PREDICTION OF MIDWIFERY SERVICES IN HOSPITALS

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ABSTRAK

Prediction is a forecasting process that will occur in the future with prior information, systematically in order to minimize errors. This study aims to determine the prediction of midwifery Indicators at Ir. Soekarno Sukoharjo in 2022-2024. This research is a descriptive study with a retrospective approach. The population of this study is the total number of deliveries in 2019-2021. The sample used is saturated sample. The results of this study obtained the value of the ratio of normal delivery, delivery with complications, cesarean section has increased in 2019-2021. The trend value of normal delivery has a tendency to increase by (0.007), the trend for delivery with complications has a tendency to increase by (0.020), trend of caesaria section has a tendency of increasing by (0.014), trend of abortion has a tendency of decreasing of (-0.03), trend of bleeding before delivery has a tendency of decreasing of (-0.001), trend of bleeding after delivery has a tendency of increasing of (0.001), trend of preeclampsia has a decreasing trend of (-0.011), the trend of eclampsia has a decreasing trend of (-0.001). The conclusion of this study is the prediction for 2022-2024 in normal delivery, delivery with complications, caesaria section, bleeding after delivery has increased every year. While abortion, bleeding before delivery, preeclampsia and eclampsia decreased.

Keywords: hospitals; midwifery indicators; predictions; trends

INTRODUCTION

Midwifery services are tasks that are the responsibility of the midwifery profession in the system health services aimed at improving the health of mothers and children in order to achieve family and community health. Midwifery services are an integral part of health services, which are directed at realizing family health in order to achieve quality families. There are 8 indicators for midwifery services to calculate midwifery service statistics, including the ratio of normal delivery, the ratio of delivery with complications, the caesarean section ratio, the abortion ratio, the ratio of bleeding before delivery, the ratio of bleeding after delivery, the ratio of preeclampsia, and the ratio of eclampsia. Trends is an analysis that explains and measures various changes or developments in data over a period (Hasan, 2014). The formula used to calculate the trend is Y= a + bx. With the trend, the calculation results are obtained which can be used as the basis for predicting the condition of normal delivery, delivery with complications, caesarean section, abortion, bleeding before delivery, bleeding after delivery, preeclampsia, and eclampsia in the next year. Predictions are made to estimate conditions that will occur in the future by looking at previous information.

Based on the results of a preliminary survey that was conducted at Ir. Soekarno Sukoharjo has not carried out calculations related to predictions and trends in midwifery services, and obtained data on numbers deliveries in 2019-2021, namely 1,847 patients with obstetric cases. Details in 2019 there were 591 midwifery cases, 663 midwifery cases in 2020, and 593 midwifery cases in 2021. From the data obtained, the number of midwifery cases increased from 2019 to 2020 and

decreased in 2021. By doing this midwifery calculation, households Hospitals can evaluate services, staff needs, facility needs and drug needs.

METHOD
This research is a descriptive study with a retrospective approach. The population of this study is the total number of deliveries in 2019-2021. The sample used is saturated sample. Processing of this research data is collecting, editing, classification, tabulation, calculation, and data presentation.

RESULTS
Midwifery Data at Ir. Soekano Sukoharjo

Table 1.
Midwifery Data at Ir. Soekarno Sukoharjo Year 2019-2021

Midwifery Indicator	Number of Patients in 2019	Number of Patients in 2020	Number of Patients in 2021
Normal delivery	40	46	49
Delivery with Complications	374	434	399
Caesaria Section	17	31	34
Abortion	95	78	60
Bleeding before delivery	11	16	10
Bleeding after delivery	4	13	6
Preeclampsia	48	41	35
Eclampsia	2	4	0

Midwifery Indicators at RSUD Ir. Soekarno Sukoharjo

Table 2.
Midwifery Indicators at Ir. Soekarno Sukoharjo Year 2019-2021

Midwifery Indicator	Formula	Year 2019	Year 2020	Year 2021
Normal delivery	$\text{Rasio} = \dfrac{\text{Normal number of delivery}}{\text{Number of all delivery in hospital}}$	0.068	0.069	0.083
Delivery with Complications	$\text{Rasio} = \dfrac{\text{Number of delivery with complications}}{\text{Number of all delivery in hospital}}$	0.633	0.655	0.673
Caesaria Section	$\text{Rasio} = \dfrac{\text{Number of } Caesaria\ Section}{\text{Number of all delivery in hospital}}$	0.029	0.047	0.057
Abortion	$\text{Rasio} = \dfrac{\text{Number of Abortions}}{\text{Number of all delivery in hospital}}$	0.161	0.118	0.101
Bleeding before delivery	$\text{Rasio} = \dfrac{\text{Amount of bleeding before delivery}}{\text{Number of all delivery in hospital}}$	0.019	0.024	0.017
Bleeding after delivery	$\text{Rasio} = \dfrac{\text{Amount of bleeding after delivery}}{\text{Number of all delivery in hospital}}$	0.007	0.020	0.010
Preeclampsia	$\text{Rasio} = \dfrac{\text{Number of } Preeclampsia}{\text{Number of all delivery in hospital}}$	0.081	0.062	0.059
Eclampsia	$\text{Rasio} = \dfrac{\text{Number of } Eclampsia}{\text{Number of all delivery in hospital}}$	0.003	0.006	0

Predictions Midwifery Indicators at Ir. Soekarno Sukoharjo
Normal Delivery at Ir. Soekarno Sukoharjo

Table 3.
Calculation Predictions of Normal Delivery at Ir. Soekarno Sukoharjo

Year	x	Equality $Y = 0.073 + (0.007) x$	Point
2019	-1	$Y = 0.073 + 0.007 (-1)$	0.066
2020	0	$Y = 0.073 + 0.007 (0)$	0.073
2021	1	$Y = 0.073 + 0.007 (1)$	0.080
2022	2	$Y = 0.073 + 0.007 (2)$	0.087
2023	3	$Y = 0.073 + 0.007 (3)$	0.094
2024	4	$Y = 0.073 + 0.007 (4)$	0.101
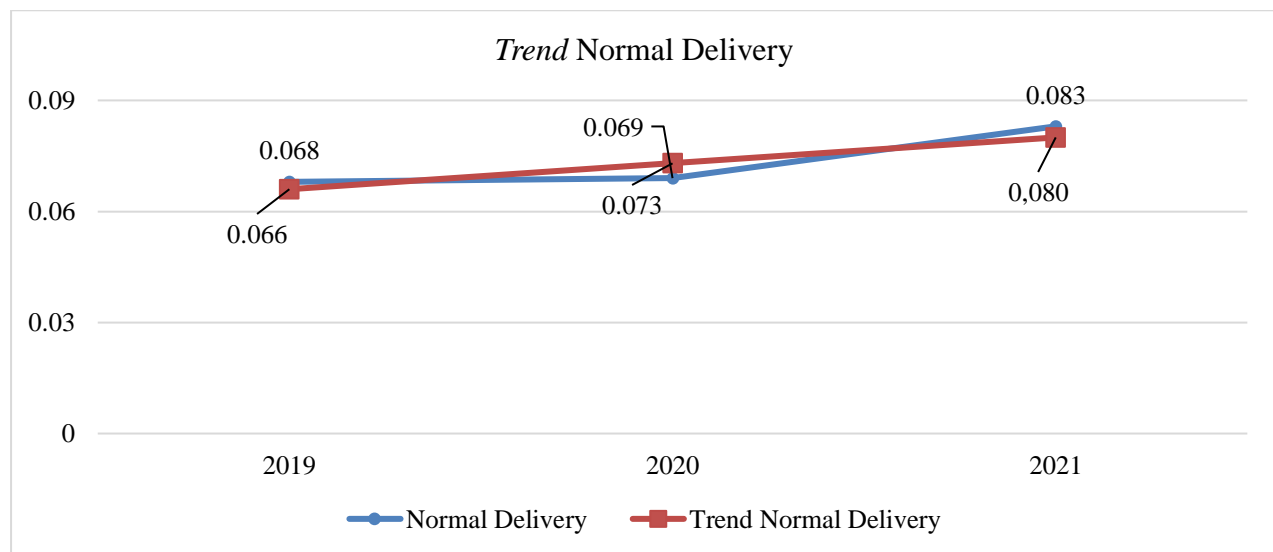
Figure 1. *Trends* Normal Delivery at Ir. Soekarno Sukoharjo
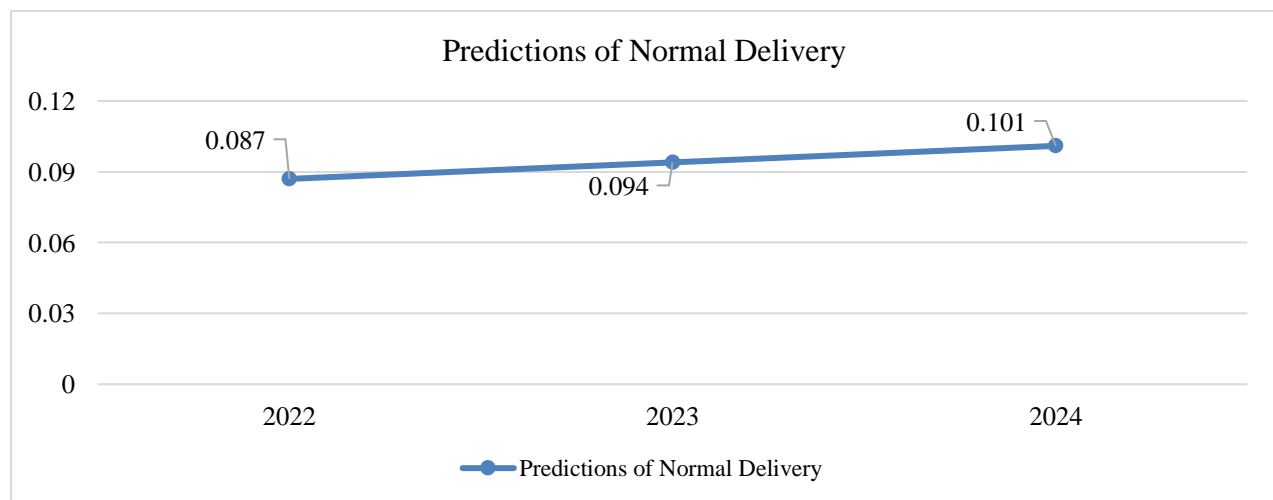

Figure 2. Predictions of Normal Delivery at Ir. Soekarno Sukoharjo

Based on Figures 1 and 2 it can be seen that the value prediction of normal delivery go tfrom the equation $Y = 0.073 + (0.007) x$ which means that every year the trend has increased by 0.007.

Delivery with complications at RSUD Ir. Soekarno Sukoharjo

Table 4.
Calculation Predictions of Delivery with complications at Ir. Soekarno Sukoharjo

Year	x	Equality Y = 0.654 + (0.02) x	Point
2019	-1	Y = 0.654 + 0.02 (-1)	0.634
2020	0	Y = 0.654 + 0.02 (0)	0.654
2021	1	Y = 0.654 + 0.02 (1)	0.674
2022	2	Y = 0.654 + 0.02 (2)	0.694
2023	3	Y = 0.654 + 0.02 (3)	0.714
2024	4	Y = 0.654 + 0.02 (4)	0.734
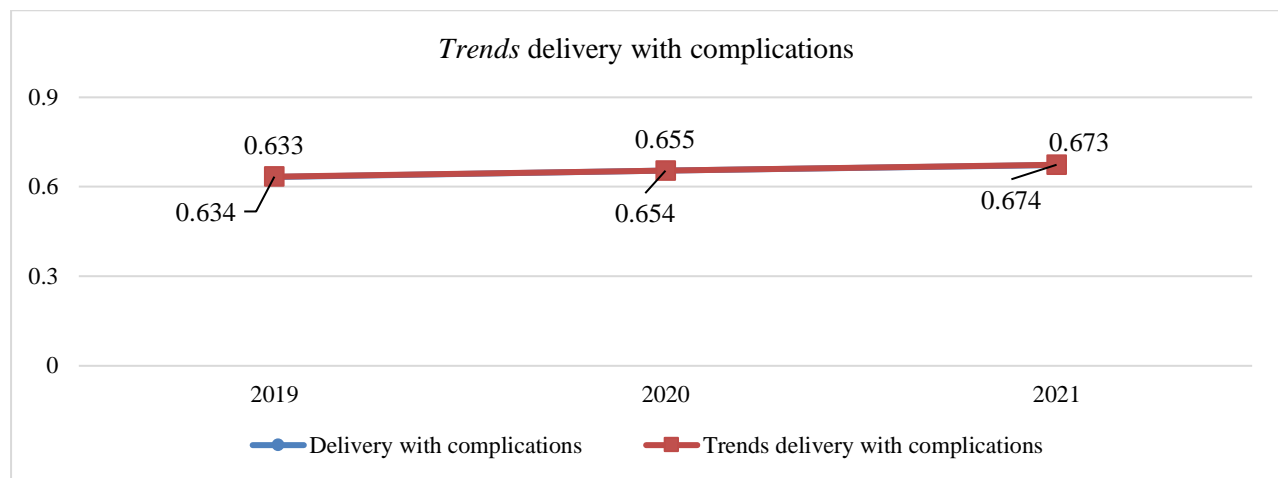
Figure 3.
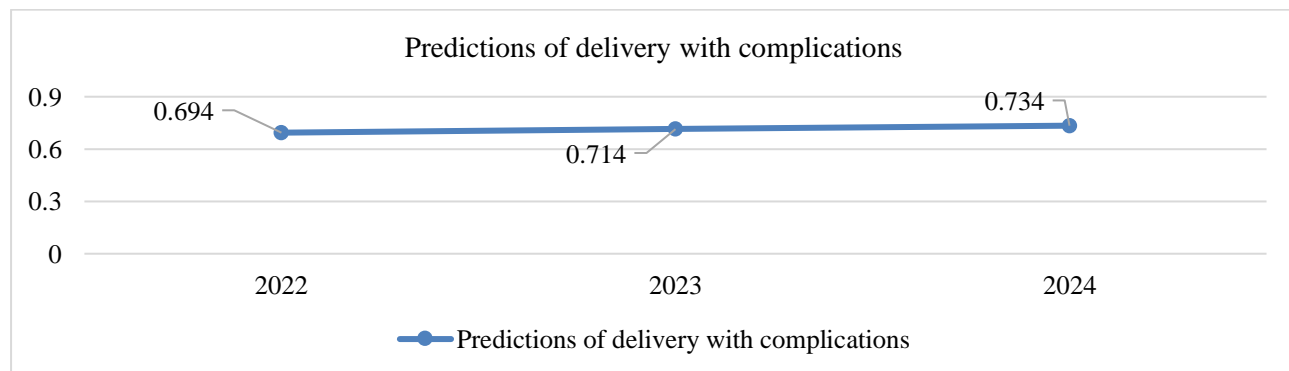*Trends* delivery with complications at Ir. Soekarno Sukoharjo

Figure 4. Predictions of delivery with complications at Ir. Soekarno Sukoharjo

Figures 3 and 4 it can be seen that the value prediction of delivery with these complications go tfrom the equation Y = 0.654 + (0.02) x which means that every year the trend has increased by 0.02.

Caesaria Section at RSUD Ir. Soekarno Sukoharjo

Table 5.
Calculation Prediction of *Caesaria Section* at RSUD Ir. Soekarno Sukoharjo

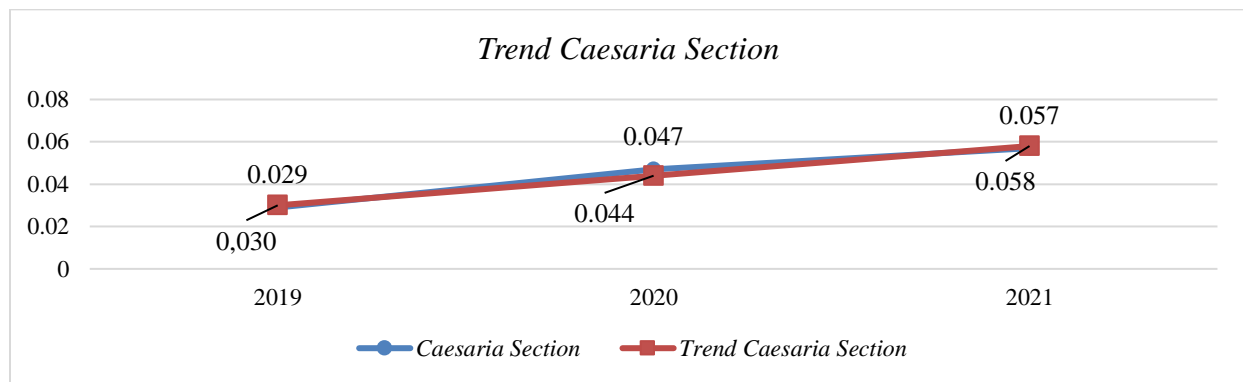| Year	x	Equality $Y = 0.044 + (0.014) x$	Point
2019	-1	Y = 0.044 + 0.014 (-1)	0.030
2020	0	Y = 0.044 + 0.014 (0)	0.044
2021	1	Y = 0.044 + 0.014 (1)	0.058
2022	2	Y = 0.044 + 0.014 (2)	0.072
2023	3	Y = 0.044 + 0.014 (3)	0.086
2024	4	Y = 0.044 + 0.014 (4)	0.100

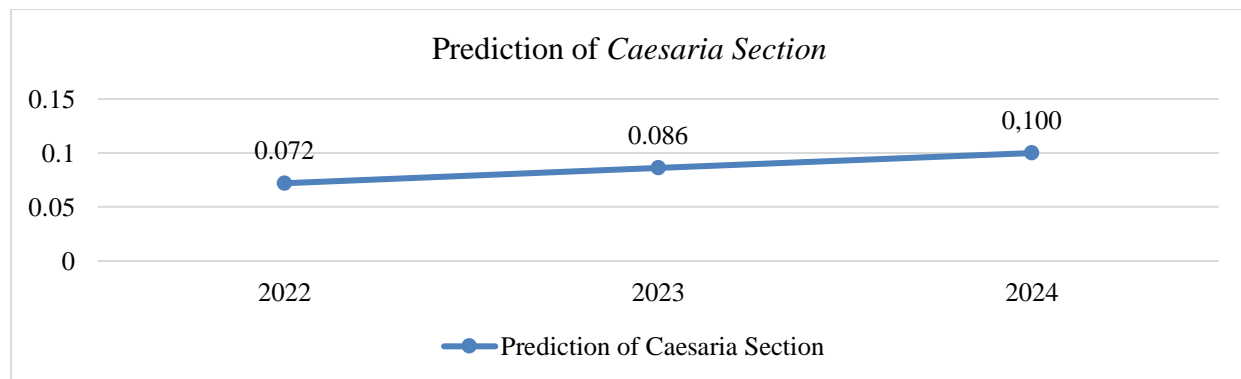Figure 5. *Trends Caesaria Section* at Ir. Soekarno Sukoharjo

Figure 6. Prediction of *Caesaria Section* at Ir. Soekarno Sukoharjo

Figures 5 and 6 it can be seen that the value prediction of *cesarean section* the got from the equation
Y = 0.044 + (0.014) x which means that every year the trend has increased by 0.014.

Abortion at Ir. Soekarno Sukoharjo

Table 6.
Calculation Prediction of Abortion at RSUD Ir. Soekarno Sukoharjo

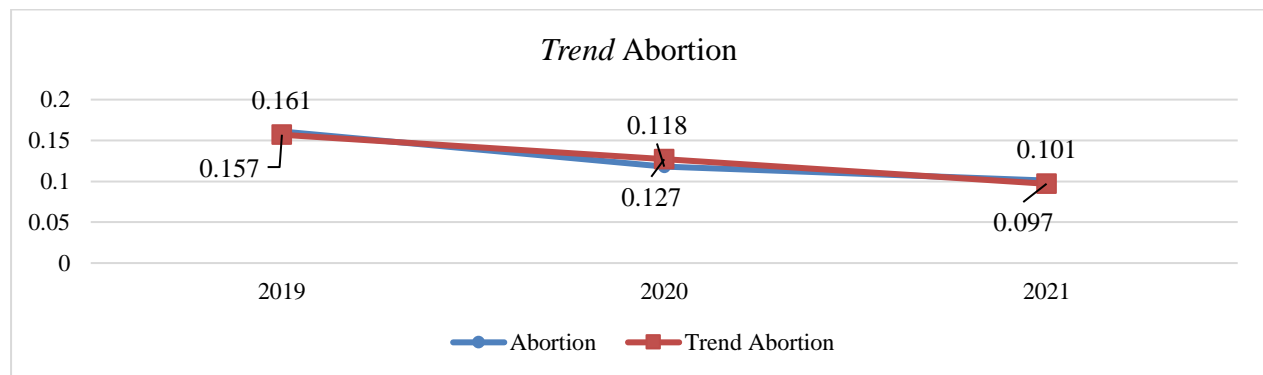| Year	x	Equality Y = 0.127 + (-0.03) x	Point
2019	-1	Y = 0.127 + (-0.03) (-1)	0.157
2020	0	Y = 0.127 + (-0.03) (0)	0.127
2021	1	Y = 0.127 + (-0.03) (1)	0.097
2022	2	Y =0.127 + (-0.03) (2)	0.067
2023	3	Y =0.127 + (-0.03) (3)	0.037
2024	4	Y =0.127 + (-0.03) (4)	0.007

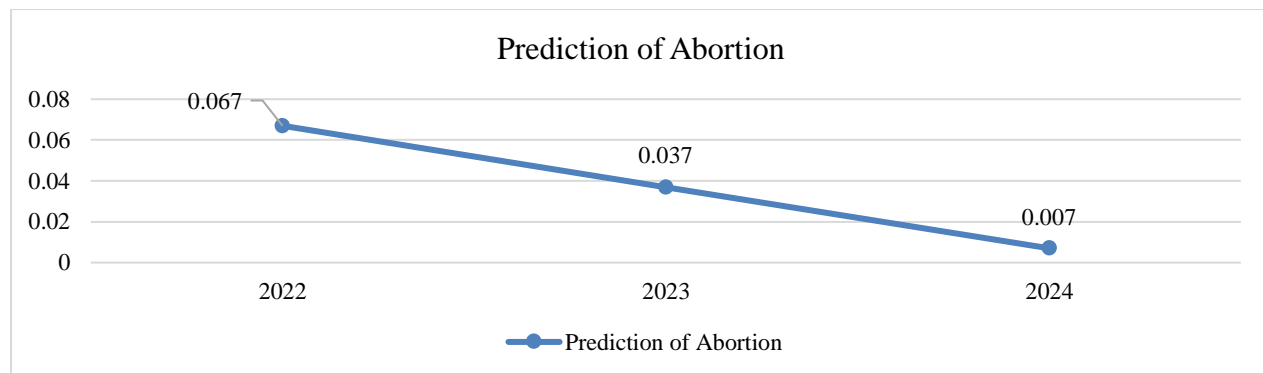Figure 7. *Trends* Abortion at Ir. Soekarno Sukoharjo

Figure 8. Prediction of Abortion at Ir. Soekarno Sukoharjo

Figures 7 and 8 it can be seen that the value prediction of abortion got from the equation Y = 0.127 + (-0.03) x which means that every year the trend decreases by (-0.03).

Bleeding before Delivery at RSUD Ir. Soekarno Sukoharjo

Table 7.
Calculation Predictions of Bleeding before Delivery at RSUD Ir. Soekarno Sukoharjo

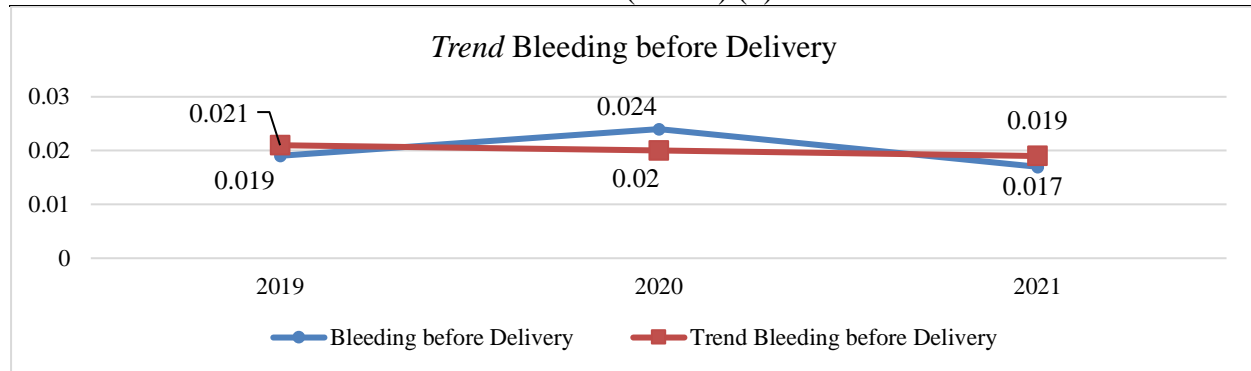| Year	x	Equality Y = 0.02 + (-0.001) x	Point
2019	-1	Y = 0.02 + (-0.001) (-1)	0.021
2020	0	Y = 0.02 + (-0.001) (0)	0.020
2021	1	Y = 0.02 + (-0.001) (1)	0.019
2022	2	Y = 0.02 + (-0.001)(2)	0.018
2023	3	Y = 0.02 + (-0.001) (3)	0.017
2024	4	Y = 0.02 + (-0.001) (4)	0.016

Figure 9.
Trends Bleeding before Delivery at RSUD Ir. Soekarno Sukoharjo
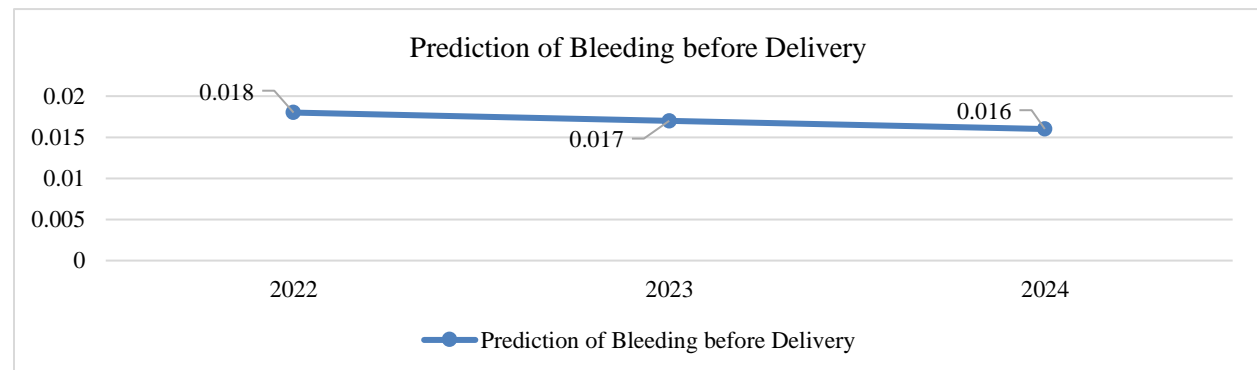

Figure 10. Prediction of Bleeding before Delivery at Ir. Soekarno Sukoharjo

Figures 9 and 10 it can be seen that the value prediction of bleeding before Delivery the got from the equation Y = 0.02 + (-0.001) x which means that every year the trend decreases by (-0.001).

Bleeding after Delivery at RSUD Ir. Soekarno Sukoharjo

Table 8.

Calculation Predictions of Bleeding after Delivery at RSUD Ir. Soekarno Sukoharjo

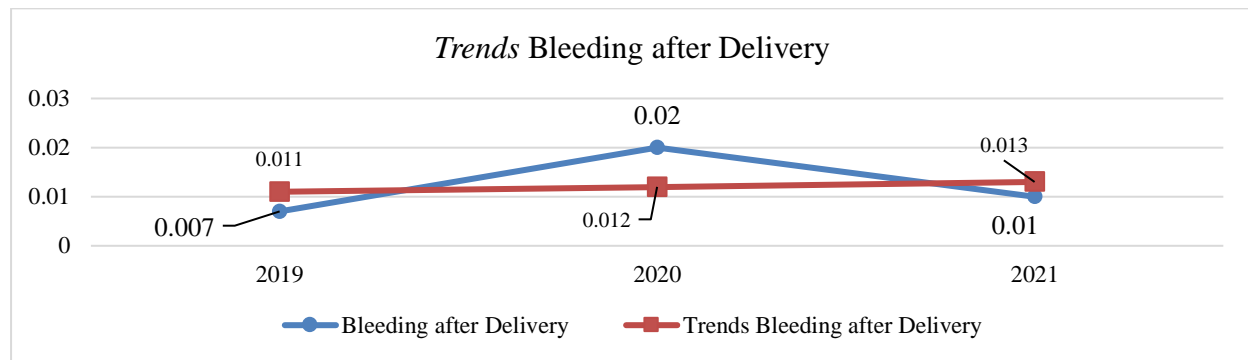| Year	x	Equality $Y = 0.012 + (0,001) x$	Point
2019	-1	Y = 0.012 + 0,001 (-1)	0.011
2020	0	Y = 0.012 + 0,001 (0)	0.012
2021	1	Y = 0.012 + 0,001 (1)	0.013
2022	2	Y = 0.012 + 0.001 (2)	0.014
2023	3	Y = 0.012 + 0.001 (3)	0.015
2024	4	Y = 0.012 + 0.001 (4)	0.016

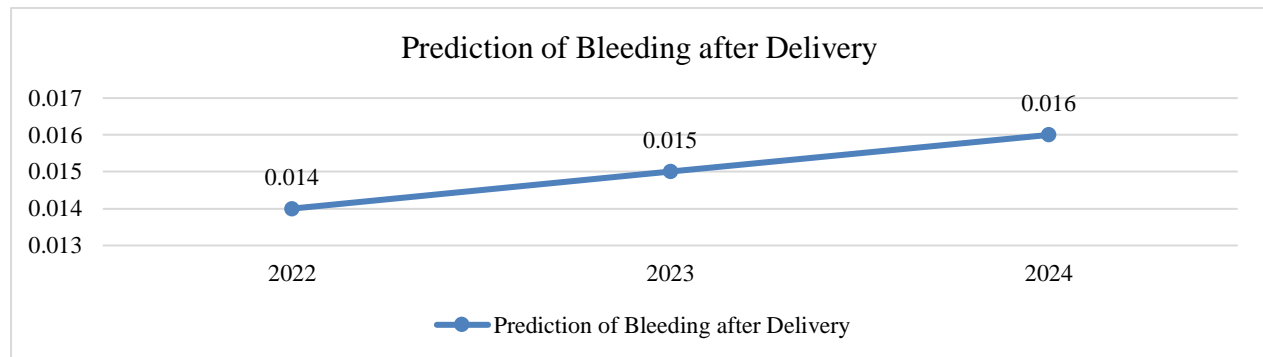Figure 11. *Trends* Bleeding after Delivery at RSUD Ir. Soekarno Sukoharjo

Figure 12. Prediction of Bleeding after Delivery at Ir. Soekarno Sukoharjo

Figures 11 and 12 it can be seen that the value prediction of bleeding after delivery got from the equation Y = 0.012 + (0.001) x which means that every year the trend decreases by 0.001.

Preeclampsia at RSUD Ir. Soekarno Sukoharjo

Table 9.

Calculation Predictions of _Preeclampsia_ at Ir. Soekarno Sukoharjo

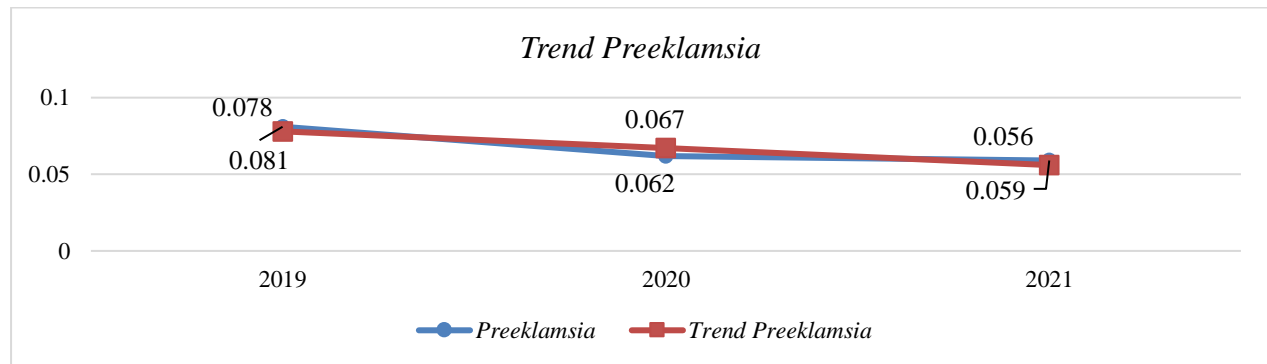| Year	x	Equality $Y = 0.067 + (-0.011)\,x$	Point
2019	-1	Y = 0.067 + (-0.011) (-1)	0.078
2020	0	Y = 0.067 + (-0.011) (0)	0.067
2021	1	Y = 0.067 + (-0.011) (1)	0.056
2022	2	Y = 0.067 + (-0.011) (2)	0.045
2023	3	Y = 0.067 + (-0.011) (3)	0.034
2024	4	Y = 0.067 + (-0.011) (4)	0.023

Figure 13. _Trends Preeclampsia_ at Ir. Soekarno Sukoharjo
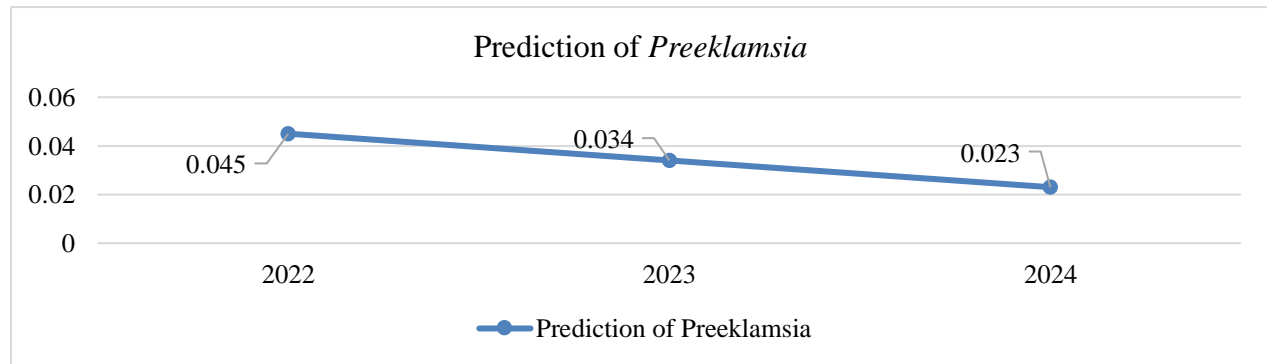

Figure 14. Prediction of Preeclampsia at Ir. Soekarno Sukoharjo

Figures 13 and 14 it can be seen that the value prediction of _preeclampsia_ got from the equation Y = 0.067 + (-0.011) x which means that every year the trend decreases by (-0.011).

Eclampsia **at RSUD Ir. Soekarno Sukoharjo in 2019-2021**

Table 10.

Calculation Predictions of *Eclampsia* at RSUD Ir. Soekarno Sukoharjo

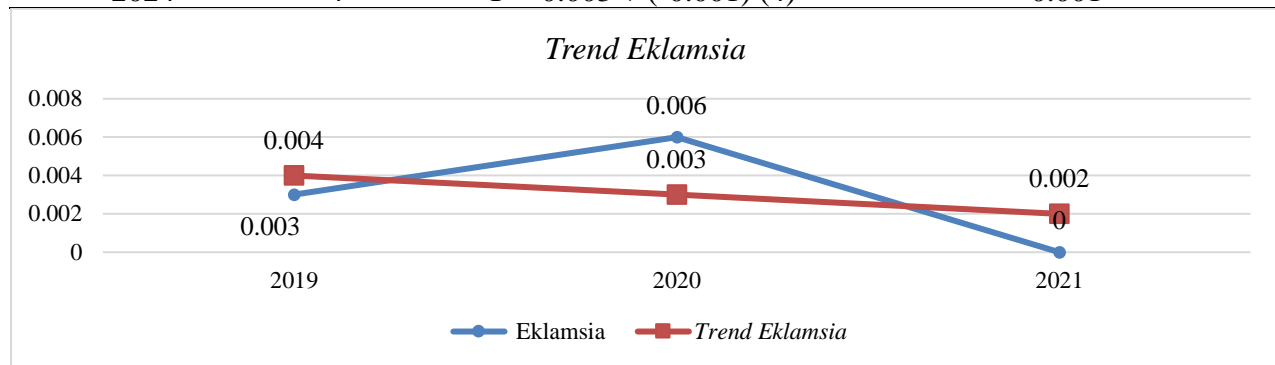| Year	x	Equality Y = 0.003 + (-0.001) x	Point
2019	-1	Y = 0.003 + (-0.001) (-1)	0.004
2020	0	Y = 0.003 + (-0.001) (0)	0.003
2021	1	Y = 0.003 + (-0.001) (1)	0.002
2022	2	Y = 0.003 + (-0.001) (2)	0.001
2023	3	Y = 0.003 + (-0.001) (3)	0
2024	4	Y = 0.003 + (-0.001) (4)	-0.001

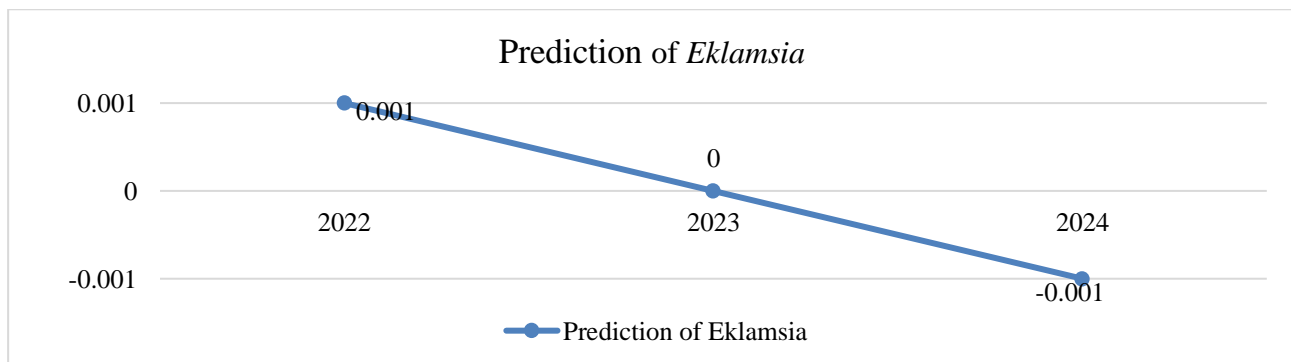Figure 15. *Trend Eclampsia* at RSUD Ir. Soekarno Sukoharjo

Figure 16. Prediction of *Eclampsia* at Ir. Soekarno Sukoharjo

Figures 15 and 16 it can be seen that the value prediction of eclampsia got from the equation Y = 0.003 + (-0.001) x which means that every year the trend decreases by (-0.001).

DISCUSSION

Prediction of Normal Delivery at Ir. Soekarno Sukoharjo Year 2022-2024

Based on the calculation results, it can be seen that the predictive value of normal delivery in 2022-2024 at Ir. Soekarno Sukoharjo tends to increase. This increase is obtained from the equation Y = 0.073 + (0.007) x, meaning that every one change in the trend of numbers increases by 0.007. The highest increase occurred in 2024, namely the predictive value of normal delivery reaching 0.101. Predictions of normal delivery in the next 3 years will increase, therefore the quality of service must be maintained. Based on the results of the above analysis in accordance with Keputusan Menteri Kesehatan RI No. 129 year 2008 concerning minimum service standards for service

providers, at least for normal delivery service providers, the standards are Sp.OG doctors, trained general practitioners (normal delivery care), and midwives. So that normal deliveries can be carried out at local basic health care facilities such as puskesmas or village midwives. Based on the results of Rosita & Nuraini's research (2020), the factors that affect normal delivery are due to the awareness of the mother in checking her womb starting in early pregnancy until delivery. On the other hand, mothers who deliver abnormally or by way of *Sectio Cesaria* due to a history of mothers who have never had their womb checked, as a result, pregnancy complications are only discovered just before delivery.

Prediction of Delivery with Complications at Ir. Soekarno Sukoharjo in 2022-2024
Based on the calculation results, it can be seen that the predictive value of deliveries with complications in 2022-2024 at Ir. Soekarno Sukoharjo tends to increase. This increase is obtained from the equation $Y = 0.654 + (0.02) x$, which means that every change in the trend of numbers increases by 0.02. The highest increase occurred in 2024, namely the predictive value of deliveries with complications reaching 0.734. Predictive value of delivery with complications at Ir. Soekarno Sukoharjo in 2022-2024 has increased every year which allows the number of deliveries with complications in the next 3 years to increase, therefore the quality of service must be maintained and improved. Based on the results of the study, it can be seen that the cause of the increase in the number of complicated deliveries is because from the beginning of the pregnancy there were problems in the pregnancy and because there was a referral system from the previous Health Facility. This is in accordance with the statement contained in the Peraturan Menteri Kesehatan Republik Indonesia No. 001 of 2012 Chapter III which says that the referral system is the organization of health services that regulates the delegation of duties and responsibilities of reciprocal health services both vertically and horizontally. Based on research results Rosita & Nuraini (2020), Most cases of maternal death originate from complications of childbirth and the puerperium that are not treated or detected early. Therefore, to reduce the occurrence of childbirth with complications, mothers should have their health checked so that malnutrition does not occur and be aware of good reproductive health status for mothers.

Prediction of *Caesaria Section* at Ir. Soekarno Sukoharjo in 2022-2024
Based on the calculation results, it can be seen that the predicted value of *caesaria section* in 2022-2024 at Ir. Soekarno Sukoharjo tends to increase. This increase is obtained from the equation $Y = 0.044 + (0.014) x$, which means that every one change in the trend of numbers increases by 0.014. The highest increase will occur in 2024, namely the predicted value of *caesaria section* reaching 0.1. Predictive value of *Caesaria Section* at Ir. Soekarno Sukoharjo in 2022-2024 has increased every year which allows the number of *Caesaria Section* in the next 3 years to increase, therefore the quality of service must be maintained and improved. This research is relevant to the research of Mulyawati et al (2011) that *caesaria section* delivery was implemented due to problems during pregnancy such as breech babies with closed cervix, twins, advanced pregnancy and decisions taken suddenly due to the demands of an emergency. Based on research results Rosita & Nuraini (2020), one of the reasons for the indication for *Cesaria Section* surgery is placenta previa and placental abruption. *Cesaria Section* can increase maternal morbidity and mortality, so *Cesaria Section* should be done only because of medical indications. Research by Yulianti et al (2021) C-section delivery is affected by age <20 and ≥ 35 years, multiparity, history of disease, risk factors, medical indications and a complete description of ANC

Prediction of Abortion at Ir. Soekarno Sukoharjo in 2022-2024
Based on the calculation results, it can be seen that the predicted value of abortion in 2022-2024 at Ir. Soekarno Sukoharjo tends to decline. This decrease is obtained from the equation Y = 0.127 + (-0.03) x, means that everyone change the trend of numbers decreased by (-0.03). Decline the highest will occur in 2024, namely the predicted value of abortion reaching 0.007. Predictive value of abortion at Ir. Soekarno Sukoharjo in 2022-2024 has decreased every year which allows the number of abortions in the next 3 years to decrease, therefore the quality of service must be maintained. The declining abortion rate indicates fewer abortion-related services at the hospital. Based on the results of the study it can be seen that what affects the number of abortions is due to the age and condition of the patient itself. This is in accordance with Maliana's research (2016), factors that cause abortion are age, parity, history of abortion in previous pregnancies, and anemia in pregnant women. Akbar's research (2019) identified the highest causal factors for abortion in Indonesia, namely: the age of the mother during pregnancy, parity, history of abortion, interval between pregnancies, gestational age, level of education and employment, and anemia.

Prediction of Bleeding before Delivery at Ir. Soekarno Sukoharjo in 2022-2024
Based on the calculation results, it can be seen that the predictive value of bleeding before delivery h in 2022-2024 at Ir. Soekarno Sukoharjo tends to decline. This decrease is obtained from the equation Y = 0.02 + (-0.001) x, means that every one change in the trend of numbers decreases by (-0.001). The highest decrease occurred in 2024, namely the prediction value of Bleeding before delivery reached 0.016. Predictive value of bleeding before delivery at Ir. Soekarno Sukoharjo in 2022-2024 has decreased every year which allows the number of bleeding before delivery in the next 3 years to decrease, therefore the quality of service must be maintained. Based on research results Rosita & Nuraini (2020), Factors that influence the occurrence of bleeding before delivery are age, education, occupation and religion. Many risk factors have been associated with antepartum haemorrhage, but it is very important to identify risk factors early because antepartum haemorrhage remains a significant contributor to maternal morbidity and mortality through out Indonesia. Londok et al's study (2011) found that the most common cause of antepartum bleeding was placenta previa. Most of the number of antenatal care examinations ≥4x examinations on antepartum bleeding. The high incidence of antepartum bleeding and post partum bleeding needs attention from all parties. Pregnant women who have risk factors for antepartum bleeding and post partum bleeding should always be vigilant and have their pregnancies checked regularly by experts.

Prediction of Bleeding after Delivery at Ir. Soekarno Sukoharjo in 2022-2024
Based on the calculation results, it can be seen that the predictive value of bleeding after delivery in 2022-2024 at Ir. Soekarno Sukoharjo tends to increase. This increase is obtained from the equation Y = 0.012 + (0.001) x, which means that every change in the trend of numbers increases by 0.001. The highest increase occurred in 2024, namely the predictive value of bleeding after delivery reached 0.016. Predictive value of bleeding after delivery at Ir. Soekarno Sukoharjo in 2022-2024 has increased every year which allows the number of bleeding after delivery in the next 3 years to increase, therefore the quality of service must be maintained. This research is relevant to Hikmah and Yani (2015) that one of the ways or health programs that can reduce bleeding after delivery is to increase mother's knowledge about bleeding after delivery. to be aware of all the symptoms that occur abnormally and get checked immediately. According to Londok, et al (2011) postpartum hemorrhage or bleeding after delivery is mostly caused by Antonia uteri and if there is

excessive bleeding after delivery it must be looked forspecific etiology. Most of the causes after childbirth are uterine contractions, retained placenta, retained placenta, and lower genital tract lacerations.

Prediction of *Preeclampsia* at Ir. Soekarno Sukoharjo in 2022-2024
Based on the calculation results, it can be seen that the predicted value of *preeclampsia* in 2022-2024 at Ir. Soekarno Sukoharjo tends to decline. This decrease is obtained from the equation $Y = 0.067 + (-0.011)x$, which means that every change in the trend of numbers decreases by (-0.011). The highest decrease occurred in 2024, namely the prediction value of *preeclampsia* reached 0.023. The predictive value of *preeclampsia* at Ir. Soekarno Sukoharjo in 2022-2024 has decreased every year which allows the number of *preeclampsia* to decrease in the next 3 years, this decrease in the number of *preeclampsia* does not affect the quality of service because the fewer a person gives birth accompanied by *preeclampsia* the better it is for the patient. According to research results Rosita & Nuraini (2020), *preeclampsia* in pregnancy, namely primigravidas, especially young primigravidas, age >35 years or <20 years, medical diseases accompanying pregnancy such as chronic hypertension and diabetes mellitus. Other predisposing factors for preeclampsia are nullipara, obesity, genetic factors and environmental factors. Research by Marlina et al (2019) factors of age, parity, distance between pregnancies and mother's education are related to the incidence of preeclampsia.

Prediction of *Eclampsia* at Ir. Soekarno Sukoharjo in 2022-2024
Based on the calculation results, it can be seen that the predicted value of *eclampsia* in 2022-2024 at Ir. Soekarno Sukoharjo tends to decline. This decrease is obtained from the equation $Y = 0.003 + (-0.001)x$, means that every one change in the trend of numbers decreases by (-0.001). The highest decrease occurred in 2024, namely the *eclampsia* prediction value reached (-0.001). Predictive value of eclampsia at Ir. Soekarno Sukoharjo in 2022-2024 has decreased every year which is possible that the number of *eclampsia* in the next 3 years will decrease, this decrease in the number of eclampsia is good because there will be less patients who give birth accompanied by eclampsia. Based on the research results, it can be seen that what influences the decrease in the number of *eclampsia* is purely the pregnancy it self and the existence of a referral system. This is in accordance with the statement contained in the Peraturan Menteri Kesehatan Republik Indonesia No. 001 of 2012 Chapter III which says that the referral system is the organization of health services that regulates the delegation of duties and responsibilities of reciprocal health services both vertically and horizontally. Imron & Novadela's research (2014) found that age, parity, uterine distension, history of preeclampsia or eclampsia and maternal hypertension are associated with the incidence of eclampsia.

CONCLUSION
The trend value of normal delivery has a tendency to increase by (0.007), the trend for delivery with complications has a tendency to increase by (0.020), trend of caesaria section has a tendency of increasing by (0.014), trend of abortion has a tendency of decreasing of (-0.03), trend of bleeding before delivery has a tendency of decreasing of (-0.001), trend of bleeding after delivery has a tendency of increasing of (0.001), trend of preeclampsia has a decreasing trend of (-0.011), the trend of eclampsia has a decreasing trend of (-0.001). The conclusion of this study is the prediction for 2022-2024 in normal delivery, delivery with complications, caesaria section, bleeding after delivery has increased every year. While abortion, bleeding before delivery, preeclampsia and

eclampsia decreased.

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