education provides improvement in women's position, social recognition and opportunity to be part of economic activity (Widayatun 1991).

One study in Indonesia found that 25 percent of women with no education or only elementary school had postpartum bleeding, compared to women in other educational level (secondary school graduate 15.9% and higher education 17.4%) (MoH RI & UNFPA 2012). According follow-up study by

UNFPA (2012), MMR happened only 6.6% in women who already completed university. Higher education can prevent maternal complications because women are more aware with their conditions.

Education can change certain beliefs and values by providing new knowledge, competitiveness and self-confidence. Women in rural areas can think of other choices beside household activity or agricultural work that make them have important role in their family. In Addition, women's education has correlation with health care utilization. For example, in Peru and Thailand, educated women had higher possibility to use health care services than women with no education. This is also same for men's education. Educated men will be more open to use modern health care, realize the importantance of using skilled health attendant for childbirth, easy to communicate with health worker and know what they need (Mahwati 2013).

3.2.5 Perceived accessibility

Physical distance to a health care center can contribute to health care access at community level alongside poverty, low education, cultural values, limited information and bad road condition. Long distances can be a barrier both for reaching health service and decision making. Women and family members only seek professional care if the illness becomes dangerous and may be too late before health care workers are able to provide a treatment. It also takes time to travel to a health care center. Because of that, women in remote area prefer delivery at home. Pregnant women find it difficult to seek care with long distance and cost. Health workers have same problem to go to outreached areas (Scott et al. 2013).

In Nusa Tenggara Timur (NTT), every subdistricts have puskesmas and pustu even though it is not common with communities because it is still far away. In isolated areas, midwives do not reside in the villages. For example, in Miomaffo subdistrict, NTT, in 2007, there were only 6 villages with resident midwives out of 11 villages. The others midwives lived in different villages or manage 2 villages together. The community received health services when health care worker came, usually once a month to their village (Posyandu and pusling). In the evening or in an emergency condition, it could be difficult to access health care services. They must walk for distance to reach puskesmas in another village. Transportation was limited and they depended on motorcycle taxi with expensive fare. Besides that, the road would be muddy and slippery in rainy season and was not safe for journey in the night (Rahayu SK 2008). In the villages that had midwives, it is not all of the community have access to the health services because

working area was broad. For example, outer area could be 10 kilometers from village midwife's resident. Both midwife and community had a challenge from poor road condition, lack of transportation and electricity (Rahayu SK 2008). People must think about distance, transportation and cost before seeking health care.

3.2.6 Perceived Quality of Care

Performance of service can influence community to use health facilities. If people are satisfied with the service, they will be comfortable to come again. According to research at villages in NTT, women did not like midwife who was impatient or unfriendly. In delivery process, women needed someone who would make them comfortable. Besides that, communities did not believe younger midwifes because they were assumed to have lack of experiences (Rahayu SK 2008).

Other reasons for community dissatisfaction with health care facilities include the health workers' unfriendly or rude attitude, ineffective medicine and long queues to get services. In 2007, government had provided insurance for poor people which is named Askeskin (Asuransi Kesehatan Keluarga Miskin). However, some of askeskin beneficiaries felt demeaned because of health worker attitude toward them and complicated administration to get medication. The study in Sumedang (West Java) found that people must pay money first before getting health services. Also health care services sometimes gave unresponsive and uncomprehensive treatment (Rahayu SK 2008).

3.3 Factors Affecting Second Delay

3.3.1 Distribution of Health Facilities

Even though, few of midwives lived in remote areas, distance to hospital was essential for referral system in emergency situation. Many challenges were related to distance to hospital: communication with community health services, poverty, education, access to health information, strong cultural beliefs, road infrastructure especially in rainy season and travel time (Achadi et al 2007).

In rural areas, most of deliveries took place in women's home or Polindes with various locations to hospitals. Midwife must have capability to do first-aid and organize transport to health care center with help from family member. it sometimes took time to decide to refer because of financial matters or personal beliefs and to prepare transportation. Because of that,

many women arrived in terminal condition at the hospital (AIPI 2013). More than 50 percent of mother deaths were in hospital and 30 percent in the women's home due to delay reaching health facilities (UNFPA 2012).

In 2011, Indonesia had 1.674 BEmONC facilities in the whole country with 57.2 percent giving 24-hour services. In Eastern Region, BEmONC health centers were near to 71 percent available for 24 hours. It could be that the facilities exist but people were difficult to reach health centers (Olsen and Jewell, 2009; AIPI 2013).

Furthermore, there was gap in CEmONC services among different regions in Indonesia. Java-Bali region had adequate CEmONC services and quicker emergency response times than other regions. Actually, more than half of public hospitals offered CEmONC services with 24 hour services and full clinical team and equipment though the percentage decreased to only 35 percent in 2011 (Olsen and Jewell 2009; AIPI 2013). Special interventions such as caesarean section or blood transfusions were only offered in CEmONC health services. It could help to save mother in life-threatening condition if it was detected early and referred before terminal complication to proper facility (AIPI 2013).

3.3.2 Transportation

In eastern region of Indonesia, emergency transportation to hospital was one of problem to save a mother (AIPI 2013). Village midwives were not able to provide health services for all people in the remote villages because of lack of transportation. In NTT and West Java, many villages had wide areas of damaged and steep roads with no electricity. Ideally, one village needs more than one village midwife. Because of unproportioned midwife number with the size of village, it gave over workload for midwife and poor road made her work heavier. Some villages offered motor cycle or other vehicle to midwife to help her reach far areas though not all villages have this arrangement. Village midwives sometimes gave service in one-point place to make it efficient but it gave a problem to community who lived far away to reach that place (Rahayu SK 2008).

In Indonesia, hospital's locations were mostly in the center of district or city which were designed to be easy to be accessed by women who live in urban area. Besides that, urban areas had various of modes of transportation so women had many alternatives to reach hospital. This condition was different in rural areas. Public transportations did not stand by every time. They operated only three to four times a day, and less frequent at night. Women usually needed a private car in rural areas which were more expensive to go

to hospital. The family had to rent a car or borrow it from neighborhood and they needed pay for fuel. However, it was rare that people had a car in rural areas so it could be difficult for referral in emergency situation (Ansariadi A, Manderson L 2015).

3.3.3 Cost

In rural areas, people still used traditional birth attendant because it was cheaper than skilled birth attendant. Midwife's cost was around 300,000-500,000 rupiah (US$40–70), compared to traditional birth attendant who was paid around 50,000-250,000 rupiah (US$6–30) and it still could be negotiated (Ansariadi A, Manderson L 2015).

In NTT, village midwives got fee reimbursements from Askeskin (Asuransi Kesehatan Keluarga Miskin—Health Insurance for the Poor) around 50,000-100,000 rupiah per delivery even though the process for insurance claim took a long time and complicated administrative document. Government provided Askeskin but it does not cover all poor communities. For instance, in Hauteas village, NTT, only 141 of 391 househould received Askeskin card. The head of family had to make SKTM (Surat Keterangan Tidak Mampu/Poor Statement Letter) to get Askeskin card and several of them did not want to make that statement because they felt it would be embarrassing (Rahayu SK 2008).

In West Java, midwives usually worked as village midwives in health center, public hospital or delivery post. After official working hours, some of them opened private practice at home. Private practice had a higher cost around 400,000-600,000 rupiah for delivery. It sometimes made people misunderstand the difference between government and private fees. The expense of delivery fees could be a reason why people used traditional birth attendant rather than village midwife. Most of people thought that the cost of midwife was expensive and they could not afford it (Rahayu SK 2008). In contrast, the family could negotiate with traditional birth attendant about the price or time of payment and changed the payment with a food like vegetable, chicken or rice (Rahayu SK 2008).

Low economic status prevented people from paying for health care services. In West Java, most of people in rural areas worked as farm or heavy laborers or fisherman. The fisherman's income was dependent on season in several months of the year and they could not go to sea in west seasonal wind. Furthermore, farm laborers only get 20,000 rupiahs per day. Poor

economic condition combined with long distances and lack of transportation made people did not use the available health services (Rahayu SK 2008).

3.4 Factors Affecting Third Delay

3.4.1 Staffed Facilities

Primary health care facilities had standard protocols of health care providers. Based on Rifaskes (Research of Health Care Facilities) 2011, Puskesmas with BEmONC had minimum one doctor, one midwife, and one skilled nurse. While CEmONC health center included one obstetrics and gynecology specialist, one pediatrician, one doctor in the emergency unit, three midwives, and two nurses (MoH & UNFPA 2013). This standard was made to make health facilities to be able to handle emergency complications referred by village midwives.

Health care worker had an important role to ensure quality of care to reducing maternal mortality. Compared with other countries in ASEAN such as Malaysia (70 per 100,000) or Philippines (58 per 100,000), the number of doctors in Indonesia had the lowest ratio to population (21 per 100,000) in 2006 (Rokx C, 2009). Obstetricians were around 2,600 in 2009 and very far below of Ministry of Health target which is about 35,000. On the other hand, the number of midwives increased from 54,000 (30 per 100,000 populations) in 2007 to 200,000 in 2012 because of the village midwifery program (AIPI 2013).

Very limited number of health care professionals could affect unproportioned distribution. The ratio of health care providers had improved every year but it was uneven in distribution around provinces, urban or rural areas (Rokx C, 2009). For instance, specialists working in Jakarta constituted about 25 percent of all specialists in Indonesia which was less than 4 percent of total population of Indonesia. Rural areas had lack specialists such obstetricians, surgeons, and internists who were essential to give treatment in case of a maternal complication (AIPI 2013).

3.4.2 Equipped Facilities

Village midwives were equipped with "midwife kit" that included an instrument to cut umbilical cord and minor surgery set; infusion equipment and blood pressure monitor. They needed more equipment to detect abnormality of the fetus like laboratory test or heart beat detection. In urban

areas, midwives had more full equipments with ultrasound and simple hemoglobin test (Rahayu SK 2008).

Furthermore, village midwives usually worked at Polindes (Pondok Bersalin Desa/Delivery Post) in office hours and visited women's house to give services during office hours. The condition of Polindes were different in every villages. Polides could be same place where village midwives were living or near with village office. Some Polides had a permanent building with separated consultation and delivery room. Other Polindes were temporary and without water or electricity facilities. Polides also could be built as community initiative as a facility for health care services (Rahayu SK 2008).

Puskesmas (Pusat Kesehatan Masyarakat/Primary health Care) offered BEmONC or CEmONC facilities. Only 13 percent of 98 cities and 61 percent of 398 districts had less than 4 Puskesmas with BEmONC (MoH & UNFPA 2013). The total number of Puskesmas with BEmONC services was approximately 1,674, and 78 percent of this number gave 24-hour service in 2012. In Eastern Indonesia, 71 percent of Puskesmas offered 24-hour service but it still could decrease maternal death cases because of lack of instruments and drugs. Eastern Indonesia and Sulawesi regions had the highest maternal death and had poor availability of providing equipments and drugs. Java-Bali region had the highest number of Puskesmas with BEmONC service but only had 41 percent of skilled health workers. However, it could be covered because the area had easier access to health care center with adequate equipment and drugs which were important to deal with emergency situations (MoH & UNFPA 2013).

Post-partum hemorrhage and hypertension during pregnancy were the main causes of maternal mortality. Puskesmas with BEmONC could cope with this condition or provide first aid before referring to Puskesmas with CEmONC service or hospital (MoH & UNFPA 2013). BEmONC health center provided equipment and drugs to deal with emergency cases such as $MgSO_4$ 20% or 40% injections and vacuum extraction for pre-eclampsia or eclampsia case. These were essential to save the lives of women with eclampsia complication and decrease maternal mortality. Based on Rifaskes 2011, only half of BEmONC health center had extraction vacuums at five regions in Indonesia. Eastern Indonesia had only 39 percent of BEmONC health center which full instrument to deal with hypertension during pregnancy (MoH & UNFPA 2013).

Blood supply was also important to cope with bleeding cases and could cause maternal mortality in less than an hour. It was crucial to have blood supply available immediately when bleeding occured. Blood transfusion was

only available in hospital or CEmONC health center and not in BEmONC health center. Many of postpartum bleeding cases happened on the way to health services with incidence about 33.3 percent (MoH & UNFPA 2013).

Public hospitals provided CEmONC services and had essential CEmONC teams in Java-Bali regions. Sulawesi had a high maternal mortality ratio that was caused by hypertension in pregnancy. Lack of drugs and limited CEmONC health center coverage was the reason of the higher number even though gynecologists were more available in Sulawesi. While Eastern Indonesia had low supply of 24-hour blood service in hospitals. Good facilities with enough equipment and drugs were needed to support health care providers to give adequate quality of care. Maternal death could not be prevented only by recruiting human resources but also needed a sufficiency of facilities and equipments.

Nationally, about 47.9 percent of public hospitals had available blood supply units and less than half (40.9 percent) of health care centers that could offer 24-hour service in 2011. Based on Rifakes 2011, coverage of antenatal and delivery care by skilled birth attendant could not stop maternal mortality without appropriate availability of blood supply in less than one hour. For instance, Cipto Mangunkusumo hospital in Jakarta, as one of referral centers, could handle bleeding complications because they maintained the availability around 3-5 blood supplies per patient (MoH & UNFPA 2013).

In addition, the availability of essential medicines was covered in about 80 percent of districts in Indonesia though it was not monitored constantly. However, overstocking and stock-outs were still a problem in several areas because of complicated management system in delaying of budgeting, purchasing medicine stock and distributing to primary health care. Central and regional level had different rules about planning, budgeting and procurement that caused ineffective medicine distribution. Maintaining large amount of the stock at multiple level in health services, the lost caused by expired medicines, and stock-outs put hidden financing cost that lead to unmeasured cost. Health care facilities had a problem of overstocking for some medicines and stock outs of others (Rokx, C 2009).

Chapter 4: Review of Interventions in Indonesia and Other Countries

4.1 First Delay Intervention

4.1.1 Antenatal Care

Since 1990, the government has tried to decrease maternal mortality based on safe motherhood approaches, in which every woman gets the health care she needs to make sure the safety of the pregnancy and delivery process (Kemkes 2015). Ministry of Health launched several programs as the implementation of their commitment to decrease MMR. Ministry of Health focused to give maternal health services that cover antenatal, intrapartum, postpartum, maternal complication, and family planning (Kemkes 2015).

Antenatal care is important to detect maternal problem during pregnancy and prevent maternal mortality. More than 90 percent of women in Indonesia got antenatal care from health care worker in 2007 (World Bank 2010). Around 85 percent of women received iron supplements to decrease anemia during pregnancy (World Bank 2010). In NTT, most of antenatal cares were provided by midwives (more than 80 percent) and only 5 percent were conducted by Obstetricians or Gynecologists during 2004 to 2007 (World Bank 2010). The same condition happened in West Java (World Bank 2010).

Women get antenatal care minimum fourth times during pregnancy with distribution once in first trimester (0-12 weeks), once in second trimester (12-24 weeks), and twice in third trimester (more than 24 weeks until delivery time) (Kemkes 2015). Nationally, more than 86 percent of women got completely fourth antenatal care in 2014 even though 3 provinces: Papua, Maluku, and West Papua got less than 50 percent (Kemkes 2015). This indication explained about accessibility of health care facilities toward women and constancy of women checking their pregnancy to health care workers (Kemkes 2015). Women can have health information and counsultation during antenatal care that help them to plan childbirth.

4.1.2 Health Education

In 2010, the government implemented program to improve women's knowledge about their pregnancy by arranging maternity classes. Pregnant women with their husbands or family members could be part of the small classes that were facilitated by midwives and kader (community health volunteers). The meeting would explain about information during pregnancy, delivery, and after delivery such as danger signs, delivery preparation,

family planning counselling, neonatal care, and cultural issues. Around 2508 maternity classes had been formed in whole country in 2011 (Kemkes 2011).

Furthermore, ministry of health provided KIA book (Kesehatan Ibu dan Anak/Mother and Children Health) for all pregnant women to help monitoring and giving information. The book recorded antenatal, delivery, and postnatal results; the development of the babies includes immunization status and nutrition until 5 years old; and information around pregnancy. In 2009 to 2011, ministry of health distributed KIA books 4.5 million per year. In 2011, 80 percent of pregnant women used the book with maternity class and 60 percent used the book for monitoring their babies (Kemkes 2011).

Ministry of health developed health education toward children and adolescents by cooperating with schools. In Indonesia, most of schools had UKS (Usaha Kesehatan Sekolah/School Health Units) to give health services in the school and usually collaborated with health care workers from Puskesmas. Reproductive health was introduced in high school level by making peer education that discussed about health reproductive (Kemkes 2011).

4.1.3 Family Planning

Family planning is one of the strategies to decrease maternal mortality especially for women which too young, too often, too near, and too old for delivery. Moreover, family planning will support family condition includes economic, education, mother and children health. Government of Indonesia ensured imformation and facilities of family planning that could be accessed by communities. In 2014, most of family planning services were dominated by private midwife clinics (56.3%) and public facilities served only 25% of FP user (Kemkes 2015). Around 50 percent of women at 15-49 years old used contraceptives (Kemkes 2015). Injection was the most favorite contraception (47.5%) and after that pil which was 23.6% (Kemkes 2015). Only 3.2 percent of people chose condoms for contraception (Kemkes 2015). In 2014, nationally unmet need for family planning was 14.8 percent while Papua Barat was the highest province of unmet need that reached 38.3 percent (Kemkes 2015). Every province had variant number of unmet need and government need to improve health services in outreached areas. Family planning was provided by midwives and puskesmas (Kemkes 2015).

4.2 Second Delay Intervention

4.2.1 Health Facilities

Ministry of Health tried to make health care services near to the community. In 2014, around 9731 Puskemas were built in Indonesia with ratio 1: 30,000 populations even though it did not spread equally (Kemkes 2015). In addition, around 289,635 Posyandu were operated in Indonesia (Kemkes 2015). Total number of hospitals were 1632 in 2010 and it increased by 87 hospitals in 2011 (kemkes 2010).

Government made several innovations to raise the coverage of health facilities in outreach areas. In 2010, ministry of health implemented mobile hospital (Rumah Sakit Bergerak) 14 units and increased 10 units in 2011 that operated in several provinces such as Riau, West Kalimantan, Gorontalo, North Maluku, Nusa Tenggara Timur (NTT), and Papua (kemkes 2010). A mobile hospital is a temporary health facility that can be moved to another location especially to rural or remote locations. It gave outpatient or inpatient services with 10 beds, and emergency care (kemkes 2010).

As the archipelago country, ministry of health also tried distributing health facilities in the water. Puskesmas Terapung (Floating Community Health Center) were prepared to give services in provinces that have many of water areas (kemkes 2010). Puskesmas Terapung gave basic emergency care same as with normal Puskesmas including operation services. The form of Puskesmas Terapung looked like a cruise boat. In 2011, Ministry of health and local government operated 15 units Puskesmas Terapung in Papua, NTT, East and West Kalimantan (kemkes 2010). Furthermore, ministry of health built Pusling Air (Puskesmas Keliling Air/Water Mobile Health Clinic) to help health workers giving health services from one island to another island (kemkes 2010). Pusling Air used motor boat so it was more flexible to move around. Total number of Pusling Air were 925 units in 2011 (kemkes 2010). Ministry of Health tried to use air transportation and lauched Flying Health Care (FHC) (kemkes 2010). Health care workers were easier to reach remote areas and increased accesiblity of people to health care. In 2011, FHC can reach several provinces such as Papua, West Papua, North Maluku, Maluku, Riau, West and East Kalimantan (kemkes 2010).

4.2.2 Village Midwife

Village midwife program was launched in 1989 (Hatt L et al 2007). The purpose of this program was to decrease maternal death and increase delivery by skilled birth attendant especially for poor people in rural areas.

Every village was expected have a village midwife who provided several health care services around pregnancy, delivery, and postpartum. More than 50,000 midwives had been located in whole country in 1996 (Hatt L et al 2007). Because of that, the number of delivery by health care workers had increased significantly both urban and rural areas. Round 40 percent of the low income population used skilled birth attendants and this could decrease the gap between poor and rich people (Hatt L et al 2007).

The successful village midwife program raised number of midwives. For example, in 1991, thre were only 15,000 midwives and it increased to 54,000 midwives in 1997. At that time, the ratio of midwife was more than the international recommendation which was one midwife for 175 births. Ratio of village midwife was one per 54 births per year with total of rural population around 129 million people (Hatt L et al 2007).

In 1997, Indonesia faced an economic crisis that influenced both of government and population. Prices of basic needs raised while people's income decreased (Hatt L et al 2007). Government cut expenditure on health and education, and allocated more in economic sector. The condition gave effect of operation of Puskesmas and Posyandu in community.

Furthermore, the program had limitation in providing emergency obstetric services in community. Village midwife succeed in reducing health inequity to birth attendants but still could not decrease the gap in access emergency health care (Hatt L et al 2007).

Midwives learned to deal with complications at home but they could not prevent and gave interventions for several complications that need hospital services to save the life of mother. Besides, midwives sometimes found difficulty to referral the patients in emergency situation because of lack of transportations in rural areas (Ronsmans C et al. 2001).

4.2.3 Public Insurance

Government launched public insurance for low income community (Askeskin) in 2004 that implemented universal coverage program (Rokx 2009). Askeskin had the aim to rise access and quality of health care services for needy people. This program was not purely operated by government but also involving Askes Company (Asuransi Kesehatan/Insurance State Owned Enterprise) to manage the payment (Rokx 2009).

Askeskin changed to be Jamkesmas in 2008 that had aim to give health insurance for all people in Indonesia. This program was the foundation for

universal coverage scheme that was planned to combine several health insurance schemes (Rokx 2009).

Decentralization influenced the health financing system in Indonesia that made hospital reimbursement schedules uncertain because the payments came from different levels of government. Some funds were paid by central government while others by local governments. The flow of funds was also complicated because the money could be separated to insurance organization or health facilities (Rokx 2009). The condition was not effective and efficient in financing flows that had consequences of delay of payment and private facilities rejected patient with public insurance. According to Susenas (Survei Social Economi Nasional/National Scioeconomic Survey), it was only 26 percent for poor people were covered by Jamkesmas in 2006 (Rokx 2009). Most of poor population were unable to get public insurance.

In 2011, government released Jampersal (Jaminan Persalinan/Delivery insurance) as acceleration program to reach MDG target (Kemkes 2011). Jampersal offered several maternal and neonatal cares such as four times of antenatal care, delivery services by skilled birth attendants, referral services in emergency condition, three times postnatal care, and family planning. Jampersal was part of Jamkesmas though it was addressed to pregnant women who did not have insurance and want to use health care facilities like Puskesmas or hospital. The aim of this program was to reduce delivery by traditional birth attendant and to improve delivery in health care facilities. Around 1.7 million from total 4.6 million deliveries were paid by government with Jamkesmas 2011 (Kemkes 2011).

Ministry of Health also launched BOK (Bantuan Operasional Kesehatan/ Operational Health Support) (Kemkes 2015). BOK was used to cover additional health care activities, including data collection, Posyandu services, home visits, sweeping drop-out cases, health education, maternity classes, and partnership between midwives and traditional birth attendants (Kemkes 2015).

4.3 Third Delay Intervention

4.3.1 Training of Health Workers

Ministry of health cooperated with 13 medical faculties to do intership program for fresh graduate of doctors (Menkes 2011). The program has a goal to increase quality of doctors by implementing their knowledge and ability in Puskesmas or hospital for 1 year. During 2010, 401 doctors already

finished the program and around 1141 doctors were attending the program in 2011 (Menkes 2011).

Moreover, government collaborated with Japan in Japan Economic Partnership Agreement (IJEPA) to send health workers to Japan. 363 nurses sent to work at several hospitals in Japan for 3 years and the government expected these nurses could further implement the experience in Indonesia (Menkes 2011). Ministry of health also offered scholarship to health workers to develop their skill and already gave scholarship to 1510 health workers in 2011 (Menkes 2011).

4.3.2 Recruitment of Health Workers

After graduation, Ministry of Health offered general practitioners, dentists, specialists, and midwives as PTT (Pegawai Tidak Tetap/Temporary Employees) in remote areas. PTT program had a duration 6 months to 1 years. In 2011, around 2425 general practitioners, 504 dentists, and 7881 midwives worked as PTT and worked spread in whole country (Menkes 2011).

Government tried to increase number of health workers in several areas and many of health workers were recruited to complement health services. For example, 1391 health workers were employed for 35 cities in 12 provinces (Menkes 2011). The composition of health workers were nutritionists, nurses, pharmacists, health analists, and environmental experts (Menkes 2011).

Because of limited number of specialist, government developed program in 6-month duration to improve the ability of doctors who were located in rural areas (Menkes 2011). The doctors will have more competency in obstetrics, gynecologist, child health, and anasthesia. The program was arranged in NTT, Maluku, and Papua, where it trained 78 doctors (Menkes 2011). Besides, government made a program to locate specialist students to practice in remote areas. In 2011, 383 specialist student participated and worked in 78 rural districts (Menkes 2011).

4.3.3 Revitalization of Generic Drugs

Generic drugs can increase effectiveness and efficiency of national health financing. Ministry of Health did revitatalization of generic drugs with excellent quality approach (Menkes 2011). The purpose of the program was to increase perception of generic drugs between health care workers and communities that generic drugs could have good quality and good price.

Government expected more people use generic drugs in health facilities (Menkes 2011).

Futhermore, generic drugs could lead farmacy industry to produce generic drugs, decide reasonable price that affordable for communities, fast track of drug registrations, and increase colaboartion between government and farmacy industry (Menkes 2011). In 2011, more than 96 percent of generic drugs were used in Puskemas while only 66.5 percent was used in hospital (Menkes 2011).

4.3.4 Maternal and Perinatal Audit (MPA)

Maternal and Perinatal Audit (MPA) system was presented in 1994 as an equipment to monitor maternal and perinatal mortality, and to assure quality of obstetric care in district level (Supratikto G et al. 2001). MPA was one of strategies to decrease maternal death. Ministry of Health made MPA guidelines and implemented for the first time in 8 provinces in Indonesia with Central Java and West Nusa Tenggara as a model project (Supratikto G et al. 2001).

MPA was part of Safe Motherhood program that was collaboration between Ministry of Health and MotherCare (USA) and was launched in 1995 (Supratikto G et al. 2001). Safe Motherhood program included offering training or continued education for midwives, improving of communication and counselling ability, giving information about pregnancy safer, and supporting MPA process (Supratikto G et al. 2001). The purpose of MPA program was to indentify unqualified health services that caused maternal and perinatal dealth, to raise connection between local government and community health center or hospital, to give recommendations for improving quality of health both district health office and health facilities, and to evaluate the causes of maternal and perinatal mortality. MPA also explored barriers to get health care in community level including delay of decision making and difficulty to get transportation (Supratikto G et al. 2001).

MPA process was started when MPA team received maternal and perinatal dealth. The MPA team collaborated with village midwife to do verbal autopsy by asking member of family to explore causes of death, and classified the causes into medical or nomedical reasons (Supratikto G et al. 2001). The findings would be discussed with members of health centers, local government, district hospitals, and traditional birth attendants if they were part of the case. In the end, MPA produced recommendations to increase accessibility to health care and quality of care (Ronsmans C et al. 2001).

4.4 Examples of Interventions in Other Countries

4.4.1 The Philippines

The Philippines had decentralization system that make private providers give services in urban areas and public providers focus in rural areas (Jimenez Soto E et al. 2013). In the early 1990, MMR in Philippines was 209 and the number decreased at 162 per 100,000 live births in 2006. The Philippines succeed to decline MMR number even though after that the number only reduced slightly to 140 in 2015 (UNFPA 2015).

In 1995, government of Philippines launched the goal of achieving universal coverage by providing social insurance (Jimenez Soto E et al. 2013). The Philippines Health Insurance Corporation accredited health service facilities that had social insurance access to make sure the quality of services (Jimenez E Soto et al. 2013).

Government had consent in maternal health by improving health care facilities and focusing to make strategies in pregnancy and delivery services. For example, in Pasay City, local government contracted two public delivery centers so it had insurance accreditation requirements and gave well quality of health services. The government tried to increase coverage of quality delivery facilities in community and it succeeded to reduce maternal mortality around 13 percent in 2015 (Jimenez Soto E et al. 2013).

On the other hand, most of rural provinces in Philippine had same problems which were limited number of health facilities (Jimenez Soto E et al. 2013). The local government made strategies by training and recruiting health care providers especially midwives. Moreover, they also upgraded public health facilities which could give maternal and delivery services including emergency obstetric services. Because of that, the facilities could serve more services for people and received accreditation from the national health insurance program that decreased economics barriers toward poor community. The national health insurance program formed community health teams to increase community participation and awareness of the program. Community health teams also could help to assist people to get insurance services (Jimenez Soto E et al. 2013).

4.4.2 India

India declined maternal mortality from 560 to 190 per 100,000 live births between 1990-2013 which have achieved remarkable results in MMR reductions about 65% (El-Saharty S 2015). Providing basic right to women

is the priority of India's government especially to rural and remote population that limited health facilities. Innovation of financing schemes could improve utilization in maternal services such as antennal care and delivery in health care facility (Jimenez Soto E et al. 2013). However, this improvement was not followed by quality of care especially in limitation of basic supply and lack of health care providers. Another challenge was insufficient number of health services in several areas, to reach universal health coverage in whole country (Jimenez Soto E et al. 2013).

For example, in Rayagada, one of rural districts, around half of deliveries were attended by health care workers (49%) while only 20 percent of facilities had adequate equipment that conformed to Indian Public Health Standards (Jimenez Soto E et al. 2013). Government made the strategies which was improving outreach health care and allowing task shifting to under levels of the health system. The program was implemented by contracting 10 to 30 percent of health centers and improved several primary health centers with BEmONC services and blood units. Other movements were raising transport fees and giving training for health care workers; adding incentives for postnatal services; improving management and supervisor system; and organizing reimbursement for private health care offering emergency services to community (Jimenez Soto E et al. 2013). Rayagada district succeed reducing maternal mortality ratio by 28% in five-year period.

4.4.3 Nepal

Nepal has made significant MMR reduction because of national effort that covered maternal and child health intervententions. Government implemented key interventions that included adapting community-based approach to child birth services, providing subsidized or free care for maternal health services, and presenting female community health volunteers. Nepal has reduced poverty around 2.5% every year since 2004 that improving socioeconomic status and health outcomes (El-Saharty S 2015).

Nepal had centralized health policies and planning to hold universal health coverage. The Nepal Health Sector Program set national targets for health services input and intervention report. Local governments received these targets that were already decided nationally. Several strategies that were implemented in Nepal were developing women community health volunteers and mother groups, introducing population approach of health planning (Jimenez Soto E et al. 2013). One of challenges in Nepal was providing accommodation for health care workers in outreach areas. The study found

that Many of national target was difficult to reach in remote locations (Jimenez Soto E et al. 2013). For example, National target for skilled birth attendance was 60 percent in five-year period while average coverage in rural districts of the mountains was only 10 percent. It was unrealistic target and loaded heavy requirement on disadvantaged areas (Jimenez E Soto et al. 2013).

The National reproductive strategy Nepal was to improve maternity services such as FP, accessibility, coverage, quality of program, and human right. The strategy implemented by giving family planning and sexual health services and braking cycle of poverty (UNFPA 2010).

4.4.4 Malaysia

In 1957, MMR in Malaysia was about 280 per 100,000 liver births. The number declined further until 29 per 100,000 live births in 2009 (UNICEF 2011). Malaysia succeed to reduce MMR by improving access to maternal health services include FP, delivery by skilled birth attendants, upgrading essential obstetric care in district hospitals, improving efficiency referral and feedback system, cooperating with community, and improving monitoring system (UNICEF 2011). the Government tried to strengthen health policies supporting by related policies in education, rural, development, and poverty reduction (Pathmanathan I et al. 2003).

Delivering by skilled birth attendant increased dramatically from 30% in 1949 to 90% in 1995 (Pathmanathan I et al. 2003). The government developed rural population to increase accessibility of basic services such as health, education, roads, sanitation, and water supply. Besides, female education was promoted to raise empowerment of women in population. Fertily reduction also gave significant effect to reduce maternal death in Malaysia. TFR decreased from 6.7 to 3.2 between 1957-1999 periods. Because of that, fertility of women in specific ages (15-19, 40-44, and 45-49 years old) fell more than 50% which the ages are risk of maternal complication (Pathmanathan I et al. 2003).

Malaysia succeed to reduce maternal death resulting of synergy of policies, strategies, and programs in several aspects, not only health but also education, gender, and poverty. Maternal health was national priorities and government focused on expanding maternal health services and increasing quality of health services (Pathmanathan I et al. 2003). By serious commitment for several years, Malaysia succeed resolving maternal mortality.

Chapter 5: Discussion

The findings of this study have shown every delays had contributions that influenced maternal mortality in Indonesia. It was difficult to pick one delay to be the most significant aspect while other delays are playing a big part in maternal mortality. Most of maternal death cases were combination of delays that caused terminal results in the end (Belton S et al. 2014). For example, the result of study in Kalimantan, showed that 77 % of the deaths were contributed by first delay (Supratikto G et al. 2001). Based on finding in this study, third delay was an important point to get intervention in order to reduce maternal death in Indonesia. In third delay, women would be died if they do not receive adequate services in time after reaching health facilities (Barnes-Josiah D et al. 1998). Investments in educations, transportation networks would be useless if health centers could not give adequate services (Barnes-Josiah D et al. 1998). Lack of interventions were addressed to improve quality of care when third delay was critical point of maternal death. Both government and community already handled other delays even though it still needed improvements.

Furthermore, affecting factors were found in every delay which could be barriers reducing maternal death. The gap was found between the affecting factors and interventions which was implemented by government of Indonesia. The analyse of the gap between three delays and interventions can be seen in this following explanation.

5.1 First Delay Gap

The study showed that first delay was still a problem that influence maternal death in Indonesia. First delay was affected by perception of need of health care, unsafe abortion, women's status, education, perceived accessibility, and perceived quality of care. Government implemented antenatal care, education, and family planning as interventions of first delay.

Antenatal succeed to deal with recognising the need for health services, perceived accessibility, and perceived quality of care. Antenatal care was giving information for women about emergency conditions, increasing trust of community to health care workers, and helping women prepare for their delivery processes if they need referral to hospitals.

However, anternatal care could not prevent incident of delivery by traditional health care in several areas in Indonesia. Because antenatal was related to accessibility and quality of health services. Several areas in Indonesia have limited access to get health services that make people did not receive

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antenatal care and chose to use traditional birth attendants. Moreover, antenatal services sometimes were not including haemoglobin and protein urine test which important to detect maternal complications because of lack of equipments (Supratikto G et al. 2001).

Maternity class and KIA books were innovation programs to complement antenatal care. The limitation of maternity classes was because they were only arranged in several areas and gave extra workload for midwives. This programs also like antenatal care which were only for women and their husband and did not give contribution to people around women or community which also had important roles to help of referral process in emergency conditions.

Furthermore, family planning (FP) coud be used to prevent unwanted pregnancy. However, FP only was only for married couples. Family planning could not reach young people that lead to tennage pregnancy. FP also could not prevent unsafe abortion that caused maternal death. Besides, Safe abortion only limited to married women in certain condition like rape or emergency conditions. Rural population usually do not have safe abortion services that bringing maternal complications. Implementing family planning for all people is needed to ensure everyone can have access to family planning. Besides, safe abortion services are required to prevent unsafe abortion, especially in rural areas.

Most of interventions were missed addressing gender equity. In addition, gender equity can increase women's status in community that influence women to get proper education. Women had limited access to health services, social support, and decision making. Women's education needs to make them more independent in community. Including gender and reproductive health in curriculum also important to make people aware about gender and reproductive health issue. Young people are expected have knowledge about safe sex, consequency of teenage pregnancy, and decrease gender equity in community.

5.2 Second Delay Gap

The study showed that second delay was still problem to reduce maternal mortality. Second delay was affected by distribution of health facilities, transportation, and cost. Handling second delay, ministry of health had done some improvements in providing health Facilities, launched Village Midwife program and Public Insurance.

Village midwife program succeed to give maternal services in rural locations. The limitation of village midwife program was not increase accessibility to emergency care in poor population (Hatt L et al 2007). Caesarean sections need for life-saving care Even though not all maternal complications need it as intervention (Hatt L et al 2007). The program gave attention on outreach care but missed the accessibility to emergency care in hospitals (Hatt L et al 2007). Comprehensive link of health facilities is needed to get health services in the right time. Government need to improve distribution and infrastructure to access health facilities that offered emergency onstetric care.

Government also made several innovations to give health services at remote regions in Indonesia. The program might give solution but the goverment had a problem of maintaining the program. For example, Puskesmas Terapung that used cruise boats needed operational cost which might be expensive. The program could be burden of health financing which the money might be allocated for drugs or equipments. Government need to review interventions that affordable with Indonesian condition therefore the program could be implemented for long time.

Public insurance could help poor people to get health care access in health facilities. However, some of people did not know the insurance program because of limited program socialization in community. The cost reimbusement needed long administrative process that make people difficult to get the health services. Public insurance need to improve of the system to make targeting people using it.

5.3 Third Delay Gap

Third delay is the main barriers in reducing maternal mortality in Indonesia because it influenced other interventions in first and second delays such as antenatal care and village midwife. One study of maternal death audit in Kalimantan found poor quality of care was contributed around 60% of maternal deaths in 1998 to 1999 (Supratikto G et al. 2001). Third Delay was effected by staff and equipment in health facilities. Government did training of health workers, recruitment of health workers, revitalization of generic drugs, and Maternal and Perinatal Audit (MPA) to increase quality of care to improve quality of care.

The total of Health worker number was unbalance with population even though government tried to do a recruitment. Low of payments, over of workloads, limited of facilities and infrastructures were several reasons which made health care providers do not work in remote areas. Moreover,

health care workers could not improve themselves because they were busy with many of duties and most of training programs are out of pocket without facilitating by government. They also had difficulty to give health services because of lack of medications and instruments.

Health workers had important roles to decrease maternal mortality. However, Indonesian health system could not supply the basic training and logistic support for health care workers that make them could not work efficiently. Health care workers would work effective if environment provided medication and equipment for emergency conditions and referral system to CEmONC services when required (UNFPA 2006). Skill birth attendants needed supervisory support and in-service training to maintain skills. They could not work in isolation (UNFPA 2006). Government need to evaluate human resources regulations for health workers. The regulations must be appropriate between workload and payment.

On the other hand, developing infrastructures and facilities must be done to make health workers giving adequate services. Health centers required essential medication and equipments to give comprehensive services such as blood unit or laboratory test. Revitalization of generic drugs could help to reduce medication drugs cost and increased availability of drug stocks. Health centers could give the right procedures and decrease delay to save mother's lives by improving quality of care. Providing BEmONC and CEmONC services were also important in community health center to give emergency health services in rural communities.

Furthermore, Maternal and perinatal audit (MPA) program could help monitoring MMR cases in Indonesia. MPA was a new program and only several regions already had MPA teams. Government still need to develop MPA program so it can be implemented in all regions in Indonesia.

Finally, MMR could not reduce by focusing maternal interventions alone. Poverty reduction, multisectoral approached and health system strengthening were needed to improve maternal health (UNFPA 2006). The countries like Malaysia, India, Philippines, Nepal that already succeed reducing MMR did improvement in many sectors like roads, communication systems, and providing education to women. The high MMR in Indonesia was a sign that health system was not functioning adequately. High level commitment and coordination between government, donors, and policy makers are needed to strengthen the health system (UNFPA 2006).

Chapter 6: Conclusions and Recommendations

6.1 Conclusions

Maternal mortality ratio is one of the important indicators of the country's coverage and the quality of health care. High MMR can be a sign that health care needs improvement. According to three delays model, all factors gave significant affects reducing maternal mortality. However, third delay is the main barriers because it influenced other interventions in first and second delays.

Cultural factors, such as perception of need of health care, unsafe abortion, women's status, education, perceived accessibility, and perceived quality of care, were still influenced women deciding to seek health care (first delay). Reaching health facilities (second delay) were affecting by accessibility of health facilities like health care centers distribution, infrastructures, and costs that made difficulty for rural populations. Receiving adequate and appropriate treatment in time (third delay) is affected by quality of care include staff and equipment in health facilities that unadequate in Indonesia.

Many interventions are done to reducing maternal mortality. Antenatal care and village midwife are suceed to deal with maternal health problem. However, improving quality of care is important to give effective health services to women and reducing maternal mortality.

6.2 Recommendations

Community Level

- Improving the understanding of women, families, community, and TBAs of maternal emergency complications and how to respose it. community must be involved to detect and help women in emergency situations.

- Arranging community networking for transportation, blood donor, and delivery cot to help pegnant mother in emergency conditions.

- Colaborating with TBAs to refer in emergency conditions. Midwives can explain TBAs about some practices which is dangerous for women and to decrease unsafe abortions.

Health Services Level

- Training health workers on basic maternal emergency services including medications. Midwives can give basic first-aid for emergency conditions including giving medications before refer to hospitals.

- Improving quality of existing medical facilities to give appropriate health services, particularly for maternal complications. Evaluation need regularly to make sure quality of services, medication stocks, equipments, and staff.

- Distributing health facilities in strategic locations to make sure people can access that. The facilities can give emergency services with available medication and equipments.

- Improving physical infrastuctures, referral, and transportation networking to accelerate referral process.

- Recruting health workers compatible with population number. Community will get health services and health workers can give maximaze services because they do not over workload.

Government Level

- Increasing health finacing budget and allocated it to improve quality of health services such as public insurance, health facilities, medication stocks, and equipments.

- Having standard payment for health workers based on workload. Insentives are needed giving to health workers in rural areas to stimute health workers want to locate in outreach areas.

- Implementing Maternal Perinatal Audit in all locations. Every district must have MPA team to evaluate maternal death cases and analyze the solution that can be implemented.

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- Including Gender and reproductive health in curriculum at school. Ministry of health cooperate with ministry of education to decrease

gender inequity in young people. Adolescents also get reproductive health to increase their responsibility.

- Increasing school in rural areas and make sure women get access to school.

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