Regional disparity of drug availability for Basic Emergency Obstetrict and Neonatal Care (BEONC): an Indonesian national study in 2011

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Abstrak

Latar belakang: *Sebagai komponen penting untuk mendukung pelaksanaan program KIA, obat untuk program pelayanan obstreti, neonatal emergensi dasar (PONED) harus tersedia di instalasi farmasi kabupaten/kota (IFK) di seluruh regional di Indonesia. Namum kadang-kadang terjadi disparitas ketersediaannya. Oleh karena itu perlu dilakukan penelitian untuk mengidentifikasi disparitas Ketersediaan tersebut.*

Metode: *Penelitian potong lintang yang merupakan bagian dari Rifaskes 2011 pada bulan Agustus-Oktober 2011 yang mencakup seluruh 497 IFK kabupaten/kota di 33 provinsi Indonesia. Regional terdiri dari Sumatera, Jawa-Bali, Nusa Tenggara, Kalimantan, Sulawesi, Maluku, dan Papua. Obat esensial PONED dibagi menjadi dua klasifikasi: (1) sangat penting, dan (2) penting.*

Hasil: *Pada Januari 2012, dari 497 kabupaten/kota tersedia 316 (64%) untuk analisis ini. Terdapat disparitas obat untuk PONED baik yang tergolong sangat penting maupun yang penting. Di antara obat PONED esensial yang sangat penting, Dextrose infus dan Ergomterin/methiler-gometrin injeksi maleat, dan Oxytosin injeksi tersedia di semua wilayah kecuali di Maluku. Anti tetanus serum (ATS), Furosemid injeksi, Furosemid injeksi, Magnesium sulfat, dan Penicilin prokain tersedia di semua regional. Obat PONED esensial yang penting, kecuali obat Bicarbonas di Papua, semua obat esensial PONED kurang tersedia di semua regional. Yang paling tidak tersedia adalah infus A2, injeksi Cedilanide, Natrium bikarbonat injeksi, dan petidin injeksi. Secara keseluruhan di Nusa Tenggara mempunyai persediaan obat PONED yang relatif lebih baik dibandingkan region lainnya.*

Kesimpulan: *Terdapat kesenjangan ketersediaan obat esensial PONED yang sangat penting maupun yang penting di seluruh di Indonesia. Maka kesenjangan obat-obat PONED ini harus diatasi.* ***(Health Science Indones 2012;2:xx-xx)***

Kata kunci: *ketersediaan obat PONED, disparitas, instalasi farmasi, Indonesia*

Abstract

Background: As an important component to support the implementation of the Basic Emergency Obstetric and Neonatal Care (BEONC*)* the drugs should be available in the district/city pharmacy (IFK) in entire region in Indonesia. However, availability disparity occurred. Therefore, it is necessary to describe the disparity on the availability drugs in Indonesia.

Methods: A cross-sectional study was conducted in August-October 2011, which covered all IFK districts / municipalities in 33 provinces of Indonesia. The location comprised regional: Sumatra, Java and Bali, Nusa Tenggara, Kalimantan, Sulawesi, Maluku, and Papua. BEONC essential medicines were divided into two classifications: (1) very very important, and (2) very important.

Results: In January 2012, out of 497 districts / cities 316 (64%) were available for this analysis. There were disparities on availability BEONC classified as very very important as well as very important drugs. Among the very important BEONC essential drugs, Dextrose infusion and Ergomterin / methiler-gometrin maleate injection, and injection Oxytosin available in all regions except in the Maluku. Anti-tetanus serum (ATS), furosemide injection, furosemide injection, Magnesium sulfate, and Procaine Penicillin were available in all regions. The important BEONC essential drugs, except Bicarbonas in Papua, all essential drugs BEONC less available in all regions. The most available was A2 infusion fluid, Cedilanide injection, sodium bicarbonate injection, and pethidine injection. It seemed that Nusa Tenggara region had relatively better BEONC drug stock as compared to other regions.

Conclusion: There was significantly disparity on availability of very important essential BEONC drugs in all regions in Indonesia. Therefore it is necessary to solve the disparity problems of BEONC drugs. ***(Health Science Indones 2012;2:xx-xx)***

Key words: BEONC drug, availability, disparity, pharmaceutical installation, Indonesia

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The National Health Facility Research *(Rifaskes)* 2011 has been conducted by the National Institute of Health Research and Development (NIHRD). *Rifaskes* 2011 covered all components of input, process and output in the public hospital, health center or *Puskesmas* and independent clinical laboratory in Indonesia. One of the pertinent components of input in those three targeted health facilities is drug. Based on this reason, *Rifaskes* 2011 has also included the District/City Pharmaceutical Installation (IFK) as the additional research target.[1]

Two of the eight focus priorities in Five Year (2009-2014) Strategic Plan of Health Development in Indonesia are first, maternal and child health, and second, drugs and food availability and control. These two priorities are in conjunction with the Millenium Development Goals (MDG) number four and five, which are to reduce two third of the infant, neonatal and under five children and to reduce the maternal mortality, as well as to increase the coverage of delivery by trained health provider from in the period of 1990 to 2015.[2]

Both, the Five Year Strategic Plan of Health Deployment and MDG, are in line with the target of National Long Term Development Plan (2005-2025) mentioned in the Law no. 17/2007. This law states that the targets of National Long Term Development Plan in Health Sector are among others to reduce the IMR and MMR.[3]

In order to achieve all of targets mentioned above, drugs related to the Maternal and Child Health (MCH) programs should be available in the IFK as important component to support the implementation of basic emergency obstetric and neonatal care (BEONC) or Comprehensive Emergency Obstetric and Neonatal Care (CEONC). The IFK is a storage installation of all drugs utilized for health programs in a district/city and it is under coordination of district/city health office. The IFK has been created to improve the effectiveness and efficiency of all drugs distribution by the district/city health office regardless the origin of budget used to purchase the drugs. From IFK the drugs are ordered to be distributed monthly by the district/city health authority mainly to the local hospital and health centers.

Rifaskes 2011 has collected only availability and adequacy of general, *BEONC*, dental and family planning drugs in 2010 and 2011.[4]

The aim of this study was to identify drug availability for *PONED* programs at the district/city pharmaceutical installation in the regions of Indonesia

METHODS

The IFK data have been collected as a part of National Health Facility Research or *Rifaskes* 2011, which was a cross sectional study carried out between August to October 2011 covering 497 districts/cities in 33 provinces of Indonesia. There was no sampling system in this study, because all of the IFKs in 497 districts/cities were used. The regionals were Sumatera, Jawa-Bali, Nusa Tenggara, Kalimantan, Sulawesi, Maluku, and Papua regional.

The IFK questionnaire was a separate and independent questionnaire from the main questionnaire of *Rifaskes* 2011. The main variables collected in IFK questionnaire were general identification of IFK, availability and adequacy of drugs in 2010 (smallest unit of drugs), months of drugs inavailability in 2010, and availability of drugs (smallest unit of drugs) in 2011.

All drug data were classified into 44 essential general drugs, 17 essential MCH drugs related to BEONC, 11 essential dental drugs and substances, as well as 10 family planning drugs and devices.

Those drugs were chosen by using the list of drugs to be monitored by the Directorate General of Pharmacy and Health Equipment, MOH, as well as the list of important drug for *BEONC*, dental and family planning mentioned in the guideline of *BEONC* by the Directorate General of Community Health, Ministry of Health of Indonesia (MOH).[5]

MCH drugs were divided into two classification: (1) very important essential MCH drugs for BEONC; and (2) important essential MCH drugs for BEONC.

The drugs considered available if no stock out within fully 12 months of 2010, and **not available** if one or more months within 12 months of 2010 were no stock.

The IFK questionnaire was submitted by district/city *Rifaskes* 2011 technical coordinator or sent by mail to the district/city health office by national technical coordinator. The questionnaire was then fulfilled by the head and staff of the local IFK.

The final filled in questionnaires was collected by district/city *Rifaskes* 2011 technical coordinator or sent through mail by the district/city health office to the national technical coordinator.

In Jakarta, the questionnaires were received by data manager at NIHR followed by batching, editing, cleaning, and data entry.

For this article, IFK data were analyzed using Chi square tests for availability of BEONC drugs in 2010 by regional in Indonesia.

RESULTS

By January 2012, only 316 out of 497 districts/cities or 64% were received by data manager at NIHRD. Six districts in Jakarta Metropolitan Province did not have IFK were excluded from the analysis.

Table 1 shows that disparity in availability of BEONC very important essential drugs in general occurred in all regions.

Dextrose infusion and Ergomterin/methiler-gometrin maleat injection, and Oxytosin injection were more available in all regions except in Maluku region which less available on Dextrose infusion 5 and Ergomterin/ methiler-gometrin maleat injection.

Anti tetanus serum, Furosemid injection, Furosemid injection, Magnesium sulphate, and Penicilin in general less likely available in all regions. However NaCl infusion was likely more available in all regions.

In general, Nusa Tenggara region had relatively better BEONC drug stock as compared to the others

Table 2 shows that except in Papua on Bicarbonas, all BEONC essential drugs more likely not available in all regions. The most not or not available were fluid infusion solution A2, Cedilanide injection, Natrium bicarbonate injection, and Pethidine injection.

DISCUSSION

This study was an additional study in *Rifaskes* 2011, with only 64% of response rate. Due to limitation of the surveyors, some of the questionnaires were delivered indirectly through the district/city health offices with limited times for data validation from the installation book record. The variables collected by using this questionnaires were very limited and could not answer why the drugs were available or not available. However, with 64% of response rate, at least this study was able to show the picture of general and some specific drug stock availability at national and regional level.

Table 1. The availability of very important essential BEONC drugs by region

Type of drug	Availability	Sumatera (n-91)	Jawa-Bali (n=91)	Nusa Tenggara (n=24)	Kalimantan (n=42)	Sulawesi (n=43)	Maluku (n=14)	Papua (n=11)	P
		%	%	%	%	%	%	%	
Dextrose infusion 5	Available	60.4	68.1	87.5	54.8	44.2	35.7	72.7	0.004
	Not available	39.6	31.9	12.5	45.2	55.8	64.3	27.3	
Ergomterine/methiler-gometrin maleat injection 0.200 mg/ml	Available	64.8	79.1	91.7	71.4	55.8	35.7	81.8	0.001
	Not available	35.2	20.9	8.3	28.6	44.2	64.3	18.2	
Oxytosin inj 10 IU/ml - 1 ml	Available	65.9	87.9	100.0	73.8	67.4	64.3	54.5	0.000
	Not available	34.1	12.1	0.0	26.2	32.6	35.7	45.5	
Anti Tetanus Serum 10.000 IU	Available	27.5	23.1	29.2	16.7	7.0	21.4	27.3	0.177
	Not available	72.5	76.9	70.8	83.3	93.0	78.6	72.7	
NaCl infusion 0.9	Available	69.2	81.3	95.8	66.7	48.8	42.9	81.8	0.000
	Not available	30.8	18.7	4.2	33.3	51.2	57.1	18.2	
Furosemid injection IV/IM 10 mg/ml	Available	17.6	19.8	29.2	38.1	14.0	21.4	45.5	0.039
	Not available	82.4	80.2	70.8	61.9	86.0	78.6	54.5	
Magnesium sulphat 20	Available	36.3	45.1	83.3	50.0	18.6	14.3	27.3	0.000
	Not available	63.7	54.9	16.7	50.0	81.4	85.7	72.7	
Magnesium sulphat 40	Available	37.4	58.2	91.7	52.4	23.3	28.6	18.2	0.000
	Not available	62.6	41.8	8.3	47.6	76.7	71.4	81.8	
PP 50.000 IU	Available	4.4	5.5	16.7	7.1	4.7	7.1	27.3	0.060
	Not available	95.6	94.5	83.3	92.9	95.3	92.9	72.7	

Table 2. The availability of essential BEONC drugs in the region

Type of drug	Availability	Sumatera (n-91)	Jawa-Bali (n=91)	Nusa Tenggara (n=24)	Kalimantan (n=42)	Sulawesi (n=43)	Maluku (n=14)	Papua (n=11)	P
		%	%	%	%	%	%	%	
Bicarbonas	Available	44.0	33.0	33.3	21.4	16.3	14.3	54.5	0.007
	Not available	56.0	67.0	66.7	78.6	83.7	85.7	45.5	
Fluid infusion solution A2	Available	0.0	2.2	0.0	0.0	2.3	0.0	9.1	0.197
	Not available	100.0	97.8	100.0	100.0	97.7	100.0	90.9	
Cedilanide injection	Available	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.365
	Not available	100.0	100.0	100.0	97.6	100.0	100.0	100.0	
Dextran 40	Available	17.6	8.8	37.5	23.8	14.0	14.3	18.2	0.037
	Not available	82.4	91.2	62.5	76.2	86.0	85.7	81.8	
Natrium bicarbonat 0.83 mEK/ml injection (Meylon)	Available	4.4	6.6	12.5	4.8	2.3	7.1	27.3	0.071
	Not available	95.6	93.4	87.5	95.2	97.7	92.9	72.7	
Pethidin injection 50 mg/ml	Available	8.8	13.2	45.8	16.7	7.0		9.1	0.000
	Not available	91.2	86.8	54.2	83.3	93.0	100.0	90.9	
Tramadol inj 100 mg/2 ml	Available	20.9	17.6	20.8	33.3	16.3	7.1	18.2	0.338
	Not available	79.1	82.4	79.2	66.7	83.7	92.9	81.8	

The low stock of BEONC drugs in the above results indicated the inadequate of BEONC implementation in Health Center. Sri Handayani showed HC with inadequate implementation of BEONC in Kendal District was due to lack of inter sectorial communication, lack of health manpower quantity and quality, inavailability of infrastructure and logistic of BEONC (including drug), budget insufficiency and no significant differences between the distance to the hospital and HC.[6]

Study of Rachmawati and Suprapto indicated major problems to the implementation of BEONC in three districts in East Java Province was related to the local coordination and policy to support this program. It was also found that continuity of *BEONC* services including the availability of *BEONC* drugs was depend on the commitment of those District Health Officers and HC providers in prioritizing the BEONC programs. In those three Districts, inavailability of BEONC drugs was compensated by providing recipe to the patients to buy those necessary drugs to the pharmaceutical store, which was far away and took times.[7]

One of the good examples was MCH program reformation in East Nusa Tenggara which was formally strengthened by the Governor regulation number 42, 2009. This program was totally carried out in East Nusa Tenggara Province, including to accelerate the BEONC implementation. This policy probably had also impact in the availability of BEONC drug stock, in which in the both Table 1 and 2, the regional of Nusa Tenggara relatively indicated better BEONC drug stock in district/city pharmaceutical installation as compared to the others.[8]

In the preliminary discussion and further discussion with the Minister of Health and staff, it was agreed about the disparity of drug stock availability in district/city pharmaceutical installation, especially for BEONC drugs. However, some argumentations were raised such as the *BEONC* drugs were mostly distributed directly to the BEONC HC and not necessarily to be pooled it through the district/city pharmaceutical installation. Another possibility was all of BEONC drugs were managed by the MCH division at the district/city health offices and not in those pharmaceutical installations. Delayed supply of BEONC drugs was another argumentation.[9] The results of *Rifaskes* 2011 for Health Center showed significant disparity, insufficiency and inadequacy of some essential and very essential BEONC drugs.[10] It seemed the above *Rifaskes* 2011 findings rejected all of the argumentations raised in the MOH discussion.

In conclusion, the disparity in availability of BEONC very important essential drugs in general occurred in all regions. In addition, except in Papua on Bicarbonas, all BEONC essential drugs more likely not available in all regions. The most not or not available were fluid infusion solution A2, Cedilanide injection, Natrium bicarbonate injection, and Pethidine injection.

Acknowledgments

The authors wish to thank National Institute of Health Research and Development for willingly to share the *Rifaskes* 2011 data to be utilized and analyzed for this article. We would also like to express our sincerest gratitude to Prof. Bastaman Basuki for his assistance, suggestion and reviewing the final draft**.** We would like also to thank Mrs. Suparmi for helping us to develop the tables in this article.

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