Cost-Effectiveness Analysis of ERACS Compared to Non-ERACS at Hospital

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ABSTRACT

Background: Cesarean section has a 5 to 7 times greater risk of maternal and child mortality than prevaginal delivery. Several other complications, namely reduced mobility, prolonged pain in the surgical wound, and longer hospital stays affect the patient's quality of life. The ERACS protocol, which is a multidisciplinary approach, is a good strategy to reduce the negative effects of cesarean section.

Objectives: To find out whether the ERACS protocol is more cost-effective than the non-ERACS protocol from a patient's perspective.

Methods: Researchers took data on costs and quality of life (using EQ-5D-5L) prospectively at private hospitals in Wonosobo which then calculated the value of the ICER. The cost components measured include direct medical and non-medical costs as well as indirect costs. The effectiveness of the measures in this study was reported in terms of reducing the LOS to 1 day, which represents a faster recovery and reduced costs. In this study, there were 2 sample groups, namely the ERACS protocol group with 24 respondents and the non-ERACS protocol group with 75 respondents.

Results: Based on the research, the effectiveness of the protocol in the form of improving the quality of life of patients was seen from the utility value and higher costs in the ERACS group compared to the non-ERCAS group (utility 0.771 vs 0.715; cost IDR.16,127,183 ± 5,023,356 vs IDR. 10,459,562 ± 3,826 .424) and obtained an ICER of 94,311,767 which means that the patient needs to add IDR.94,311,767 to improve the quality of life of post-cesarean section patients, which value is higher than Indonesia's 2022 GDP.

Conclusion: ERACS measures are more cost-effective when compared to non-ERACS measures because the ICER value is below three times Indonesia's 2022 GDP according to the perspective of patients at private hospitals in Wonosobo.

Keywords: ERACS; Incremental Cost Effectiveness Ratio (ICER); non-ERACS

INTRODUCTION

The maternal mortality rate (MMR) in Indonesia is still very high, where MMR is an indicator to see the quality of life index and women's health status and this has a very high social influence.[1] By 2020, MMR in Indonesia had reached 189 per 100,000 live births.[2] This figure is very high when compared to Indonesia's MMR target in 2015, which is 102 per 100,000 live births. The high MMR in Indonesia is caused by several factors related to pregnancy and childbirth, including the mother's readiness to become pregnant and the mother's

health, regular pregnancy checks, birth assistance, and care provided immediately after delivery, and socio-cultural factors of Indonesian society.[3]

Cesarean section not only causes several major complications but can also result in permanent complications. Complications can include disability or even death, resulting in an increased risk of maternal and infant death up to 5-7 times greater than vaginal delivery.[4] Some complications that often occur include reduced mobilization which affects the quality of recovery, prolonged pain in the surgical wound which affects the mother's quality of life after surgery and the patient's length of stay in hospital becomes longer.[5] ERAS (Enhanced Recovery After Surgery) was first introduced in 1997 by Kehlet for colorectal surgery to reduce the length of hospital stay.[6] In 2018 the ERACS (Enhanced Recovery After Caesarian Surgery) surgical delivery method was developed from the ERAS surgical method and was proven to reduce the length of stay in hospital (LOS) as well as indirect costs due to reduced adverse events (morbidity and mortality) in mother and baby) for 30 days after the protocol was carried out9. Apart from reducing LOS and costs, ERACS also has significant benefits that can be felt by mothers, in the form of significantly increased mobilization, reduced surgical wound pain, increased bonding between mother and baby, and decreased use of intravenous opioids. [7–9]

Implementation of the ERACS delivery protocol has consequences in the form of changes in cost and clinical aspects experienced by patients. Therefore, it is necessary to carry out a Cost-Effectiveness Analysis (CEA) to determine the economic influence on the effectiveness of treatment or a protocol implemented for patients. [10,11] Selfie research at Krakatau Medika IHC Cilegon Hospital concluded that cesarean section using the ERACS method is more cost-effective compared to non-ERACS for Social Security Agency on Health patients. [12]

METHODS

Study design
The research design used was observational analytic with a prospective cohort study type cohort design.

Population and samples
The sampling technique in this study was a quota sampling technique carried out on women who underwent cesarean section in the period January to March 2023 at a private hospital in Wonosobo Regency. The samples were ERACS and non-ERACS surgery patients who met the inclusion criteria, including pregnant women aged 18-40 years, gestational age 38-42 weeks, ASA (American Society of Anesthesiology) level II, and willing to be respondents in the research. The exclusion criteria in this research were having a history of accompanying or comorbid diseases, complications during and/or after surgery, the additional length of stay in the hospital without medical indications, and patients not filling incomplete data.

Study instruments
The ERACS method used in this study is a method with low-dose anesthesia using hyperbaric bupivacaine 0.5% 5 mg and fentanyl 25 mcg which is added with additional regional anesthesia in the form of a transversus abdominis plane (TAP) block with bupivacaine 0.25%. The non-ERACS method used is the conventional cesarean method (2.5 mg bupivacaine plus 0.1 mg moIDRhine adjuvant, 25 mcg fentanyl). [13]

This research assesses the quality of life of respondents using the EQ-5D-5L questionnaire which is in Indonesian. Before use, the validity and reliability of the questionnaire were tested on 100 patients after cesarean section at another private hospital in Wonosobo Regency. Then the results were tested for validity using the Pearson Product Moment correlation test and also tested for reliability using the Cronbach Alpha coefficient formula where when the calculated r value of the questions in the questionnaire gives a value of ≥ 0.60, then the measuring instrument is considered reliable and vice versa.[14–16] After the questionnaire was declared valid and reliable, utility data was collected from the test subjects using direct interviews. This interview also aims to obtain cost information (direct non-medical and indirect). In this research, the values obtained from respondents' answers to the 5 (five) questions provided in the EQ-5D questionnaire were then converted into utility values using the Indonesia value set.[17] Apart from utility, the effectiveness of the ERACS protocol can also be seen from the reduction in respondents' length of stay after surgery (LOS) obtained from respondent billing data. Acceleration of clinical significance and faster recovery were concluded if patients had an LOS ≤ 1 day.[12]

Data collection
The pharmacoeconomic perspective in this study uses the patient's perspective, so the cost components in this study are direct medical costs (operation/action costs, drugs & medical consumables during surgery,

inpatient drugs & medical consumables, room facilities, administration, laboratory, medical professionals and inpatient support) obtained from billing data from the hospital's financial system, direct non-medical costs (waiter's meals, transportation, baby sanitary napkins, vehicle parking, etc.), as well as indirect costs in the form of loss of patient productivity during 1 month obtained through interviews to the patient.

Data Analysis
In this research, the effectiveness of actions is calculated using the following formula:

$$Effectiveness = \frac{total\ patients\ with\ LOS\ 1\ day}{total\ patients} \times 100\%$$

After the cost, effectiveness, and utility data are collected, the Incremental Cost Effectiveness Ratio (ICER) value is calculated and compared with the willingness to pay (WTP) in Indonesia, which is 3x the value of Gross Domestic Product (GDP) per capita in 2022, where this GDP value is equal to IDR. 71.0 million.[18] Looking at the value of Indonesia's GDP in 2022, the WTP value in this research is IDR. 213 million.

From the resulting data, it is necessary to carry out a sensitivity analysis to take into account aspects of uncertainty.[19] One-way sensitivity analysis was carried out on variables that were predicted to influence the ICER value, namely costs of surgery or procedures, drugs and MEDICAL CONSUMABLES during surgery, drugs and MEDICAL CONSUMABLES for inpatient care, administration, inpatient support, ERACS patient utility value, utility value non-ERACS patients and presented in the form of a tornado diagram.

RESULTS AND DISCUSSION
Respondent characteristics
From the total population of patients undergoing cesarean section, totaling 146 patients, selection based on inclusion and exclusion criteria resulted in a sample of 99 people (figure 1). The largest number of excluded samples in the non-ERACS group was gestational age < 38 weeks, namely 16, and ERACS was the addition of LOS without indication is 5.

Based on Table I, it can be seen that the largest number of respondents in this study were in the age range of 26-30 years (38.38%), where this age range is the ideal condition of biological and psychological maturity for receiving conception.[20] In the gestational age range category, the largest number of respondents was with a gestational age range of 38-39 weeks (70.83%) in the ERACS group and 54 respondents (72%) in the non-ERACS group. A gestational age of 38-39 weeks is the gestational age range that is months enough for delivery.[21] The educational levels in the ERACS group were evenly distributed between SMA and D1-S2 (50%). Meanwhile, in the non-ERACS group, the highest level of education was at the high school level (49.33%). The most common occupation in both groups is housewife. Where in the ERACS group there were 14 respondents (58.33%) and in the non-ERACS group there were 40 respondents (53.33%). This is related to the level of education where the highest level of education was obtained, namely at the high school level which was the highest education for the housewife occupational group in this study.

Effectiveness of actions
The effectiveness parameters of the action are seen from the LOS and utility values. The results of this study show that the ERACS action has a higher presentation of success in reducing the LOS value, but this difference is not statistically significant (12.5% vs 8.0%, p-value 0.173 (Table II). This research is in line with Selfie's research (2023) where the difference in average length of stay between ERACS and non-ERACS was found (2.96 ± 0.2 vs 3.96 ± 0.2).[12]

The EQ-5D value for ERACS measures was higher when compared with non-ERACS measures (0.771 ± 0.124 vs 0.715 ± 0.117), and was directly proportional to the EQ-5D VAS scores for ERACS and non-ERACS measures (81.458 ± 10.052 vs 78 ± 10.591). Looking at the results in Table III, most of the ERACS group did not show problems in the five dimensions of quality of life assessed. This is different from the non-ERACS group where all dimensions of quality of life assessed by respondents indicate problems. These results are in line with other research related to quality of life using the EQ-5D questionnaire conducted by Suwendar where the VAS and utility values are directly proportional.[11] Similar results were also reported in the research of Setiawan and Yuswar.[22,23]
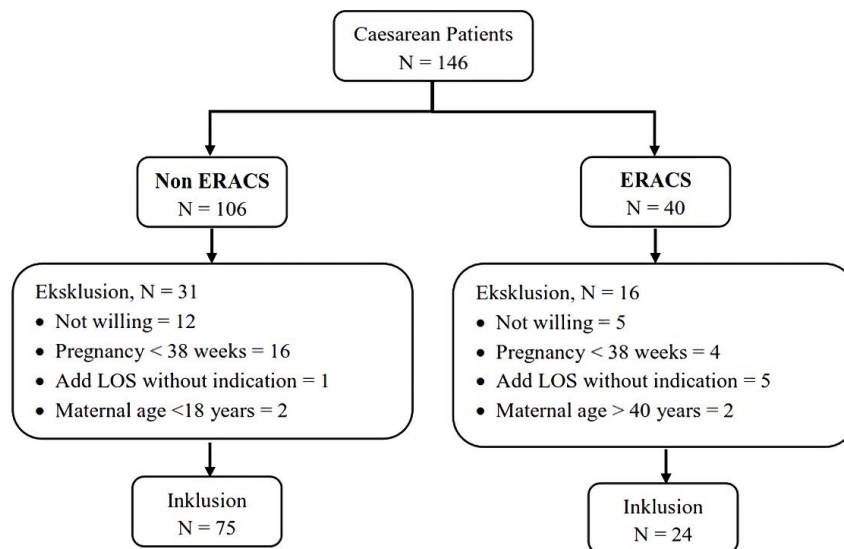
Figure 1. Inclusion of research respondents

Table I. Distribution of respondent characteristics

Characteristics	ERACS (N=24)		Non-ERACS (N=75)		Total	
	n	%	n	%	n	%
Mother's Age						
18-25	9	37.50	21	28.00	30	30.30
26-30	8	33.33	30	40.00	38	38.38
31-35	5	20.83	19	25.33	24	24.24
36-40	2	8.33	5	6.67	7	7.08
Gestational Age						
<38	0	0.00	0	0.00	0	0.00
38-39	17	70.83	54	72.00	71	71.71
40-41	5	20.83	17	22.67	22	22.22
>42	2	8.33	4	5.33	6	6.06
Education						
Elementary – Middle School	0	0.00	18	24.00	18	18,19
Senior High School	12	50.00	37	49.33	49	49.49
Diploma 1 – Postgraduate	12	50.00	20	26.67	32	32.32
Work						
Employee	4	16.67	20	26.67	24	24.24
Trader	6	25.00	15	20.00	21	21.21
Housewife	14	58.33	40	53.33	54	54.54

Cost Components

Based on this research (Table IV), several costs differ statistically significantly (p-value < 0.05), namely surgery or procedure costs, drug & and medical consumables costs during surgery, inpatient drug & and medical consumables costs, room facilities, administration costs, medical professionals, inpatient support and waiting meal costs. This difference in costs is due to differences in rates for types of costs that are directly related to the class of inpatient room. The average total cost for delivery using ERACS is IDR. 16,127,183 and non-ERACS IDR. 10,459,562, so the total difference between the average ERACS and non-ERACS costs is IDR. 5,667,621. This is not in line with Selfie's (2023) research, where there was a significant difference in average costs between the two cesarean methods, namely IDR. 5,342,990 for ERACS actions and IDR. 6,266,168 for non-ERACS actions. In

Table II. Effectiveness of ERACS and non-ERACS measures

Action Type	Total LOS 1 day (N)	Total patient procedures (N)	Effectiveness (%)	p-value
ERACS	3	24	12.5	0.173*
Non-ERACS	6	75	8.0	

Note = *: difference is not significant (P>0.05)

Table III. The frequency and proportion of EQ-5D-5L were reported based on dimensions and levels of ERACS and non-ERACS delivery methods

Dimensions	Levels	ERACS (N=24)		Non-ERACS (N=75)	
		n	%	n	%
Mobility	No problem	24	100.00	72	96.00
	There is a problem	0	0.00	3	4.00
Self-care	No problem	24	100.00	68	90.67
	There is a problem	0	0.00	7	9.33
Daily activities	No problem	21	87.50	52	69.33
	There is a problem	3	12.50	23	30.67
Pain/Discomfort	No problem	24	100.00	66	88.00
	There is a problem	0	0.00	9	12.00
Anxiety/Depression	No problem	24	100.00	74	98.67
	There is a problem	0	0.00	1	1.33
EQ-5D Index, mean ± SD		0.771±0.124*		0.715±0.117*	
EQ-5D VAS, mean ± SD		81,458±10,052*		78±10,591*	

Note: *difference is not significant (P>0.05)

Table IV. Cost components in rupiah

Fee Type	ERACS (N=24) LOS 1,875 days ± 0.338		Non-ERACS (N=75) LOS 2 days ±0.403		P- value
	Mean	SD	Mean	SD	
Direct Medical Costs					
Operation or action	6,497,917	1,271,466	4,451,409	1,020,679	0,000
Medication & medical consumables during surgery	2,578,970	344,009	1,140,650	246,631	0,000
Inpatient medication & and medical consumables	2,010,929	613,184	469,725	280.113	0,000
Room facilities	521,875	153,918	439,067	98,130	0.003
Administration	139,167	24,480	94,067	14,789	0,000
Laboratory	394,667	51,808	370,733	60,737	0.086*
Medical professional	207,292	42,375	173,933	23,196	0,000
Inpatient support	773,771	241,997	391,673	158,007	0,000
Non-Medical Direct Costs					
Eat the waiter	270,833	120.611	197,000	76,996	0.001
Transportation	145,833	79,286	141,667	89,982	0.840*
Baby sanitary napkins/pampers	97.917	39,643	101,533	41,435	0.708*
Vehicle parking	13,013	5,632	14,206	5,328	0.824*
Etc	275,000	146,385	473,899	212.116	0.012*
Indirect Costs					
Loss of productivity	2,200,000	1,888,562	2,000,000	1,498,285	0.726*
Total	16,127,183	5,023,356	10,459,562	3,826,424	0,000

Table V. ICER ERACS compared with non-ERACS

Procedure Type	Average cost	Outcome	Cost difference	External Difference	ICER
		Effectiveness			
Non-ERACS	10,459,562	8.0%	-	-	-
ERACS	16,127,183	12.5%	5,667,621	4.5%	1,259,471
		Utility			
Non-ERACS	10,459,562	0.715	-	-	-
ERACS	16,127,183	0.771	5,667,621	0.056	101.207.517

Table VI. ICER ERACS compared with non-ERACS (provider perspective)

Procedure Type	Average cost	Utility	Cost difference	Difference in effectiveness	ICER
Non-ERACS	7,531,257	0.715	-	-	-
ERACS	13,124,588	0.771	5,593,331	0.056	99,880,910

the Selfie study, it was found that the costs of non-ERACS procedures were higher than ERACS due to the additional length of hospital stay.[12]

Cost-effectiveness analysis

Cost-effectiveness analysis shows that to get 1 additional patient who successfully reduces LOS in the ERACS procedure, an additional cost of IDR. 1,259,471 and to improve the quality of life for the ERACS procedure an additional fee of IDR. 101.207.517. So, it can be inteIDRreted that in this study, cesarean delivery using the ERACS method was cost-effective when compared with the non-ERACS method because the resulting ICER value was below the WTP value, namely 213 million rupiah. These results are in line with research by Selfie, which states that decreasing LOS will have a direct impact on returning patients from the ward more quickly so it will imply reducing costs.[12]

Apart from looking at it from the patient's perspective, this research also produces ICER values based on the provider's (hospital) perspective. For the amount of costs in these two perspectives, only direct medical costs were used, where the average costs for ERACS and non-ERACS procedures were IDR. 13,124,588 and IDR. 7,531,257. With the ICER value obtained in Table VI, namely IDR. 99,880,910, it can be stated that the ERACS action is cost-effective according to the provider's perspective when compared with 3 times the value of Indonesia's GDP in 2022. Meanwhile, if seen from the INA-CBG Regional 1 tariff for houses private class C hospitals, the average claim made for cesarean section services for the three classes of inpatient care and degree of operation is IDR. 6,877,200 lower than the direct medical costs spent by hospitals to provide cesarean section services.[24]

Sensitivity analysis

The sensitivity analysis in this study is shown in the toIDRedo diagram (figure 2) which shows that there are no variables that influence changes in the ICER value. So, the ICER value remains below the WTP value used.

The limitation of researchers in this study is that they have not measured the quality of life of patients 2 hours after surgery, which has an impact on the lack of accuracy in measuring the quality of life of respondents after surgery which is directly related to the effectiveness of the surgery performed, so it is hoped that in future research they can add measurements of patient quality of life 2 hours after the procedure other than 7 days after the procedure. Apart from that, because there is no clinical pathway (CP) for ERACS procedures at the hospital where this research was carried out, this has led to the lack of limits on the therapy given to ERACS patients so the costs incurred by patients are uncontrolled.

At the hospital where the research was conducted, the ERACS method used was low-dose anesthesia plus TAB block pain management, where ideally ERACS should be replaced using low-dose anesthesia alone. With the addition of pain management, it is hoped that patients will immediately show improvement in clinical conditions, thereby reducing direct medical costs and increasing the cost-effectiveness of ERACS procedures.
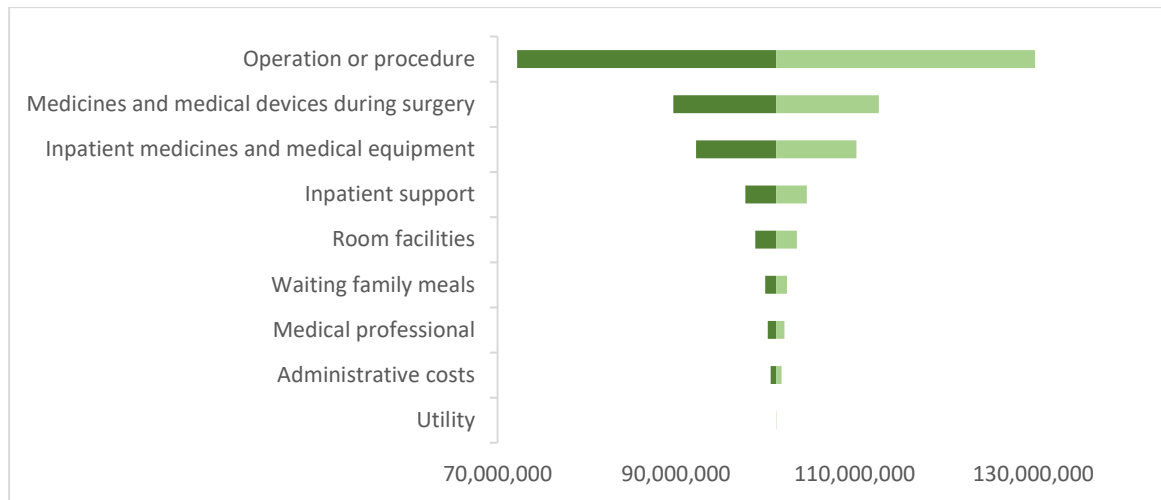
Figure 2. Univariate sensitivity analysis of parameters that influence ICER

CONCLUSION

ERACS measures are more cost-effective when compared to non-ERACS measures because the ICER value is below three times Indonesia's 2022 GDP according to the perspective of patients at private hospitals in Wonosobo.

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STATEMENT OF ETHICS

This research received ethical feasibility from the Muhammadiyah University of Purwokerto Health Research Ethics Committee in October 2022 with Registration Number: KEPK/UMP/11/X/2022.

REFERENCES

1.   Cameron L, Cornwell K. Understanding the Causes of Maternal Mortality in Indonesia A Review of Research on the Determinants and Trends in Maternal Mortality in the Asia-Pacific Region. MAMPU. Published online 2015.
2.   BPS. Angka Kematian Ibu/AKI (Maternal Mortality Rate/MMR) Hasil Long Form SP2020 Menurut Provinsi, 2020. Badan Pusat Statistik. 2023. https://www.bps.go.id/statictable/2023/03/31/2219/angka-kematian-ibu-aki-maternal-mortality-rate-mmr-hasil-long-form-sp2020-menurut-provinsi-2020.html
3.   Susiana S. Angka Kematian Ibu: Faktor Penyebab Dan Upaya Penanganannya. Published online 2019.
4.   Sissoko A, Traore A, Kante I, et al. The Complications of Cesarean Section at Teaching Hospital Gabriel TOURE, Bamako Mali. Open J Obstet Gynecol. 2020;10(04):546-557. doi:10.4236/ojog.2020.1040049
5.   Ruspita I, Rosyidah R. Pain Score and Quality of Post Cesarean Section Recovery with ERACS Method. Jurnal Ners dan Kebidanan Indonesia (JNKI). 2023;11(1):1-10. doi:http://dx.doi.org/10.21927/jnki.2023.11(1).1-10
6.   Taurchini M, Del Naja C, Tancredi A. Enhanced Recovery After Surgery: a patient centered process. J Vis Surg. 2018;4:40-40. doi:10.21037/jovs.2018.01.20
7.   Gupta S, Gupta A, Baghel A, Sharma K, Choudhary S, Choudhary V. Enhanced recovery after cesarean protocol versus traditional protocol in elective cesarean section: A prospective

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observational study. Journal of Obstetric Anaesthesia and Critical Care. 2022;12(1):28. doi:10.4103/joacc.joacc_16_22

8.   Tika TT, Sidharti L, Himayani R, Rahmayani F. Metode ERACS Sebagai Program Perioperatif Pasien Operasi Caesaragus. Jurnal Medika Hutama. 2022;03(02):2386-2391.

9.   Patel K, Zakowski M. Enhanced Recovery After Cesarean: Current and Emerging Trends. Published online 2021:136-144. https://doi.org/10.1007/s40140-021-00442-9

10.   Arif Rahmandani , Prih Sarnianto , Yusi Anggriani FDP. Analisis Efektivitas Biaya Penggunaan Obat Antivirus Oseltamivir dan Favipiravir padaPasien Covid-19 Derajat Sedang di Rumah Sakit Sentra Medika Cisalak Depok. Majalah Farmasetika. 2021;6(Suppl 1):133-144.

11.   Suwendar S, Fudholi A, Andayani TM, Sastramihardja HS. Quality of Life Evaluation of Cervical Cancer Inpatients Before and After Chemotherapy by Using the EQ-5D Questionnaire. Indonesian Journal of Clinical Pharmacy. 2017;6(1):1-10. doi:10.15416/ijcp.2017.6.1.1

12.   Selfie, Arrozi M, Mustikawati IS. Analisis Efektivitas Biaya Seksio Sesarea Metode ERACS dan Non ERACS Pada Pasien BPJS Kesehatan. Journals of Ners Community. 2023;13(2):407-422. doi:https://doi.org/10.55129/jnerscommunity.v13i2.2782

13.   KEMENKES RI. Hk.01.07/Menkes/1541/2022 Tentang Pedoman Nasional Pelayanan Kedokteran Tata Laksana Anestesiologi Dan Terapi Intensif. JdihKemkesGoId. Published online 2022:1-504.

14.   Sahid Raharjo. Cara melakukan Uji Validitas Product Moment dengan SPSS. SPSS Indonesia. 2021. Accessed September 6, 2022. https://www.spssindonesia.com/2014/01/uji-validitas-product-momen-spss.html

15.   Susongko P. Uji Validitas Konstruk Tes Prestasi Belajar dengan Penerapan Model Persamaan Struktural. Cakrawala: Jurnal Pendidikan. 2010;4(8):41-52. doi:10.24905/cakrawala.v4i8.32

16.   Susanto Y, Alfian R, Rahim Z, Karani. Uji Validitas dan Reliabilitas Kuesioner EQ-5D Bahasa Indonesia Untuk Mengukur Kualitas Hidup Pasien Hemodialisa Gagal Ginjal Kronik. Jurnal Ilmiah Manuntung. 2018;4(1):41-47.

17.   Purba FD, Hunfeld JAM, Iskandarsyah A, et al. The Indonesian EQ-5D-5L Value Set. Pharmacoeconomics. 2017;35(11):1153-1165. doi:10.1007/s40273-017-0538-9

18.   Badan Pusat Statistik. Pertumbuhan Ekonomi Indonesia Triwulan IV-2022. WwwBpsGoId. 2023;(15/02/Th.XXVI):1-12. https://www.bps.go.id/pressrelease/2020/02/05/1755/ekonomi-indonesia-2019-tumbuh-5-02-persen.html

19.   KEMENKES RI. Pedoman Penerapan Kajian Farmakoekonomi. Vol 7. KEMENKES RI; 2013.

20.   Mursalim K. Faktor Determinan Pemilihan Jenis Persalinan Dan Dampaknya Terhadap Pemberian Asi Di Rumah Sakit Kota Makassar Tahun 2012. Universitas Hasanuddin Makasr; 2012.
      http://dx.doi.org/10.1016/j.actamat.2015.12.003%0Ahttps://inis.iaea.org/collection/NCLColle ctionStore/_Public/30/027/30027298.pdf?r=1&r=1%0Ahttp://dx.doi.org/10.1016/j.jmrt.2015. 04.004

21.   Masu PWY. Asuhan Kebidanan Berkelanjutan Pada Ny. J. N Di Puskesmas Oebobo Periode Tanggal 18 Februari Sampai 18 Mei 2019. Politeknik Kesehatan Kemenkes Kupang; 2019.

22.   Setiawan D, Dusafitri A, Galistiani GF, van Asselt ADI, Postma MJ. Health-Related Quality of Life of Patients with HPV-Related Cancers in Indonesia. Value Health Reg Issues. 2018;15:63-69. doi:10.1016/j.vhri.2017.07.010

23.   Yuswar MA, Susanti R, Az-zahra NS. Pengukuran Kualitas Hidup Pasien Pengguna Antihipertensi dengan European Quality of Life 5 Dimensions (EQ5D) Questionnaire dan Visual Analog Scale (VAS). Jurnal Sains dan Kesehatan. 2019;2(2):93-99. doi:10.25026/jsk.v2i2.123

24.   Menteri Kesehatan Republik Indonesia. Peraturan Menteri Kesehatan Republik Indonesia No. 3 Tahun 2023 Tentang Standar Tarif Pelayanan Kesehatan Dalam Penyelenggaraan Program Jaminan Kesehatan. Menteri Kesehatan RI. Published online 2023:1-721.