

## Research Article

**Maternal Mortality Rate before and after BPJS Health services Era****Angka Kematian Ibu sebelum dan sesudah Era BPJS****Hermie M.M. Tendean<sup>1</sup>, Anastasia M. Lumentut<sup>1</sup>, Maimun Ihsan<sup>2</sup>***Department of Obstetrics and Gynecology**Faculty of Medicine Universitas Sam Ratulangi*<sup>1</sup> *Prof. Dr. R. D. Kandou Manado General Hospital, Manado*<sup>2</sup> *Prof. Dr. Aloei Saboe Regional Public, Gorontalo***Abstract**

**Objective:** To compare maternal death in RSUD dr. Aloei Saboe Gorontalo before BPJS (in 2011-2013) and after BPJS (2014-2016)

**Methods:** Descriptive Retrospective. Data in this study obtained from the secondary data. This data obtained by the researcher from medical records in RSUD Prof. Dr. Aloei Saboe Gorontalo.

**Result:** In this study, the number of delivery in hospitals Prof. Dr. Aloei Saboe before BPJS (2011-2013) of 7906 deliveries of live births after 7735 and health services BPJS (years 2014-2016) of 6493 deliveries of live births BPJS 6333. Maternal mortality before and after as many as 34 cases BPJS many as 42 cases, so we get the MMR before BPJS 4.39 ‰ and 6.63 ‰ after BPJS.

**Conclusions:** There is a significant increase in maternal mortality rate in Prof. Dr. Aloei Saboe Gorontalo ( $p = 0.036$ ), after BPJS maternal mortality (years 2014-2016) was 42 cases, compared with a prior health services BPJS (2011-2013) was 34 cases. This increase occurred because of a referral system BPJS make the decreasing number of births was in the hospital decreased, and hospitals Prof. Dr. Aloei Saboe a referral centre in Gorontalo province and surrounding areas.

**Keywords:** death, BPJS, maternal, mortality.

**Abstrak**

**Tujuan:** Untuk membandingkan kematian maternal di RSUD Prof. Dr. Aloei Saboe sebelum BPJS (2011-2013) dan sesudah layanan kesehatan BPJS (2014-2016).

**Metode:** Deskriptif Retrospektif. Jenis data yang digunakan dalam penelitian ini adalah data sekunder yang diperoleh dari rekam medik di RSUD Prof. Dr. Aloei Saboe Gorontalo.

**Hasil:** Pada penelitian ini didapatkan jumlah persalinan di RSUD Prof. Dr. Aloei Saboe sebelum BPJS (2011-2013) sebanyak 7906 persalinan dengan kelahiran hidup 7735 dan sesudah layanan kesehatan BPJS (2014-2016) sebanyak 6493 persalinan dengan kelahiran hidup 6333. Kematian maternal sebelum BPJS sebanyak 34 kasus dan sesudah BPJS sebanyak 42 kasus, sehingga didapatkan AKI sebelum BPJS 4.39 ‰ dan sesudah BPJS 6.63 ‰.

**Kesimpulan:** Ternyata terdapat peningkatan yang bermakna ( $p=0,036$ ) kematian maternal sesudah BPJS (2014-2016) sebanyak 42 kasus, bila dibandingkan dengan sebelum layanan kesehatan BPJS (2011-2013) sebanyak 34 kasus. Peningkatan ini terjadi karena sistem rujukan BPJS membuat menurunnya jumlah persalinan yang ada dirumah sakit menurun, dan RSUD Prof. Dr. Aloei Saboe merupakan pusat rujukan di propinsi Gorontalo dan sekitarnya.

**Kata kunci:** BPJS, kematian, maternal, mortalitas.

**Correspondence author.** Department of Obstetrics and Gynecology, Faculty of Medicine Universitas Sam Ratulangi, Manado Hermie Tendean. hermie\_tendean@yahoo.com; anastiasialumentut@gmail.com

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**INTRODUCTION**

Maternal mortality is a woman's death that occurs during pregnancy, childbirth up to 42 days after the end of pregnancy, regardless of age and location. According to the order of causes of maternal death, there can be 2 possibilities, namely; Pregnancy and childbirth cause complications in pregnant women, so that the pregnant woman dies, before pregnancy a woman already has a disease/health problem,

then pregnancy, childbirth and childbirth which can worsen the health condition/disease, so that women die. The high and low maternal mortality rate in an area is often used as an indicator (benchmark) that describes the magnitude of health problems (diseases), the quality of health services and resources in an area. Also, the maternal mortality rate is the main indicator by the international community in determining a country's Human Development Index (HDI).<sup>1</sup>

One model of analysis of the factors that

determine the causes of maternal death includes; distant factors, namely socio-economic and cultural factors, intermediate factors consisting of health status and utilization of health services, Outcome factors, including pregnancy, complications and death factors.<sup>2</sup>

Maternal mortality is a complex problem caused by various causes which can be distinguished into near, intermediate, and far determinants. Close determinants that are directly related to maternal mortality are obstetric disorders, intermediate determinants related to health factors, such as maternal health status, reproductive status, access to health services and the behavior of using health facilities as well as distant determinants related to demographic and sociocultural factors.<sup>3,4</sup>

According to the World Health Organization (WHO) in 2011 the Maternal Mortality Rate (MMR) in Southeast Asian countries such as Malaysia is 29 per 100,000 live births, Thailand 48 per 100,000 live births, Vietnam 59 per 100,000 live births and Singapore 3 per 100,000 live births.<sup>1</sup> According to the Indonesian Demographic and Health Survey (SKDI) in 2012, the MMR in Indonesia had increased from 228 per 100,000 live births to 359 per 100,000 live births. This shows that Indonesia is still failing in developing the world of health because it has not been able to achieve one of the Millennium Development Goals (MDGs) targets. It is feared that in 2015 Indonesia will not be able to achieve the MDGs target of reducing MMR 102 / 100.00 live births. As of January 1, 2014, in accordance with Law no. 24 of 2011 concerning the Social Security Administration (BPSJ) began operating, where PT Askes Indonesia was changed to BPJS. With this tiered referral system, it has an impact on service quality and public health.<sup>5,6</sup>

To compare maternal mortality in Prof. Dr. Aloei Saboe before BPJS health services (2011-2013) and after BPJS health services (2014-2016).

## METHODS

This research is a retrospective descriptive study in Prof. Dr. Aloei Saboe Gorontalo regarding maternal mortality before BPJS health services (2011-2013) and after BPJS health services (2014-2016). The results obtained were data processing using the 2-group proportion test and the X<sup>2</sup> test.

## RESULTS

From the results of research conducted at Prof. Dr. Aloei Saboe Gorontalo by looking at medical records as secondary data, obtained 7906 deliveries before BPJS health services (2011-2013) and 6493 deliveries after BPJS health services (2014-2016), while the number of live births before BPJS health services (2011- 2013) as many as 7735 deliveries and after BPJS health services (2014-2016) as many as 6333 deliveries.

**Table 1.** Characteristics of Maternal Mortality before BPJS Health Services (2011- 2013) and after BPJS Health Services (2014-2016)

Characteristics	before BPJS		after BPJS	
	N	%	N	%
<b>Age</b>				
< 20	3	8.82	2	4.76
20-34	24	70.59	32	76.19
> 35	7	20.59	8	19.05
<b>Parities</b>				
1	6	17.65	13	30.95
2-4	26	76.47	27	64.29
> 5	2	5.88	2	4.76
<b>Education</b>				
No School	4	11.76	3	7.14
SD	11	32.35	13	30.96
SLTP	13	38.24	14	33.33
SLTA	5	14.71	10	23.81
<b>University</b>	1	2.94	2	4.76
<b>ANC (x)</b>				
Never	19	55.88	28	66.67
1 – 3	9	26.47	6	14.29
> 4	6	17.65	8	19.04

**Table 2.** Causes of Maternal Deaths before BPJS Health Services (2011-2013) and after BPJS Health Services (2014-2016)

Causes of maternal death	before BPJS		after BPJS	
	N	%	N	%
Eclampsia	14	41.18	18	42.86
Cardiovascular diseases	5	14.71	6	14.29
PPH	7	20.59	3	7.14
Septic	4	11.76	11	26.19
Aspiration	1	2.94	0	0.0
Placenta Previa	1	2.94	1	2.38
Peritonitis	1	2.94	0	0.0
HIV	1	2.94	0	0.0
DHF	0	0.0	1	2.38
Embolization	0	0.0	1	2.38
Meningitis	0	0.0	1	2.38
Total	34	100	42	100

The most common cause of maternal death before and after BPJS was eclampsia, respectively, with 14 cases (41.18%) and 18 cases (42.86%).

**Table 3.** Length of Stay in Hospital until the Patient Dies before Health Services BPJS (2011-2013) and after BPJS Health Services (2014-2016)

Time	before BPJS		after BPJS	
	N	%	N	%
< 3	16	47.06	7	16.67
3-48	13	38.24	30	71.43
> 48	5	14.70	5	11.90
Total	34	100	42	100

$\chi^2=10.131$  ( $P=0.006$ )

Length of stay in the hospital until the patient died before BPJS was mostly in the length of treatment <3 hours as many as 16 cases (47.06%), while after BPJS the most was in the length of treatment for 3-48 hours as many as 30 cases (71.43%).

**Table 4.** Maternal Mortality before BPJS Health Services (2011-2013) after BPJS Services (2014-2016)

Year	Alive	Maternal Death	MMR (‰)
Before BPJS 2011 - 2013	7735	34	4.39
After BPJS 2014 - 2016	6333	42	6.63

$Z=-1.800$  ( $p = 0.036$ )\*

There were 34 cases of maternal mortality before BPJS service (4.39 ‰) compared to 42 cases (6.63 ‰) after BPJS, there was a significant increase ( $p = 0.036$ ).

## DISCUSSION

Based on the data obtained in this study, it was found that there was an increase in maternal mortality in Prof. Dr. Aloei Saboe Gorontalo after the start of BPJS health services. For this reason, it needs to be criticized and evaluated so that there is an increase in better servants.

With the tiered referral system in BPJS health services, we are starting to empower level 1 health facilities again. This tiered referral system has advantages and disadvantages that need to be examined further. In this referral system, level I health facilities are the spearhead for conducting diagnosis and handling of obstetric cases. In this study, evaluating the length of treatment for patients until death, there was a decrease in the number of patients who died in less than 3 hours after the patient arrived at the hospital.<sup>6-8</sup>

The number of deliveries at Prof. Dr. Aloei Saboe before the start of BPJS health services (2011-2013) totalled 7906 and after BPJS health services (2014-2016) totalled 6493. The number

of deliveries decreased due to BPJS health services being implemented in a structured and tiered manner, where obstetric cases should be served level I health facilities such as primary health care, while the number of maternal deaths in 2011-2013 was 34 people and in 2014-2016 there were 42 people.

Based on the data above, the referral or the way the patient was admitted to the hospital before the BPJS health service stated that the patients came alone without a referral as many as 15 people (44.1%), while after BPJS patients who came without a referral were 6 (14.3%). This is because the obstetric referral system is a part of health efforts that fall within the scope of the national health system which aims to improve health services and the welfare of mothers and children.<sup>9</sup> Referrals relate to the arrival of the patient to the place where health services are carried out, in this case, in the form of community health centre, doctor's practice and hospital. Implementation of referrals, in this case, the referral time according to operational standards, can help early management in this case of obstetrics.<sup>8</sup> In emergency cases, immediate treatment is needed, in this BPJS health service the referral system is considered very important and very helpful for emergency cases to get first treatment in the surrounding area or health facility then it is decided to be referred to the hospital.<sup>10</sup> Patients who were admitted to the hospital with the most causes of maternal death were eclampsia in the pre-BPJS era, 14 people (38.9%) and 17 BPJS health services (40.5%). According to research conducted by Ghulmiyyah in 2012, eclampsia increases the risk of maternal death in developing countries. The high maternal mortality occurs especially in patients who experience multiple seizures outside the hospital without prompt treatment.<sup>9,11</sup>

Overall maternal mortality can be caused by the low level of public awareness about the health of pregnant women, although there are still many factors that must be considered in dealing with this problem.<sup>12</sup> Common problems of death are indications of bleeding, eclampsia, infection and other diseases. In these cases, it is very important to be able to recognize the risk factors that exist in a level I health facility, so that patients at high risk can be diagnosed and treated early for their emergency. For this reason, it is necessary to improve training and existing facilities at the level I health facilities so that they can diagnose and handle emergency cases so that patients get

good first aid so that the condition when they are referred is in a state that has received medical help and reduces the mortality rate.<sup>13,14</sup>

### CONCLUSION

Based on data on maternal mortality at BPJS health services for 3 years, compared to before BPJS health services, there was an increase with the average value of maternal mortality before BPJS 34 (4.39 ‰) increasing to 42 (6.63 ‰) after BPJS.

BPJS health services are only a system of dam programs managed by health experts and can be improved for the welfare of the Indonesian people. Health facilities and service providers need to be considered so that appropriate treatment is given at level I health facilities and level I facilities can continue to develop. BPJS must also take part in improving health facilities and developing medical science in Indonesia.

### SUGGESTION

It is necessary to evaluate the referrals that come to find out whether this referral system can help reduce maternal mortality or just lengthen the flow so that patients get help late. It is also necessary to evaluate and compare maternal deaths on a wider scale to get a bigger picture of the impact of BPJS health services on maternal death cases. The BPJS health service system needs to be reviewed from various points of view so that the improvement of Indonesian public health services becomes real.

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