Introduction

Maternal mortality is one of the targets (number 1) set by the World Health Organization (WHO) as a health indicator of a country (1). Based on the results of the Indonesian national survey, maternal mortality rate (MMR) in Indonesia has shown a decrease over time, but it is still relatively high compared to other Asian countries. MMR in Indonesia in 2015 was 305 per 100,000 live births (2). Globally and in Indonesia, hypertension in pregnancy is the second most common cause of maternal deaths due to post-partum haemorrhage (PPH) (3).

National data in 2018 indicated that the population of Indonesia was 265,015,313 with 70,715,592 women of child-bearing age and 5,291,143 pregnant women (4). National data did not include information on the number of pregnant women with preeclampsia complications, but considering that preeclampsia occurs in 2%-8% (5) of pregnancies, preeclampsia patients may reach 105,822 to 423,291 in a year. A total of 1232 preeclampsia cases were registered in 7 referral hospitals in Indonesia in 2016, and maternal mortality was reported to be about 2.2% despite treatment in tertiary referral centers (6). The total number of hospitals throughout Indonesia was 2269 in 2018 (4). Based on the mentioned data, it was estimated that maternal deaths in Indonesia due to preeclampsia-eclampsia may reach about 2328-9312 per year. This number can be reduced or eliminated by preventing preeclampsia or deaths from preeclampsia; therefore, the MMR can be reduced rapidly in Indonesia.

Minimal public awareness of the health of pregnant women becomes the determining factor of the death rate, although there are still many factors that must be considered to eliminate this problem, for example, empowerment of poor women, educational background, family, socioeconomic factors, community, and political policy. Men are also required to work actively on all issues of reproduction in a more responsible manner. Therefore, the view that considers pregnancy as a natural event needs to be changed socioculturally so that women can receive more attention from the community. It is very critical that efforts to improve care services come from the government, the private sector, and society, especially the husbands.

Review of Literature

The mode of delivering babies in Indonesia is dominated...
by midwives (the number of midwives was 217726 in 2018) with the highest number of delivery in the homes of pregnant women or at independent midwifery clinics (4). Traditional birth attendants still play a role during childbirth. Excessive bleeding is still the number one cause of maternal death probably due to difficulties of the cases and distance from health institutions. The policy of childbirth in health institutions is still far from being agreed upon because of various issues such as sociocultural, economic, and governmental policy. The effective reduction of maternal mortality due to bleeding is achieved by delivery in health institutions with adequate facilities and skills (not at home), where the delivery of babies is performed by trained personnel. It still takes time to send the mother to the hospital if there is excessive bleeding which can cause severe blood loss. In many cases, this is the cause of death among pregnant women due to blood loss in the transferring process.

Childbirth policies in health institutions have been adopted in several places. Although positive results are observed, there are still unpopular public policies which may not be adopted. In case of maintaining the current policy of allowing births at home, all midwives should be trained to handle bleeding. Unequal quality of education is another factor in upgrading the skills of midwives so that they can have comparable abilities to employ treatment for excessive bleeding. This is not possible because the number of midwives is so high and it is very costly for the government.

Four major causes of bleeding are tone, trauma, tissue, and thrombin (4), making PPH relatively difficult to handle by a midwife when delivering at home (3). Prevention of the PPH process is only achieved by administering oxytocin after the baby is born. Almost no early detection of PPH by midwives is possible in a remote area; however, fatalities can be avoided by a maximal preventive effort. The potential for PPH is only suspected from characterization of the patient, including pregnant women with the possibility of poor uterine contractions after delivery, especially in macrosomia, polyhydramnios, or multiple pregnancies. In contrast to PPH, preeclampsia currently has patterns for treatment from early detection to delivery so reasonable chances of decreasing the MMR rapidly and significantly in Indonesia are achieved by decreasing the incidence of preeclampsia.

Preeclampsia is the first target because it is one of the preventable pregnancy complications and as health facilities and infrastructure are widespread in Indonesia, it can be addressed immediately. There have been many studies that explain that pre-eclampsia can be prevented by some medications and prevention, or altering one's lifestyle. Prevention with the provision of aspirin at low doses has been proven to be useful, so it should be used as a reference in the prevention of preeclampsia (7). Preventing the occurrence of preeclampsia may require a long period of time; therefore, realistic and probable goals in the near future are to prevent deaths from preeclampsia. However, a long-term goal is to prevent preeclampsia (8, 9).

The reasons for choosing preeclampsia as the first target for reducing MMR are as follows:

1. An early detection method can be developed based on 3 main aspects that can indicate the possibility of preeclampsia.
   (a) Risk factors: High risk preeclampsia categories according to the American College of Obstetricians and Gynecologists (ACOG) if there are one or more of the following risk factors: Preeclampsia in previous pregnancy, multiple pregnancy, hypertension, diabetes mellitus, kidney illnesses, autoimmune diseases and obesity;
   (b) Biophysical maternal parameters (blood pressure, arterial stiffness, and uterine arteries blood flow);
   (c) Placental function: biochemical measurement parameters

2. Medication for the prevention of preeclampsia is affordable.
   The prevention of preeclampsia can be started by risk assessment and Doppler examination of the uterine artery from the first trimester. Furthermore, if there are risk factors, drugs can be administered to prevent the pregnancy. The recommended preventive medication is a combination of acetyl salicylic acid and calcium (inexpensive and easy to obtain). Calcium supplementation is associated with a significant reduction in the risk of preeclampsia. The provision of such supplements also reduces the role of premature birth. The WHO recommends 1.5 g to 2 g of calcium daily for areas with low dietary calcium intake. In settings with low calcium intake, a low-dose supplement option (500 to 600 mg/d) may be considered (10,11).

   The use of low-dose aspirin from the first trimester of pregnancy in women at high risk of preeclampsia may reduce the incidence of pathologies. The aim of early diagnosis is to provide preventive therapy with 50-150 mg of acetylsalicylic acid (aspirin) before 16 weeks of pregnancy (12). The combination of aspirin and heparin for prevention seems to increase the success of efforts to prevent preeclampsia (13,14).

   The WHO guideline recommended a reference dose of 75 mg/d for aspirin before 20 weeks of gestation and, if possible, as early as 12 weeks of gestation (15). Meanwhile, ACOG supports recommendations on the use of 81 mg/d of aspirin starting from 12-16 weeks of gestation for high-risk preeclampsia (10).

3. There is a national guideline for medical practice regarding preeclampsia.
   A national guide for medical practice regarding preeclampsia was issued by the Indonesian Society of Obstetrics and Gynecology (POGI) and the Ministry of Health. After the issuance of this guideline, it can be used as a reference to create a clinical, practical guide in all
service settings throughout Indonesia. Guidance issued
in the form of national guidelines will make it easier
for health service providers to handle preeclampsia and
hopefully the treatment will be uniform and clinically
practical throughout Indonesia.

4. Health institutions were widely established by the
government and the private sector in remote areas.
Until 2018, the number of general hospitals in Indonesia
was recorded to be 2269. Based on the ownership, they
include 1336 private general hospitals (58.9%). The
number of public primary health care centers was reported
to be 9993, with a ratio of 1:26520, and there were 8841
private clinics (4).

5. The number of health personnel is relatively sufficient.
According to the data obtained from the Indonesian
Association of Obstetrics and Gynecology in 2020, there
are 3253 specialists (16) working in Indonesia and based
on the data obtained from Indonesian Ministry of Health
in 2018, a total of 56084 general practitioners work in
remote areas, although they are not well dispersed (4).

Discussion
The steps of the program that can lead to zero maternal
mortality due to preeclampsia are as follows:

1. Early detection
(a) Primary Services (Primary health care, clinics, general
practitioners, midwives, other health workers)
• Detection of risk factors and prior risks during
pregnancy including preeclampsia
• The cases with indications of high-risk factors may be
referred to secondary health services for consultation
and collaboration of management and may be
returned to primary facilities for supervision by a
specialist or handled directly at secondary facilities.
(b) Secondary and tertiary health services (district
hospitals, national referral hospitals, obstetricians,
pediatricians).
• Detection of high risk factors or complications (in
principle, the same as primary care services)
• Consultation, collaboration with primary care for
service centers in remote areas
• Management of complex complications tailored to
existing facilities (depending on the type of hospital).
• Early detection using Doppler examination of the
uterine artery for screening the high risk group.

2. Prevention
(a) Primary services
• Provision of calcium supplement (1 g/d) in all
pregnancies in settings with low calcium intake
• Low-dose aspirin (80 mg) for high-risk cases with
physician supervision
(b) Secondary and tertiary services
• Administering calcium (1 g/d) in all pregnancies in
settings with low calcium intake
• Low-dose aspirin (80 mg) for high-risk cases with
physician supervision
• Detection, stabilization, normalization, and
prevention of pathological conditions that may
aggravate pregnancy or predispose to preeclampsia
before deciding to become pregnant.

3. Management of preeclampsia (referring to Indonesian
guidelines for the management of preeclampsia in 2016)
(a) Primary services
• Provision of MgSO4 for cases with severe
preeclampsia or eclampsia
• Referring the high-risk or predisposed cases of
preeclampsia to secondary or tertiary services (early
detection function)
• Not caring for patients with hypertension in
pregnancy without consultation with obstetricians,
gynecologists, and internal medicine specialists

(b) Secondary and tertiary services (subject to facilities)
• Provision of MgSO4 in all cases with severe
preeclampsia or eclampsia
• Intensive care for postpartum mothers and babies
• Termination of pregnancy is considered for the
following cases: Preeclampsia at <26 weeks;
Uncontrolled preeclampsia; Severe preeclampsia at
≥34 weeks; Preeclampsia with complications, e.g.,
HELLP, heart failure, pulmonary edema, kidney
failure and so forth; eclampsia; fetal distress.

Steps of Activities
a. National guidelines for the management of
preeclampsia should be distributed to all specialists
of obstetrics and gynecology, midwives, and all health
workers. This effort can be addressed in cooperation
with other organizations such as the Indonesian
medical doctors association, the midwives association,
and local government.
b. Workshops should be held on Doppler examination
of uterine arteries for early detection and prevention
program (Cooperation with medical education center
in all parts of Indonesia).
c. National guidelines for the management of
preeclampsia should be distributed to all hospitals
including those covered by national health insurance.
d. All pregnant women with high blood pressure are
required to be hospitalized to prevent death caused by
hypertension. This stage may require encouragement
from the central or regional governments or making
policy for that reason.

Conclusions
The goal of zero mother mortality preeclampsia program
is to make policies for all health workers and the general
public so that the prevention process can take place. In
addition, delivery of all cases with hypertension should be performed in the hospital without exception. It is a regulation that all health workers and the general public must meet to prevent antenatal risk factors or hypertension in pregnancy care in primary services or delivery at home without specialist supervision.

Conflict of Interests
None.

Ethical Issues
Not applicable.

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References