



DAFTAR PUSTAKA

- Alsehemi, A. F, Alharbi, E.A., Alammash, B.B., Alrais, AL.I., Elbadaway., H.M., Alahmadi, Y.M. 2023. Assessment of risk factors associated with multidrug-resistant organism infections among patients admitted in a tertiary hospital - a retrospective study. *Saudi Pharm J*, 31(6):1084–1093.
- Burnham, J., Lane, M. dan Kollef, M. 2015. Impact of sepsis classification and multidrug-resistance status on outcome among patients treated with appropriate therapy. *Crit Care Med*, 43(8):1580–1586.
- Butler-Laporte, G., De L'Étoile-Morel, S., Cheng, M.P., McDonald, E.G., Lee, TC. 2018. MRSA colonization status as a predictor of clinical infection: A systematic review and meta-analysis, *J Infect*, 77(6): 489–495.
- Byrne, M. K., Miellet, S., McGlenn, A., Fish, J., Meedy, S., Reynolds, N., van Oijen, A.M. 2019. The drivers of antibiotic use and misuse : the development and investigation of a theory driven community measure, *BMC Public Health*, 19(1): 1–11.
- Cao, H., Qiao, S., Qin, H., Jandt, K.D. 2022. Antibacterial designs for implantable medical devices: evolutions and challenges, *J Funct Biomater*, 13(3): 135.
- CDC [Homepage on the internet]. 2019. The core elements of hospital antibiotic stewardship programs: 2019., Atlanta: US Department of Health and Human Services, CDC. [Cited 2024 Jul 15]. Available from: <http://www.cdc.gov/getsmart/healthcare/implementation/core-elements.html>
- Chen, S. Y., Wu, G.H.M., Chang, S.C., Hsueh, P.R., Chiang, W.C., Lee, C.C., Ma, M.H.M., Hung, C.C., Chen, Y.C., Su., C.P, Tsai, K.C., Chen, T.H.H., Chen, S.C., Chen, W.J. 2008. Bacteremia in previously hospitalized patients: prolonged effect from previous hospitalization and risk factors for antimicrobial-resistant bacterial infections, *Ann Emerg Med*, 51(5): 639–646.
- Chis, A.A., Rus, L.L., Morgovan, C., Arseniu, A.M., Frum, A., Gligor, F.G., Mures, M.L. 2022. Microbial resistance to antibiotics and effective antibiotherapy, *Biomedicines*, 10: 1121.
- Christaki, E., Giamarellos-Bourboulis, E. J. 2014. The complex pathogenesis of bacteremia: From antimicrobial clearance mechanisms to the genetic background of the host, *Virulence*, 5(1): 57–65.
- CLSI [Homepage on the internet]. 2023. Clinical and laboratory standards institute.



- Performance standards for antimicrobial susceptibility testing, Ed.33. [Cited 2024 Sept 5]. Available from: www.clsi.org.
- Coburn, B., Morris. A.M., Tomlinson, G., Detsky A.S. 2012. Does this adult patient with suspected bacteremia require blood cultures?, *JAMA*, 308(5): 502–511.
- Cohn, C. M.[Homepage on the internet]. 2023. Supporting effective treatment for infectious disease while combating antimicrobial resistance. Wolters Kluwer [Cited 2024 Jul 15]. Available from: <https://www.wolterskluwer.com/en/expert-insights/effective-infectious-disease-treatment-combating-antimicrobial-resistance>
- Dettori, S., Portunato, F., Vena, A., Giacobbe, D.R., Bassetti, M. 2023. Severe infections caused by difficult-to-treat Gram-negative bacteria, *Curr Opin Crit Care*, 29(5): 438–445.
- Donaliazarti. 2022. Mekanisme resistansi terhadap anti mikroba. *CMJ*, 5(3): 37–45.
- Doron, S. dan Davidson, L. E. 2011. Antimicrobial stewardship, *Mayo Clin. Proc.*, 86(11): 1113–1123.
- Dzidic, S. dan Bedekovic, V. 2003. Horizontal gene transfer-emerging multidrug resistance in hospital bacteria, *Acta Pharmacol. Sin.*, 24(6): 519–526.
- Elshobary, M.E., Badawy, N.K., Ashraf, Y.Z, Asmaa, A., Masriya, H.H., Ammar, M.M., Mohamed, N.A., Mourad, S., Assy, A.M. 2025. Combating antibiotic resistance: mechanisms, multidrug-resistant pathogens, and novel therapeutic approaches: an updated review, *Pharmaceuticals*, 18(3): 402.
- EUCAST [Homepage on the internet]. Breakpoint tables for interpretation of MICs and zone diameters [Updated 2023; cited 2024 Jul 15]. Available from: https://www.eucast.org/clinical_breakpoints
- Gaub, A. dan Rahman, K. M. 2023. Evaluation of antibiotic resistance mechanisms in Gram-negative bacteria, *Antibiotics*, 12(11):1590
- Gauer, R., Forbes, D., Army, W., Bragg, F., Carolina, N. 2020. Sepsis : diagnosis and management, *Am. Fam. Physician*,101(7): 409–418.
- Holmes, A.H., Moore, L.S.P., Sundsfjord, A., Steinbakk, M., Regmi, S., Karkey, A., Guerin, P.J., Piddock, L.J.V. 2016. Understanding the mechanisms and drivers of antimicrobial resistance, *The Lancet*, 387(10014): 176–187.
- Huh, K., Chung, D.R., Ha, Y.E., Ko, J.H., Kim, S.H., Kim, M.J., Huh, H.J., Lee, N.Y., Cho, S.Y., Kang, C.I., Peck, K.R., Song, J.H. 2020. Impact of difficult-to-



- treat resistance in Gram-negative bacteremia on mortality: Retrospective analysis of nationwide surveillance data, *Clin. Infect. Dis.*, 71(9): E487–E496.
- Kadri, S.S. Adjemian, J., Lai, Y.L., Spaulding, A.B., Ricotta, E., Prevots, D.R., Palmore, T.N., Rhee, C., Klompas, M., Dekker, J.P., Powers, J.H., Suffredini, A.F., Hooper, D.C., Fridkin, S., Danner, R.L. 2018. Difficult-to-treat resistance in Gram-negative bacteremia at 173 US hospitals: Retrospective cohort analysis of prevalence, predictors, and outcome of resistance to all first-line agents, *lin. Infect. Dis.*, 67(12): 1803–1814.
- Kalluru, S., Eggers, S., Barker, A., Shirley, D., Sethi, A.K., Sengupta, S., Yeptho, K., Safdar, N. 2018. Risk factors for infection with multidrug-resistant organisms in Haryana, India, *Am J Infect Control*, 46(3): 341–345.
- Kim, T.W., Lee, S.U., Park, B., Jeon, K., Park, S., Suh, G.Y., Oh, D.K., Lee, S.Y., Park, M.H., Lee, H., Lim, C.M., Ko, R.E., Hong, S.B., Hong, S.K., Lee, Y.J., *et al.*. 2023. Clinical effects of bacteremia in sepsis patients with community-acquired pneumonia, *BMC Infect. Dis.*, 23(1): 1–9.
- Komori, A., Abe, T., Kushimoto, S., Ogura, H., Shiraishi, A., Saitoh, D., Fujishima, S., Mayumi, T., Naito, T., Hifumi, T., *et al.* 2020. Characteristics and outcomes of bacteremia among ICU-admitted patients with severe sepsis, *Scientific Reports*, 10(1): 1–8.
- Kroneislová, G., Závora, J., Adámková, V.G., Rýdlová, A., Adámková, V. 2024. In vitro activity of antibiotics potentially effective against difficult-to-treat strains of Gram-negative rods: retrospective study, *Scientific Reports*, 14(1): 1–8.
- Kumar, N.R., Balraj, T.A., Kempegowda, S.N., Prashant, A. 2024. Multidrug-resistant sepsis: a critical healthcare challenge, *Antibiotics*, 13(1): 1–38.
- Kyriakidis, I., Vasileiou, E., Pana, Z.D., Tragiannidis, A. 2021. Acinetobacter baumannii antibiotic resistance mechanisms, *Pathogens*, 10(3): 1–31.
- Laupland, K. dan Church, D. 2014. Population-based epidemiology and microbiology of community-onset bloodstream infections, *Clin Microbiol Rev*, 27: 647–664.
- Leal, H.F., Azevedo, J., Silva, G.E.O., Amorim, A.M.L., De Roma, L.R.C., Arraes, A.C.P., Gouveia, E.L., Reis, M.G., Mendes, A.V., De Oliveira Silva, M., Barberino, M.G., Martins, I.S., Reis, J.N. 2019. Bloodstream infections caused by multidrug-resistant gram-negative bacteria: Epidemiological, clinical and microbiological features, *BMC Infect. Dis.*, 19(1): 1–11.



- Lye, D. C., Earnest, A., Ling, M. L., Lee, T. E., Yong, H. C., Fisher, D. A., Krishnan, P., Hsu, L. Y. 2012. The impact of multidrug resistance in healthcare-associated and nosocomial Gram-negative bacteraemia on mortality and length of stay: Cohort study, *Clin Microbiol and Infect*, 18(5): 502–508.
- Magill, S.S., Edwards, J.R., Bamberg, W., Beldavs, Z.G., Dumyati, G., Kainer, M. A., Lynfield, R., Maloney, M., McAllister-Hollod, L., Nadle, J., Ray, S.M., Thompson, D.L., Wilson, L.E., Scott, K.F. 2014. Multistate point-prevalence survey of health care–associated infections, *N Engl J Med*, 370(13): 1198–1208.
- Magiorakos, A. P., Srinivasan, A., Carey, R. B., Carmeli, Y., Falagas, M. E., Giske, C. G., Harbarth, S., Hindler, J. F., Kahlmeter, G., Olsson-Liljequist, B., Paterson, D. L., Rice, L. B., Stelling, J., Struelens, M. J., Vatopoulos, A., Weber, J. T., Monnet, D. L. 2012. Multidrug-resistant, extensively drug-resistant and pandrug-resistant bacteria: An international expert proposal for interim standard definitions for acquired resistance’, *Clin Microbiol and Infect*, 18(3): 268–281.
- Menz, B.D., Charani, E., Gordon, D.L., Leather, A.J.M., Moonesinghe, S.R., Phillips, C.J. 2021. Surgical antibiotic prophylaxis in an era of antibiotic resistance: common resistant bacteria and wider considerations for practice, *Infect. Drug Resist.*, 14: 5235–5252.
- Monegro, A.F. dan Muppidi, V. R. H. 2024. Hospital-acquired infections, in *StatPearls*. Florida: StatPearls Publishing [Cited 2024 Jul 15]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK441857/>.
- Naber, CK., Baddour, L.M., Giamarellos-Bourboulis, E.J., Gould, I.M., Herrmann, M., Hoen, B., Karchmer, A.W., Kobayashi, Y., Kozlov, R.S., Lew, D., Miró, J.M., Moellering, R.C., Moreillon, P., Peters, G., Rubinstein, E., Seifert, H., Corey, G.R. 2009. Clinical consensus conference: survey on Gram-positive bloodstream infections with a focus on *Staphylococcus aureus*, *Clin Infect Dis*, 48: Suppl 4: s260–s270.
- Oami, T., Imaeda, T., Nakada, T., Abe, T., Takahashi, N., Yamao, Y., Nakagawa, S., Ogura, H., Shime, N., Umemura, Y., Matsushima, A., Fushimi, K. 2022. Temporal trends of medical cost and cost-effectiveness in sepsis patients: a Japanese nationwide medical claims database, *J. Intensive Care*, 10(1): 1–11.
- Permenkes RI. 2021. Pedoman Penggunaan Antibiotik. Permenkes RI: 1–97.
- Pop-Vicas, A. E. dan D’Agata, E. M. C. 2005. The rising influx of multidrug-resistant gram-negative bacilli into a tertiary care hospital, *Clin Infect Dis*, 40(12): 1792–1798.



- Pradipta, I. 2009. Evaluasi penggunaan antibiotik pada pasien sepsis di bangsal penyakit dalam RSUP Dr. Sardjito, Yogyakarta September-November 2008. *Tesis*. Universitas Gadjah Mada, Yogyakarta.
- Pradipta, I.S., Sodik, D.C., Lestari, K., Parwati, I., H. E., Diantini, A., Abdulah, R. 2013. Antibiotic resistance in sepsis patients: Evaluation and recommendation of antibiotic use, *N. Am. J. Med. Sci.*, 5(6): 344–352.
- Prina, E., Ranzani, O.T., Polverino, E., Cilloniz, C., Ferre, M., Fernandez, L., Bellacasa, J.P., Menendez, R., Mensa, J., Torres, A. 2015. Risk factors associated with potentially antibiotic-resistant pathogens in community-acquired pneumonia, *Ann. Am. Thorac. Soc*, 12(2): 153–160.
- Prinzi, A. dan Rohde, R. 2023. The Role of Bacterial Biofilms in Antimicrobial Resistance, American Society for Microbiology [Cited 2025 May 29]. Available from: <https://asm.org/articles/2023/march/the-role-of-bacterial-biofilms-in-antimicrobial-re>
- Recioa, R., Mancheñob, M., Viedmaa, E., Villaa, J., Orellanaa, Á., Lora-Tamayob, J., Chaves, F. 2020. Predictors of mortality in bloodstream infections caused by *Pseudomonas aeruginosa* and impact of antimicrobial resistance and bacterial virulence, *Antimicrob Agents Chemother*, 64(2): 1–13.
- Rudd, K.E., Johnson, S.C., Agesa, K.M., Shackelford, K.A., Tsoi, D., Kievlan, D.R., Colombara, D.V., Ikuta, K.S., Kissoon, N., Finfer, S., Fleischmann-Struzek, C., *et al.* 2020. Global, regional, and national sepsis incidence and mortality, 1990–2017: analysis for the Global Burden of Disease Study, *The Lancet*, 395(10219): 200–211.
- Sari, S. K., Dahesihdewi, A. dan Sianipar, O. 2023. Blood culture positivity rate: antibiogram impact before sample collection in sepsis patients, *Indones. J. Clinical Pathol. Med. Laboratory*, 29(3): 250–255.
- Singer, M., Deutchman., Seymour, C.W., Shankar-Hari, M., Annane, D., Bauer, M., Bellomo, R., Bernard, G.R., Chiche, J.D., Coopersmith, C.M., Hotchkiss, R.S., Levy, M.M., *et al.* 2016. The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3), *JAMA*, 315(8): 801–810.
- Soleha, T. (2019) ‘Uji kepekaan terhadap antibiotik’, *Juke Unila*, 5(9), pp. 119–123.
- Struelens, M. J. 1998. The epidemiology of antimicrobial resistance in hospital acquired infections: Problems and possible solutions’, *BMJ*, 317(7159): 652–654



- Sulis, G., Sayood, S., Katukoori, S., Bollam, N., George, I., Yaeger, L.H., Chavez, M.A., Tetteh, E., Yarrabelli, S., Pulcini, C., Harbarth, S., Mertz, D., Sharland, M., Moja, L., Huttner, B., Gandra, S. 2022. Exposure to World Health Organization's AWaRe antibiotics and isolation of multidrug resistant bacteria: a systematic review and meta-analysis, *Clin Microbiol and Infect*, 28(9): 1193–1202.
- Sweeney, T. E., Liesenfeld, O. dan May, L. 2019. Diagnosis of bacterial sepsis: why are tests for bacteremia not sufficient?, *Expert Rev. Mol. Diagn.*, 19(11): 959–962.
- Tabah, A., Buetti, N., Staiquly, Q., Ruckly, S., Akova, M., Aslan, A.T., Leone, M., Morris, A.C., Bassetti, M., Arvaniti, K., Lipman, J., Ferrer, R., Qiu, H., Paiva, J.A., Povoas, P., *et al.* 2023. Epidemiology and outcomes of hospital-acquired bloodstream infections in intensive care unit patients: the EUROBACT-2 international cohort study, *Intensive Care Med*, 49: 178–190.
- Tamma, P.D., Aitken, S.L., Bonomo, R.A., Mathers, A.J, van Duin, D., Clancy, C. 2021. Infectious diseases society of America guidance on the treatment of extended-spectrum β -lactamase producing Enterobacterales (ESBL-E), Carbapenem-resistant Enterobacterales (CRE), and *Pseudomonas aeruginosa* with difficult-to-treat resistance (DTR- *P. aeruginosa*), *Clin Infect Dis*, 72(7): e169–e183.
- Tankeshwar, A. [Homepage on the internet]. 2025. Minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC). Bacteriology [Cited 2025 April 24]. Available from: https://microbeonline.com/minimum-inhibitory-concentration-and-minimum-bactericidal-concentration-#Agar_dilution_method
- Uddin, T.M., Chakraborty, A.J., Khusro, A., Zidan, B.M.R.M., Mitra, S., Emran, T.B., Dhama, K., Ripon, Md.K.H., Gajdács, M., Sahibzada, M.U.K., Hossain, Md.J., Koirala, N. 2021. Antibiotic resistance in microbes: History, mechanisms, therapeutic strategies and future prospects. *J. Infect. Public Health*, 14(12): 1750–1766.
- Vera, S., Martinez, R., Gormaz, J.G., Gajardo, A., Galleguillos, F., Rodrigo, R. 2015. Novel relationships between oxidative stress and angiogenesis-related factors in sepsis: New biomarkers and therapies, *Annals of Medicine*, 47(4): 289–300.
- Vincent, J.L., Sakr, Y., Singer, M., Martin-Loeches, I., Machado, F.R., Marshall, J.C., Finfer, S., Pelosi, P., Brazzi, L., Aditjaningsih, D., Timsit, J.F., Du, B.,



Wittebole, X., *et al.* 2020. Prevalence and outcomes of infection among patients in intensive care units in 2017, *JAMA*, 323(15): 1478–1487.

WHO Regional Office for Europe/European Centre for Disease Prevention and Control. 2022. Antimicrobial resistance surveillance in Europe 2022 – 2020 data. Copenhagen: WHO Regional Office for Europe.

Yang, P., Liu, C., Wu, Z., Zheng, J., Yi, J., Wu, N., Wu, Z., Lu, M., Cui, L., Shen, N. 2022. Clinical outcomes, microbiological characteristics and risk factors for difficult-to-treat resistance to *Klebsiella pneumoniae* infection, *Infect and Drug Resist*, 15: 5959–5969.

Yiang, G.T., Tzeng, I., Shui, H.A., Wu, M.Y., Peng, M.Y., Chan, C.Y., Chan, E.D., Wu, Y.K., Lan, C.C., Yang, M.C., Huang, K.L., Wu, C.W., Chang, C.H., S.U, W.L. 2021. Early screening of risk for multidrug-resistant organisms in the emergency department in patients with pneumonia and early septic shock: single-center, retrospective cohort study, *Shock*, 55(2): 198–209.

Zanichelli, V., Sharland, M., Cappello, B., Moja, L., Getahun, H., Pessoa-Silva, C., Sati, H., van Weezenbeek, C., Balkhy, H., Simão, M., Gandra, S., Huttner, B. 2023. The WHO AWaRe (Access, Watch, Reserve) antibiotic book and prevention of antimicrobial resistance, *Bull World Health Organ*, 101(4): 290–296.