


Review of Antibiotic Use Regulations in Healthcare Facilities Based on The Minister of Health Regulation No. 28 Of 2021: Literature Review

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Article Info	ABSTRACT
Keywords: Antibiotic Use, Antibiotic Resistance, Antibiotic Regulation	Use antibiotics that do not appropriate become factor main increasing resistance antibiotics in Indonesia. For overcome matter this, the government emit Minister of Health Regulation No. 28 of 2021 for set guidelines in rational use of antibiotics in facilities health. The purpose of study This is to review its implementation and identify the implementation of Permenkes No. 28 of 2021 in health facilities in Indonesia in an effort to control antibiotic resistance in Indonesia. The method used with review literature conducted in field national and international for five years last. Research results show that, both at home sick, health centers, and pharmacy, there is Lots challenges that stand in the way implementation regulation This. Use antibiotics without prescription, therapy that is not in accordance guidelines, and use antibiotics spectrum wide without clear indication is a number of violations found. Therefore, it is necessary to strengthen policy implementation through education, antibiotic use audits, and a One Health- based cross - sector approach to effectively control antibiotic resistance in Indonesia.
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INTRODUCTION

Antibiotic resistance is defined as the mutation process in microorganisms (bacteria, fungi, viruses, parasites) exposed to antibiotics, causing infections to become more difficult to treat and increasing the risk of spreading the disease to the wider community (Lau, 2020). The use of antibiotics increases every year, increasing resistance to antibiotics. It is estimated that by 2050, antibiotic resistance will attack at least 10 million people each year (Andriani et al., 2021).

According to a report from the World Health Organization (WHO), there were approximately 2,049,442 cases of infection due to antibiotic resistance and 23,000 of them died. A similar situation occurs in Indonesia, where antimicrobial resistance (AMR), especially to antibiotics, has become a health problem that is a challenge for health workers. The irrational use of antibiotics that occurs in animals and humans accelerates the development of bacterial resistance (Zulfa & Yunitasari, 2020). One of the main factors that triggers the increase in antibiotic resistance is the inappropriate use of antibiotics, such as use without a

doctor's prescription, use of old prescriptions, and consumption of antibiotics for diseases that do not require antibiotic treatment (Yunita & Sukmawati, 2021).

To overcome this problem, the application of the principle of antibiotic stewardship is very important, namely antibiotics of the right type, dose, and route of administration (Isnaasar et al., 2022). To support this, the government has created pharmaceutical regulations that function as the main tool for monitoring antibiotic use. One of them is the Regulation of the Minister of Health No. 28 of 2021 concerning Guidelines for the Use of Antibiotics in Health Care Facilities, which expressly stipulates that antibiotics may only be given with a doctor's prescription.

Although in Indonesia there are regulations, law enforcement and proper supervision of antibiotic use, challenges are still found in the field (Sari et al., 2023). There are not many articles that specifically discuss the implementation of Permenkes No. 28 of 2021 in health facilities, so the purpose of this literature review is to review its implementation and identify the implementation of Permenkes No. 28 of 2021 in health facilities in Indonesia in an effort to control antibiotic resistance in Indonesia.

RESEARCH METHODS

This study uses a narrative literature review method using journal articles published in databases such as Google Scholar, Pubmed, and Neliti. The search was conducted using the keywords "Pharmaceutical regulations", "Antibiotic resistance", "Pharmaceutical policy in Indonesia". The inclusion criteria for writing this literature review are articles in Indonesian and English with a publication span of the last 5 years (2020-2025). Articles that cannot be fully accessed will be excluded.

RESULTS AND DISCUSSION

Use the right antibiotic aiming For ensure that drug given with Correct to patient, in the right dose, in the right way, in combination right, at the right time, and at the right price (Dompas et al., 2021). In addition, the use of the right antibiotic can increase results therapy and reduce risk resistance bacteria. Therefore that, for guard effectiveness treatment and health public in a way overall, education and implementation principles use rational antibiotics are very important (Rahmawati et al., 2023).

Resistance antibiotics in Indonesia are a serious threat due to inappropriate use of antibiotics in hospitals and the community. With use antibiotics without recipe Still general, only around one third recipe antibiotics at home sick and half in primary facilities according to guidelines. Consumption high and low levels of broad-spectrum antibiotics supervision in the sector private to worsen problem This (Limato et al., 2022).

WHO targets 10% reduction in deaths due to bacterial AMR by 2030 through One Health approach, which involves health humans, animals and the environment as well as improving diagnosis, treatment, surveillance, and management (WHO, 2025). For overcome the more increasing resistance to antibiotics, WHO also issued the WHO Aware (Access, Watch, Reserved) antibiotic book for guide in use antibiotics (Rahmadi et al., 2024).

The role of power health in prevent the more the amount case resistance antibiotics are urgently needed. Collaboration between power medical as well as patients and families patients can also help prevent the occurrence resistance antibiotics (Maha, 2024). In the Minister of Health Regulation No. 28 of 2021 concerning Guidelines Implementation of the Drug Use Program Rational give runway policy For control resistance antimicrobial through use the right antibiotic. Regulation This set that principle Rational Use of Drugs (RDR) must be applied by all facility health, both at the primary level (health centers) and level continued (home sick). Focus the main thing is use antibiotics in accordance indications, dosage, duration, and method administration based on the results of clinical diagnosis and/ or laboratory (Ministry of Health of the Republic of Indonesia, 2021).

Table 1. Table of Implementation of Antibiotic Use in Health Facilities

No	Author (Year)	Article Title	Results	Conclusion
1	(Ikasanti et al., 2022)	Analysis of the use of antibiotics in asymptomatic, mild, and moderate Covid-19 patients treated in Bhayangkara Hospital Surabaya	All Covid-19 patients (100%) received antibiotics in the form of azithromycin 50.42 DDD (<i>Defined Daily Dose</i>) and levofloxacin 22.70 DDD per 100 bed-days.	The use of antibiotics at Bhayangkara Hospital Surabaya shows a tendency towards overuse <i>which</i> has the potential to cause resistance.
2	(Syafhan et al., 2024)	Antibiotic Use Evaluation Based on AWaRe Classification in Hospitalized Patients (Intensive and Non-Intensive Care) at Universitas Indonesia Hospital	The use of antibiotics at UIH Hospital in 2022 was dominated by the <i>Watch group</i> such as cefixime, ceftriaxone, and levofloxacin.	The use of broad-spectrum antibiotics included in the Watch class is still high, thus potentially causing resistance.
3	(Rosyada et al., 2022)	Profile of Suitability of Antibiotic Therapy in Premature Rupture of Membranes Patients at Jemursari Islamic Hospital, Surabaya	Of 83 patients with premature rupture of membranes, only 32% used appropriate antibiotics.	The antibiotics used at Jemursari Islamic Hospital for patients diagnosed with Premature Rupture of Membranes are mostly not appropriate.
4	(Yulia et al., 2022)	Evaluation Use Antibiotics In general Quantitative and Qualitative in Patients Digestive Surgery at Abdul Wahab Sjahranie Regional Hospital Samarinda	The use of antibiotics in digestive surgery patients with a total consumption reaching 81.21 <i>Defined Daily Dose</i> or DDD/100 patient-days.	Approximately 54.9% of usage is classified as rational according to the Gyssens method. Almost half use antibiotics Still No rational.

No	Author (Year)	Article Title	Results	Conclusion
5	(Sihite et al., 2021)	Community pharmacies, drug stores, and antibiotic dispensing in Indonesia: a qualitative study	Giving antibiotics without recipe due to Because lack of understanding about antibiotics push many people to buy antibiotics without recipe.	The sale of antibiotics without a prescription in Indonesia is still common in pharmacies and drug stores.
6	(Buamona et al., 2023)	Study of Non-Prescription Antibiotic Use in Bahu Village, Malalayang District Manado City	As many as 79.74% bought antibiotics without a doctor's prescription at the pharmacy, with amoxicillin being the most frequently used,	The use of antibiotics without a prescription is still high in society.
7	(Yulia et al., 2022)	Behavior of Using Antibiotics Without Prescription at Pharmacy X, Payakumbuh City in 2021	46% of respondents purchased antibiotics without a prescription with amoxicillin dominant.	The number of purchases of antibiotics without a prescription at the Payakumbuh Pharmacy is still high.
8	(Gunawan et al., 2023)	Profile of Antibiotic Use in Toddlers with ARI at Koya Barat Health Center, January-December 2020	It was found that 49.68% of ISPA patients in toddlers received antibiotics, the majority of which were used without comorbidities.	Antibiotics are used highly even though symptoms are often self-limiting and the majority have no comorbidities.
9	(Wulandari et al., 2021)	Prevalence and determinants of inappropriate antibiotic dispensing at private drug retail outlets in urban and rural areas of Indonesia: a mixed methods study	Got it 69% of standard patients received antibiotics without a prescription predominantly at independent pharmacies.	Practices in pharmacies that serve patients without a prescription are influenced by patient demands, owner pressure, and weak supervision.
10	(Primary, 2022)	Study of purchasing antibiotics without a prescription in our pharmacy, Jambi city	Non-prescription antibiotic purchases with 61% of male buyers >40 years; amoxicillin 43.75% of total purchases	Purchases of antibiotics in pharmacies without a prescription are still high, dominated by amoxicillin.

Review results literature show that in various type facility service health, implementation Minister of Health Regulation No. 28 of 2021 concerning service pharmacy, in particular related use antibiotics, still face Lots challenges. In overall, all journal analyzed show mismatch

with laws, including use antibiotics without recipe, usage No rational, and dominance antibiotics spectrum wide without indication clear clinical.

Implementation Minister of Health Regulation No. 28 of 2021 in Hospitals

According to Ikasanti et al., all COVID-19 patients at Bhayangkara Hospital Surabaya were given antibiotics such as azithromycin and levofloxacin without consider whether they own infection bacteria. This shows that overprescribing is something contradictory with ethics use drug.

In addition, Syafhan et al. found that use Watch antibiotics, including ceftriaxone and cefixime, are still dominate prescription in the room intensive and non- intensive at the University of Indonesia Hospital. In addition, Rosyada find that only 32% of patients amniotic fluid broken premature at Jemursari Islamic Hospital which received antibiotics in accordance guidelines. Yulia et al. found at Abdul Wahab Sjahranie Regional Hospital that 45% of patients digestive surgery continues accept antibiotics in a way No rational use method Gyssens. Findings This show that principle caution in use antibiotics No applied with good and that No There is evaluation strict clinical.

Implementation Minister of Health Regulation No. 28 of 2021 at the Health Center

Practice giving antibiotics at the level primary services such as health center Not yet fully in accordance with regulation. According to research conducted by Gunawan et al. (2023) at the Koya Barat Health Center, 49.68% of patients toddler with ISPA received antibiotics. This happens although part big patient No own comorbidities and their symptoms is self-limiting. This is show that power health Still fail evaluate need antibiotics and that antibiotic stewardship principles No applied in the facility primary services.

Implementation Minister of Health Regulation No. 28 of 2021 in Pharmacies

Most of the violation Minister of Health Regulation occurred at the facility pharmacy like Pharmacy and shop medicine. Wulandari said that 69% of patients get antibiotics without prescription at the pharmacy independent, and Pratama say that 61% of patients buy antibiotics at Our Jambi Pharmacy. According to Buamona, 79.74% of residents in Bahu Subdistrict, Manado buy antibiotics without recipe doctor, with amoxicillin as the most common.

Yulia found that 46% of respondents at Pharmacy X, Payakumbuh City buy antibiotics without recipe, with complaint main is Sick teeth. Phenomenon This show role pharmacists who are not yet optimal in screening recipe and its lack knowledge public about danger resistance antibiotics. Practice This show that supervision government to distribution antibiotics in the line end service health not enough effective.

Inhibitor Implementation Minister of Health Regulation No. 28 of 2021

According to a number of research, there is a number of component the main thing that hinders implementation Minister of Health Regulation No. 28 of 2021. Sihite et al. (2021) found that a number of factors that cause Lots sale antibiotics free is pressure economy in pharmacy, lack of supervision government, and understanding bad society about function antibiotics. Other factors that cause low compliance to regulation including lack of

enforcement law, inaccessibility inspection laboratory, and the lack of training Keep going continuously for power health.

Implementation Efforts Minister of Health Regulation No. 28 of 2021

The lack of compliance with established regulations has caused the practice of irrational antibiotic use to still occur in many health care facilities. This has an impact on the increasing rate of bacterial resistance in Indonesia, which is a serious threat to the effectiveness of bacterial infection treatment.

In dealing with this, the government is strengthening the implementation of Minister of Health Regulation No. 28 of 2021 concerning General Guidelines for the Use of Antibiotics through the One Health approach, namely by involving the human, animal, and environmental health sectors in an integrative manner.

(Global Antimicrobial Resistance and Use Surveillance System) monitoring system can functioning as tool For assess and supervise use antibiotics. System This use classification antibiotics AWaRe (Access, Watch, Reserve) developed by WHO. Classification This aiming For push use antibiotics with be careful, prioritize antibiotics that have risk resistance low, and do supervision strict to use antibiotics line second and third. The following is a table of antibiotic Aware Classification according to WHO guidelines in Permenkes No. 28 of 2021.

ASPECT	ACCESS	WATCH	RESERVE
Availability	Available in all health care facilities	Available at advanced healthcare facilities	Available at advanced healthcare facilities
Purpose of Use	Used for the treatment of common infections	Used for specific indications or when access antibiotics do not work.	Used to treat bacterial infections due to MDRO or as a last resort
Recipe and Supervision	Prescribed by doctors, dentists, specialists, reviewed by pharmacists.	Prescribed by a specialist doctor, dentist, specialist doctor, reviewed by a pharmacist, approved by an infection consultant doctor or KPRA member.	Prescribed by a specialist doctor/dentist, specialist doctor, reviewed by a pharmacist, approved by the Antibiotic Management Team (PGA) and Hospital KPRA

In addition, strengthening education to the community, implementing regular audits of antibiotic use periodically, and taking firm action against service facilities that violate the policy. These steps need to be immediately implemented evenly throughout Indonesia to support the implementation of rational antibiotic use policies and suppress the rate of antibacterial resistance.

CONCLUSION

From the literature reviewed, it can be concluded that No There is research that meets the requirements Minister of Health Regulation No. 28 of 2021 in particular overall. One of the from mismatch This can in the form of giving antibiotics without prescription, therapy that is not in accordance guidelines, usage antibiotics spectrum wide without base clinical, and lack

of instructions given by the workforce pharmacy. So it is necessary reinforcement implementation regulation the For control resistance antibiotics in Indonesia

REFERENCES

- Andriani, Y., Rahmadewi, & Fauzia, W. (2021). Penggunaan Antibiotik Restriksi Pada Pasien Apendiks Akut, Batu Ginjal dan Cidera Kepala Ringan (CKR) di Bangsal Bedah RSUD H. Abdul Manap Kota Jambi Periode 2017 - 2019. *Journal of Pharmacy and Science*, 6(1).
- Buamona, R. A., Lolo, W. A., & Rundengan, G. e. (2023). *Studi Penggunaan Antibiotik Non Resep Di Kelurahan Bahu Kecamatan Malalayang Kota Manado* (Vol. 12).
- Dompas, J., Karauwan, F. A., Widodo, Y. I. C., & Tumbel, S. L. (2021). Evaluasi Penggunaan Antibiotik Pada Kasus Sepsis Di Irina C RSUP PROF. DR. R. D. Kandou Manado. *Jurnal Biofarmasetikal Tropis*, 4(2), 80.
- Gunawan, E., Rusnaeni, R., & Febrianty, S. D. (2023). Profil Penggunaan Antibiotik pada Balita Penderita ISPA di Puskesmas Koya Barat Periode Januari-Desember 2020. *JFIOnline / Print ISSN 1412-1107 / e-ISSN 2355-696X*, 15(1), 86–93. <https://doi.org/10.35617/jfionline.v15i1.98>
- Ikasanti, P. A. I., Yulia, R., Herawati, F., Hartono, R., & Hanum, P. S. (2022). ANALYSIS OF THE USE OF ANTIBIOTICS IN ASYMPTOMATIC, MILD, AND MODERATE COVID-19 PATIENTS TREATED IN BHAYANGKARA HOSPITAL. *Jurnal Berkala Epidemiologi*, 10(2), 179–188. <https://doi.org/10.20473/jbe.v10i22022.179-188>
- Islamiyah, A. N., Septiani, V., Margayani, E., Farmasi, F., Jenderal, U., & Yani, A. (2023). *Perilaku Pengetahuan dan...* (Vol. 6, Issue 1).
- Isnaasar, A., Utami, H., & Kumala, S. (2022). Evaluasi Pengaruh Kebijakan Restriksi Antibiotik Terhadap Penggunaan Antibiotik Karbapenem. *Poltekita : Jurnal Ilmu Kesehatan*, 16(3), 368–375. <https://doi.org/10.33860/jik.v16i3.1482>
- Kementerian Kesehatan Republik Indonesia. (2021). *Peraturan Menteri Kesehatan Republik Indonesia Nomor 28 Tahun 2021 tentang Pedoman Penggunaan Antibiotik*. Jakarta: Kementerian Kesehatan RI.
- Lau, S. H. A. (2020). TINGKAT PENGETAHUAN MASYARAKAT KELURAHAN TALAMANREA JAYA DI JALAN BUNG TENTANG PENGGUNAAN ANTIBIOTIK YANG RASIONAL. *Jurnal Farmasi Sandi Karsa*, VI, 25–28.
- Limato, R., Lazarus, G., Dernison, P., Mudia, M., Alamanda, M., Nelwan, E. J., Sinto, R., Karuniawati, A., Rogier Van Doorn, H., & Hamers, R. L. (2022). *Optimizing antibiotic use in Indonesia: A systematic review and evidence synthesis to inform opportunities for intervention*. <https://doi.org/10.1016/j>
- Maha, S. R. (2024). *PERAN KOLABORASI INTERPROFESIONAL ANTAR TENAGA MEDIS SEBAGAI UPAYA MENGHINDARI RESISTENSI ANTIBIOTIK*. <https://www.researchgate.net/publication/386578006>
- Maidatuz, I. Z., & Yunitasari, F. D. (2020). TINGKAT PENGETAHUAN PETUGAS APOTEK TENTANG ANTIBIOTIK DI SIDOARJO, INDONESIA A SURVEY OF PHARMACY STAFF

- KNOWLEDGE RELATED TO ANTIBIOTICS IN SIDOARJO, INDONESIA. In *JFSP* (Vol. 6, Issue 2). <http://journal.ummg.ac.id/index.php/pharmacy>
- Pratama, S. (2022). Studi Pembelian Antibiotik Tanpa Resep di Apotek Kita, Kota Jambi. *Informasi Dan Promosi Kesehatan*, 1(1), 25–30. <https://doi.org/10.58439/ipk.v1i1.20>
- Rahmadi, A., Susilowati, S. I., & Pahriyani, A. (2024). Profil Sebaran Antibiotik Berdasarkan Klasifikasi AWaRe dan Potensi Risiko Resistensi di Indonesia. *Indonesian Journal of Pharmaceutical Education*, 4(2). <https://doi.org/10.37311/ijpe.v4i2.26944>
- Rahmawati, C., Nopitasari, B. L., Nurbaety, B., Anjani, B. L. P., Safwan, & Pradiningsih, A. (2023). EDUKASI BIJAK MENGGUNAKAN ANTIBIOTIK PADA MASYARAKAT DI PASAR BAMBU BUNJERUK. *Fakultas Ilmu Kesehatan Universitas Muhammadiyah Mataram*, 7.
- Rosyada, A., Rachmawati, A. D., Maisaroh, D. E., Andriani M, F. A., Sholihah, N., & Handayani, W. (2022). Profil Kesesuaian Terapi Antibiotik Pada Pasien Ketuban Pecah Prematur Di Rumah Sakit Islam Jemursari Surabaya. *Acta Holistica Pharmacia*, 4(2), 64–72. <https://doi.org/10.62857/ahp.v4i2.71>
- Sari, D. P., Sari, P. S., Deccati, R. F., & Elizar, L. J. A. (2023). EDUKASI KESEHATAN PENCEGAHAN RESISTENSI ANTIBIOTIK MENGGUNAKAN VIDEO ANIMASI PADA ANAK PANTI ASUHAN DI KOTA MATARAM. *Jurnal Abdi Insani*, 10(2), 707–721. <https://doi.org/10.29303/abdiinsani.v10i2.960>
- Sihite, E. N., Ramadhan, A. M., & Samsul, E. (2021). Evaluasi Penggunaan Antibiotik Secara Kuantitatif dan Kualitatif Pada Pasien Bedah Digestif di RSUD Abdul Wahab Sjahranie Samarinda. *Proceeding of Mulawarman Pharmaceuticals Conferences*, 14, 214–221. <https://doi.org/10.25026/mpc.v14i1.552>
- Syafhan, N. F., Sri Wulandah Fitriani, Dinda Bestari Sutantoputri, Nadhila Hasna Hanifah, & Adityo Susilo. (2024). Antibiotic Use Evaluation Based on AWaRe Classification in Hospitalized Patients (Intensive and Non-Intensive Care) at Universitas Indonesia Hospital. *Jurnal Sains Farmasi & Klinis*, 11(3), 161–168. <https://doi.org/10.25077/jsfk.11.3.161-168.2024>
- WHO. (2025). *Seventy-eighth World Health Assembly*. <https://www.who.int/news/item/27-05-2025-seventy-eighth-world-health-assembly---daily-update--27-may-2025>
- Wulandari, L. P. L., Khan, M., Liverani, M., Ferdiana, A., Mashuri, Y. A., Probandari, A., Wibawa, T., Batura, N., Schierhout, G., Kaldor, J., Guy, R., Law, M., Day, R., Hanefeld, J., Parathon, H., Jan, S., Yeung, S., & Wiseman, V. (2021). Prevalence and determinants of inappropriate antibiotic dispensing at private drug retail outlets in urban and rural areas of Indonesia: A mixed methods study. *BMJ Global Health*, 6(8). <https://doi.org/10.1136/bmjgh-2021-004993>
- Yulia, M., Prasono, R., & Armal, K. (2022). *PERILAKU PENGGUNAAN ANTIBIOTIK TANPA RESEP DI APOTEK X KOTA PAYAKUMBUH PADA TAHUN 2021* (Vol. 4, Issue 3).
- Yunita, M., & Sukmawati, S. (2021). Edukasi bahaya resistensi bakteri akibat penggunaan antibiotik yang tidak rasional kepada masyarakat Desa Air Salobar. *Indonesia Berdaya*, 2(1), 1–6. <https://doi.org/10.47679/ib.202173>