

# Labor Profile with Premature Rupture of Membranes (PROM) in Sanglah Hospital, Denpasar, Bali, Period January 1-31 December, 2015

Made Budijaya<sup>1</sup>, I Ketut Surya Negara<sup>2</sup>

<sup>1, 2</sup>Department of Obstetrics and Gynecology Obstetrics Medical Faculty Udayana University/ Sanglah Hospital Denpasar, Bali

**Abstract:** *Background:* The article discussed a case of PROM associated with maternal and perinatal morbidity and mortality. Maternal complications that may occur include chorioamnionitis, placental abruption, cord compression, cord prolapse, and sepsis. *Objective:* The purpose of this study was to determine the profile of labor with premature rupture of membranes at Sanglah Denpasar Hospital between January 1 and December 31, 2015. *Methods:* This is a retrospective descriptive study. This research took place in the delivery room and medical record installation of Sanglah Hospital, Denpasar. The sample of this study include all cases of labor with PROM in the delivery room of Sanglah Denpasar Hospital between January 1 and December 31, 2015, who meet the present study's enrolment eligibility criteria. *Results:* Within the period of one year between January 1 and December 31, 2015, the number of pregnancies with PROM in Obstetric Triage of Sanglah Denpasar Hospital obtained from the register book of new patients with obstetrics and gynecology was 222 cases. Those study subjects who had full-term pregnancy at the time of this study were as many as 179 cases (80.63%) and there were 43 preterm pregnancy cases (19.37%). Most commonly occurred in the age group of 21–34 years, as many as 148 cases (69.81%), which were as many as 179 cases in a full-term (84.4%) and 33 cases in preterm (15.57%). The highest occurred in the primigravida group, that is 87 cases (41.05%). Rupture of membrane with less than 12 hours duration was most prevalent at 207 cases (97.65%) and only 5 cases (2.35%) where the rupture lasted more than 12 hours. The highest risk factor of PROM was idiopathic, which was prevalent in 172 cases (81.13%). Of the 212 cases of PROM in this study, abdominal delivery ranks highest at 50.47%, followed by vaginal delivery of 42.93%. Spontaneous vaginal delivery was to be found more common, which occurred in 88 cases (96.70%). Of the 107 cases of cesarean section, it was found that the most indicted criteria was cesarean section scars in 42 cases (39.25%), followed by a breech presentation and fetal distress, respectively, at 20.57% and 13.09%. Chorioamnionitis was ranked at the top of maternal morbidity cases of PROM, which occurred in as many as 2 cases (0.94%) followed by umbilical cord prolapse and UTI, respectively, at 0.47%. *Conclusion:* The conclusion of this research is out of the 1450 total number of deliveries performed, there were as many as 212 (14.62%) cases of delivery with a history of PROM. The highest occurred in the primigravida, with spontaneous delivery, chorioamnionitis was found related of PROM.

**Keywords:** Premature Rupture Of Membranes, Labor, Sanglah Hospital

## 1. Introduction

Premature rupture of membranes (PROM) is the rupture of the membranes before the appearance of labor signs, resulting in spontaneous amniotic fluid discharge<sup>1, 2</sup>. In Sanglah Hospital, PROM limits include rupture of membranes spontaneously upon inactivity, followed by, at least an hour later, without the presences of early signs of labor. PROM can occur at both term and preterm pregnancy. If PROM occurs before 37 weeks of gestation, it is called pre-term PROM, whereas if it occurs at a gestational age of more or less 37 weeks it is called full-term PROM<sup>1-3</sup>

The rate of incidence of PROM worldwide varies between 5-% and 10%, and almost 80% of it occurs at full term pregnancy<sup>2, 3</sup>. Meanwhile, incidence of preterm PROM is estimated to occur between 3-% and 8%<sup>4</sup>. In Indonesia too, the rate of incidence of KPD varies between 4,5-% and 7,6%.<sup>5</sup> Under normal circumstances, 8–10% of pregnant women experience PROM, and the incidence occurs only in about of the preterm gestation. <sup>1</sup>Cases<sup>1</sup>. Labor usually follows PROM. In a full-term pregnancy, 70% of PROM cases experience labor sign within 24 hours, and 95% of them experience labor signs within 72 hours. Meanwhile, in the preterm PROM, the interval of labor varies according to gestational period; for example, at 20 – 26 weeks of gestation on average labor signs occur within 12 days, while labor signs show up within 4 days at 32-34 weeks of

gestation<sup>3, 6, 7</sup>

The cause of PROM is multifactorial. Clinical factors associated with preterm PROM include infection, smoking, low economic status, low body mass index, vaginal bleeding during pregnancy, cervical incompetence, amniocentesis, previous sexual activity, nutrition, and previous poor obstetric histories such as PROM and preterm labor. However, most cases of preterm PROM occur without risk factors. Pathophysiologically, the occurrence of PROM is due to the presence of these risk factors that cause the biochemical changes of membranes<sup>1, 7, 8</sup>

The study discusses in particular cases of PROM associated with maternal and perinatal morbidity and mortality. Maternal complications that may occur include chorioamnionitis, placental abruption, cord compression, cord prolapse, and sepsis. Chorioamnionitis occurs in 9% of the cases of full-term PROM and mainly occurs in PROM within period >24 hours. In preterm pregnancy, chorioamnionitis may occur in 13–60% PROM cases.<sup>8</sup> <sup>9</sup>The data indicate perinatal morbidity of 21.4% and mortality of 18–20%. Three causes of infant death that are associated with PROM are sepsis, asphyxia, and pulmonary hyperplasia. Perinatal morbidity and mortality are most commonly associated with prematurity, and about 30-40% of preterm deliveries occur because of preterm PROM<sup>2, 10, 11</sup>

The management of PROM is still controversial. However, there are two kinds of opinions that are widely recognized: (a) conservative and (b) active. The conservative way is to wait for labor signs to occur within 24 hours. The induction of labor is done when there no signs of labor. While the active way is to immediately terminate the pregnancy by induction of labor after diagnosis of PROM is established. The risk that is often encountered in active management is an increase in the abdominal delivery<sup>12</sup>

Based on the above statements, the authors were keen to conduct a descriptive study to determine how labor profiles with PROM were handled in Sanglah Hospital during the whole of 2015.

## 2. Objective

The purpose of this study is to determine the profile of labor with premature rupture of membranes in Sanglah Hospital Denpasar period 1 January - 31 December 2015

## 3. Methods

This research is a retrospective descriptive study. This research took place in the delivery room and Medical Record Installation of Sanglah Hospital Denpasar. The subjects of this study included all cases of labor with PROM in the delivery room at Sanglah Hospital Denpasar between January 1 and December 31, 2015 and meet the criteria for inclusion in the study. Data obtained in this research are descriptive data therefore, a descriptive data analysis was carried out using software SPSS 16 for Windows and data are displayed in table form.

## 4. Results and Discussions

Within one year (January 1 to December 31, 2015.), the number of pregnancies with PROM in the Obstetric Triage of Sanglah Hospital Denpasar that occurred, according to the figures obtained from the register book of a new patients in Obstetric Triage, was as many as 222 cases. There were about 179 cases (80.63%) of full-term pregnancy and the number of preterm pregnancy cases was as many as 43 (19.37%). Of these 43 cases of preterm PROM conservative care, was given to 33 cases (76.74%), wherein the cases were considered to have labored and failed conservatively, and another 10 cases (23.26%) managed to maintain their pregnancies. However, of these 10 cases, no further history of childbirth was obtained because their data were not recorded in the patient's medical records. During 2015, there were 1450 cases of childbirth. Out of these, there were 212 cases (14.62%) of cases of delivery with premature rupture of membranes (PROM). This number is not much different from the incidence estimated percentage of incidences of PROM around the world at 5-10%.<sup>2,3</sup>. In a study at three different hospitals in India, the rates of incidences of PROM were estimated to be 4.2%, 3.75%, and 7.86%.<sup>4, 12, 13</sup>. The distribution of labor characteristics with PROM in the Obstetric Triage at Sanglah Hospital Denpasar is as follows.

**Table 1:** Case Characteristics of PROM Based on Maternal Ages in Sanglah Hospital, Denpasar, for the Period January 1 to December 31, 2015

Age (years)	Preterm		Full term		Total	
	N	%	N	%	N	%
≤ 20	5	2.36	19	8.96	24	11.32
21–34	21	9.91	127	59.90	148	69.81
≥35	7	3.30	33	15.57	40	18.87
<b>Total</b>	<b>33</b>	<b>15.57</b>	<b>179</b>	<b>84.43</b>	<b>212</b>	<b>100</b>

In this study, we found that the incidence of PROM most commonly occurred in the age group of 21–34 years, as many as 148 cases (69.81%) in both full-term and preterm pregnancies. Okeke et al. also reported the same in 2014 in retrospective studies conducted in Nigeria that howed the highest incidence of preterm PROM cases at 43%, occurring in the reproductive age group (26–30 years). Gahwagi et al., (2015) in their research in Libya reported an incidence rate of 61% and Vishwakarma et al., (2015) reported most of the PROM incidences occurred in the age range of 21–25 years, which is equal to 52.1%.

### Cases Characteristics of PROM Based on Age of Pregnancy

Cases of labor with PROM may occur at preterm or full -term pregnancy. In this study, the incidence of labor with PROM at full -term gestational age (≥37 weeks) was higher compared to the preterm cases (<37 weeks), which were as many as 179 cases in a full- term (84.4%) and 33 cases in preterm (15.57%). Similarly, Adeniji et al., (2013) obtained a partial outcome of PROM cases occurring at 64% in full-term pregnancies, and as much as 35.1% in preterm pregnancies. Another study conducted in India reported that there were as much as 82% PROM incidents in full-term pregnancies, where as it was 17.6% in preterm pregnancies<sup>12</sup>. Okeke et al., (2014) reported a preterm PROM incidence of 3.3%. Theoretically, the case of PROM is more common in full -term pregnancy because physiologically, due to ever -greater strain and biochemical and hormonal changes cause, there is a much higher likelihood of membranes becoming thinner and more fragile, and thus breaking easily. The spread of cases can be seen in Table 2.

**Table 2:** Case Characteristics of PROM Based on Age of Pregnancy in Sanglah Hospital, Denpasar, for the Period January 1–December 31, 2015

Age of Pregnancy (weeks)	N	%
< 37	33	15.57
≥37	179	84.43
<b>Total</b>	<b>212</b>	<b>100</b>

**Table 3:** Case Characteristics of PROM Based on Gravidity in Sanglah Hospital, Denpasar, for the Period January 1–December 31, 2015

Parity	Preterm		Full term		Total	
	N	%	N	%	N	%
Primigravida	18	8.50	69	32.55	87	41.05
Gravida-2	7	3.30	54	25.47	61	28.77
Gravida-3	6	2.83	37	17.45	43	20.28
≥Gravida-4	2	0.94	19	8.96	21	9.90
<b>Total</b>	<b>33</b>	<b>15.57</b>	<b>179</b>	<b>84.43</b>	<b>212</b>	<b>100</b>

In this research, it was found that in the incidence of PROM in both age groups of pregnancies, the highest occurred in the primigravida group, that is 87 cases (41.05%). Okeke et al. also reported a similar case in 2014 in retrospective studies in Nigeria wherein the rate of the highest incidence of preterm PROM cases occurring in the primigravida group was 29.1%. Patil et al., (2014) reported based on his research conducted in M.R. Medical College, Gulbarga, an incidence rate of as much as 53%<sup>14</sup> Other studies reported that the incident of PROM also occurs in primigravida, that is 68.2%, 52%, and 69%<sup>2, 10, 12</sup>. If it is viewed from the pathophysiology of PROM, stretching of the membranes plays a very important role in the occurrence of rupture of membranes, in addition to biochemical changes in the membranes. In primigravida, the uterus is relatively incapacitated to adapt to the pregnancy process, leading to greater premature rupture of the membranes.

#### Case Characteristics of PROM Based on the Duration of Membranes Rupture

In theory, the duration of rupture of membranes is one of the factors causing both maternal and perinatal complications in PROM cases. The following characteristics of KPD cases based on the duration of rupture of membranes are obtained in this study.

**Table 4:** Case Characteristics of PROM Based on the Duration of Membranes Rupture in Sanglah Hospital, Denpasar, for the Period January 1–December 31, 2015

Duration of membranes rupture	Preterm		Full term		Total	
	N	%	N	%	N	%
< 12 jam	32	15.10	175	82.55	207	97.65
≥12 jam	1	0.47	4	1.88	5	2.35
Total	33	15.57	179	84.43	212	100

Based on the duration of rupture of membranes, this study found that PROM with a rupture of membrane with less than 12 hours duration was most prevalent at 207 cases (97.65%) and only 5 cases (2.35%) where the rupture lasted more than 12 hours. Research by Patil et al., (2014) found that the incidence rate of PROM with the duration of rupture of membranes lasting from 0- to 24 hours was 64%. Other reported a rate of incidence of 63.8% for cases of full-term PROM that occurred within less than 12 hours<sup>2</sup>. Classification of duration of rupture of membranes in this study was based on the guidance of the management of PROM in Sanglah Hospital. The duration of membranes rupture was obtained from the history. Almost all cases of PROM that occurred within 12 hours are a reference from public health centers in the area of Denpasar and surrounding areas.

#### Case Characteristics of PROM Based on Risk Factors

In this research, it was found that the highest risk factor of PROM was idiopathic, which was prevalent in 172 cases (81.13%). Similarly, other studies (Gahwagi, 2015; Patil et al., 2014, 2015) reported somewhat higher percentages for the same criteria at 59%, 42%, and 43%, respectively. Another risk factor we found was breech presentation, which occurred in as many as 22 cases (10.38%), and multiple pregnancies were recorded for as many as 9 cases (4.25%), CPD was found in 4 cases (1.89%), and shoulder presentation was recorded in 2 cases (0.94 %). Macrosomia,

polyhydramnios, and UTI all reported in 1 case each (0.47%). The distribution of PROM cases based on risk factors in this study can be seen in Table 5.

**Table 5:** Case Characteristics of PROM Based on Risk Factors in Sanglah Hospital, Denpasar, for the Period January 1–December 31, 2015

Risk factors	Preterm		Full term		Total	
	N	%	N	%	N	%
Idiopathic	23	10.85	149	70.28	172	81.13
Breech presentation	5	2.36	17	8.02	22	10.38
Multiple pregnancy	3	1.42	6	2.83	9	4.25
CPD	0	0	4	1.89	4	1.89
Shoulder presentation	1	0.47	1	0.47	2	0.94
Macrosomia	0	0	1	0.47	1	0.47
Polyhydramnios	0	0	1	0.47	1	0.47
UTI	1	0.47	0	0	1	0.47
Total	33	15.57	179	84.43	212	100

Theoretically, abnormal presentation (such as breech and shoulder presentation), multiple pregnancies, and polyhydramnios cause increased pressure in the amniotic cavity. When accompanied by defects in the amniotic cavity, such as decreased elasticity, decreased levels of collagen, increased pressure on the weaker membrane portion of the amnion, it could cause PROM.

#### Case Characteristics of PROM Based on Type of Delivery

Of the 212 cases of PROM in this study, abdominal delivery ranks highest at 50.47%, followed by vaginal delivery of 42.93%. In contrast to research conducted by Patil et al., (2014), it was reported that 73% of cases of PROM had vaginal delivery and 27% had abdominal delivery. Another study found 37.2% cesarean section and 62.8% vaginal delivery in PROM cases.<sup>12</sup> This difference may be due to differences in the characteristics of PROM patients, where patients who came to Sanglah Hospital (which is the highest referral center in Bali) with other medical and obstetric complications which indicate the occurrence of cesarean section; appropriate results and findings can be seen in Table 6.

**Table 6:** Case Characteristics of PROM Based on Type of Delivery in Sanglah Hospital, Denpasar, for the Period January 1–December 31, 2015

Type of delivery	Preterm		Full term		Total	
	N	%	N	%	N	%
Vaginal delivery	16	7.55	75	35.38	91	42.93
Vaginal delivery with instrument	2	0.94	12	5.66	14	6.60
Abdominal delivery	15	7.08	92	43.39	107	50.47
Total	33	15.57	179	84.43	212	100

#### Case characteristics of PROM Based on Spontaneous and Induced Vaginal Delivery

Of the total 91 vaginal delivery cases, spontaneous vaginal delivery was to be found more common, which occurred in 88 cases (96.70%).

Vaginal delivery with induction occurred 3 cases (3.30%). Similar findings were also reported by Patil et al.,(2014); vaginal delivery rates with induction occurred in 17.8% of the cases, while 82.19% of the cases had spontaneous



vaginal delivery. Endale et al.,(2016 ) reported that 85% of cases of full -term PROM had spontaneous vaginal delivery. It is also corresponds to statistics of PROM cases in the hospital, wherein spontaneous labor occurred in 75%.% of cases. And by the fixed procedure applicable in Sanglah Hospital, it was found that the case of  $\geq 12$  hours of PROM direct induction is carried out if it meets the induction criteria. More information can be seen in Table 7.

**Table 7:** Case Characteristics of PROM Based on Spontaneous and Induced Vaginal Delivery in Sanglah Hospital Denpasar, for the Period January 1– December 31, 2015

Type of vaginal delivery	Preterm		Full term		Total	
	N	%	N	%	N	%
Spontaneous	16	17.5	72	79.12	88	96.70
Induced	0	0	3	3.30	3	3.30
<b>Total</b>	<b>16</b>	<b>17.5</b>	<b>75</b>	<b>82.42</b>	<b>91</b>	<b>100</b>

**Table 8:** Case Characteristics of PROM Based on Indication of Cesarean Section in Sanglah Hospital Denpasar, for the Period January 1–December 31, 2015

Indication	Preterm		Full term		Total	
	N	%	N	%	N	%
History of cesarean section before	0	0	42	39.25	42	39.25
Breech presentation	5	4.68	17	15.89	22	20.57
Fetal distress	5	4.68	9	8.41	14	13.09
Multiple pregnancy	2	1.87	7	6.54	9	8.41
CPD	0	0	5	4.68	5	4.68
PEB and impending eclampsia	1	0.93	3	2.81	4	3.74
HIV infection	0	0	4	3.75	4	3.75
Shoulder presentation	1	0.93	1	0.93	2	1.86
PK II (failure of descent)	0	0	1	0.93	1	0.93
Macrosomia	0	0	1	0.93	1	0.93
Hydrocephalus	0	0	1	0.93	1	0.93
Eclampsia	0	0	1	0.93	1	0.93
Prolapse of umbilical cord	1	0.93	0	0	1	0.93
<b>Total</b>	<b>15</b>	<b>14.02</b>	<b>92</b>	<b>85.98</b>	<b>107</b>	<b>100</b>

Of the 107 cases of cesarean section, it was found that the most indicted criteria was cesarean section scars in 42 cases (39.25%), followed by a breech presentation and fetal distress, respectively, at 20.57% and 13.09%. Vishwakarma et al., (2015.) found that the most common indication for cesarean section was an abnormal presentation (34.9%) followed by congenital delivery and fetal distress. Patil et al. (2014) and Endale et al.,(2016) reported fetal distress as the most common indication of cesarean section in their study. Gahwagi et al.,(2015) reported induction failure as the most cesarean section indication in 50% of the cases studied. The cesarean section indications varied widely in each of these studies because of the demographic and clinical characteristics of the patients that varied from one geographical location to another. In this study, the authors used cesarean section indication based on the fixed procedure that was applied in Sanglah Hospital. The table above presents the case statistics of PROM based on the cesarean section indication.

#### Case Characteristics of PROM Based on Birth Weight

The table above shows the distribution of PROM cases based on birth weight. In this study, all babies that were

born before 37 weeks of gestation had a birth weight of less than 2.5 kg. While there were 14 babies, who were born at 37 weeks of age gestation or older who had a birth weight of less than 2.5 kg. Of the 14 infants, four infants who weighed less than 2.0 kg and included in the asymmetrical intra-uteri growth restriction (IUGR) criteria. Other studies found as much as 93% full -term PROM cases with infants having born with a weight of  $\geq 2.5$ kg.<sup>2</sup>

**Table 9:** Case Characteristics of PROM Based on Baby Birth Weight in Sanglah Hospital Denpasar, for the Period January 1–December 31, 2015

Birth weight (Kg)	Preterm		Full term		Total	
	N	%	N	%	N	%
< 1.5	8	3.62	0	0	8	3.62
1.5 – 2.0	17	7.69	4	1.81	21	9.50
>2.0 – 2.5	11	4.98	10	4.52	21	9.50
>2.5	0	0	171	77.38	171	77.38
<b>Total</b>	<b>36</b>	<b>16.29</b>	<b>185</b>	<b>83.71</b>	<b>221</b>	<b>100</b>

#### Case Characteristics of PROM Based on Maternal Morbidity

In this study, chorioamnionitis was ranked at the top of maternal morbidity cases of PROM, which occurred in as many as 2 cases (0.94%) followed by umbilical cord prolapse and UTI, respectively, at 0.47%. Clinical chorioamnionitis was found in 2 cases of full - term PROM  $\geq 12$  hours, whereas UTI occurred in preterm PROM cases  $\geq 12$  hours. In a study conducted by Patil et al.,(2014) postpartum infection was the highest maternal morbidity followed by chorioamnionitis, with the risk of chorioamnionitis at 28-34 weeks gestation found to be 20%. Wishwakarma et al., (2015) reported 2.1% of patients had symptoms of chorioamnionitis. Revathi et al.,(2015) reported chorioamnionitis as a maternal complication in 4 % of the cases. Sadaf et al., (2011) reported 18% maternal chorioamnionitis complications in preterm PROM cases. Linehan et al., (2016) reported 12% of cases of preterm PROM that were clinically found to be affected with chorioamnionitis as maternal complications. The following table provides data on characteristic cases of PROM according to maternal morbidity<sup>15</sup>.

**Table 10:** Case Characteristics of PROM Based on Maternal Morbidity in Sanglah Hospital Denpasar, for the Period January 1–December 31, 2015

Maternal morbidity	Preterm		Full term		Total	
	N	%	N	%	N	%
Clinical chorioamnionitis	1	0.47	1	0.47	2	0.94
Umbilical cord prolapse	1	0.47	0	0	1	0.47
UTI	1	0.47	0	0	1	0.47
Without morbidity	30	14.16	178	83.96	208	98.12
<b>Total</b>	<b>33</b>	<b>15.57</b>	<b>179</b>	<b>84.43</b>	<b>212</b>	<b>100</b>

**Table 11:** Case Characteristics of PROM Based on Perinatal Morbidity in Sanglah Hospital, Denpasar, for the Period January 1– December 31, 2015

Perinatal morbidity	Preterm		Full term		Total	
	N	%	N	%	N	%
Severe asphyxia	3	1.36	1	0.45	4	1.81
Moderate asphyxia	8	3.63	5	2.26	13	5.89
Multiple congenital anomaly	0	0	2	0.91	2	0.91

ARDS	1	0.45	0	0	1	0.45
Sepsis	1	0.45	0	0	1	0.45
Jaundice	1	0.45	0	0	1	0.45
Without morbidity	22	9.95	177	80.09	199	90.04
Total	36	16.29	185	83.71	221	100

We found from various studies that cases of PROM are closely related to perinatal morbidity. In this study, 7.7% of infants had asphyxia (severe asphyxia, 1.81%; moderate asphyxia, 5.89%), 0.91% had multiple congenital anomalies, followed by ARDS, sepsis, and jaundice each at 0.45%. Heuback states that gestational age is a risk factor for PROM. Wishwakarma et al. (2015) reported that 6.9% of infants had sepsis. Revathi et al., (2015) reported incidences of perinatal morbidity such as sepsis and asphyxia at 10% and 2%, respectively.

In this study, PROM cases cannot be said to be the only cause of perinatal morbidity because previous pregnancy history accompanied by a medical disorder may also affect the infant outcome.

**Table 12:** Case Characteristics of PROM Based on Type of Post-Partum Postpartum Infant Treatment in Sanglah Hospital, Denpasar (January 1– December 31, 2015)

Type of treatment	Preterm		Full term		Total	
	N	%	N	%	N	%
Rooming in	28	12.67	183	82.81	211	95.48
NICU	8	3.62	2	0.90	10	4.52
<b>Total</b>	<b>36</b>	<b>16.29</b>	<b>185</b>	<b>83.71</b>	<b>221</b>	<b>100</b>

A total of 10 cases (4.52%) required postpartum treatment in the NICU, 3.62% of cases had gestational age <37 weeks, and 0.9% of cases had gestational age >37 weeks. Indications of NICU care in these eight infants are, in addition to very low infant weight in preterm and perinatal complications, severe asphyxia, ARDS, jaundice, sepsis, and multiple congenital abnormalities. Hassan Boskadi, Tahir, Patil et al., and Endale et al. also reported similar findings. As much as 25.4% of babies born to mothers with full-term PROM required NICU treatment. Another study found that 72% of babies born to mothers with preterm PROM required treatment at NICU<sup>16</sup>. Adeniji et al. in his study found that 76.9% of infants born to mothers with preterm PROM required NICU treatment, which was 31.3% in the case of full-term PROM. This difference may be due to differences in the quality of health services, and the demographics and other patient characteristics that may have varied from one geographical location to another.

## 5. Conclusions

The research was conducted and concluded between January 1 and December 31, 2015, the study used data of cases of delivery with a history of premature rupture of membranes (PROM) at Sanglah Hospital Denpasar, specifically 212 (14.62%) cases out of a total of 1450 deliveries. Cases with history of PROM was most common at the age of full-term pregnancy ( $\geq 37$  weeks), with other key factors such as mothers' age, which was in the range of 21–30 years,; primigravida, latency period was less than 12 hours,; and idiopathic risk factor. Abdominal delivery as well as spontaneous vaginal delivery occurred in most cases with a

history of PROM. History of the cesarean section before is an indication of cesarean section, baby birth weight > at >2.5 kg is also most common in cases of birth with a history of PROM. Chorioamnionitis, umbilical cord prolapses, and UTI are the most maternal morbidity that obtained in cases of childbirth with a history of PROM. In most cases of PROM, maternal morbidity did not occur. Moderate asphyxia was the most common perinatal morbidity in labor cases with a history of PROM, followed by severe asphyxia, multiple congenital anomalies, ARDS, sepsis, and jaundice. However, in most cases, there was no perinatal morbidity. Rooming-in is the most common type of newborn care in the case of childbirth with a history of PROM in as much as 95.48%.% of the cases. Only 4.52% needed NICU care.

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