

DAFTAR PUSTAKA

- Adam, C., Keen, B., Tou, K., Elbourne, M., & Keledjian, J. (2022). Biomarker ratios. *Drug Test Anal* 14 : 983–990.
- Alanli, R., Küçükay, M.B., & Yalçın, K.S. (2020). Procalcitonin/Albumin Ratio: Could it be a Novel Marker Indicating Severity of Inflammation in Pneumonia? A Retrospective Study in Elderly Patients with Community-acquired Pneumonia. *J. Geriatr. Sci.* 3 : 11–17.
- Ambaringrum, S.L., Hernaningsih, Y., Kusuma, E., & Kahar, H. (2022). Cut-Off Value of Procalcitonin in Sepsis and Septic Shock patients at Dr. Soetomo Hospital. *Indones. J. Clin. Pathol. Med. Lab.* 28 : 179–184.
- Aulia, M., Triratna, S., Iriani, Y., Bakri, A., & Saputra, I. (2021). Pediatric sofa score for detecting sepsis in children. *Paediatr. Indones. Indones.* 61 : 1–7.
- Aygun, F. (2018). Procalcitonin Value Is an Early Prognostic Factor Related to Mortality in Admission to Pediatric Intensive Care Unit. *Crit. Care Res. Pract.* 1 : 1–5.
- Botan, E., Gün, E., Şden, E.K., Yöndem, C., Gurbanov, A., Balaban, B., *et al.* (2022). Characteristics and timing of mortality in children dying in pediatric intensive care: a 5-year experience. *Acute Crit. Care* 37 : 644–653.
- Çakırca, T.D., Çakırca, G., Torun, A., Bindal, A., Üstünel, M., & Kaya, A. (2023). Comparing the predictive values of procalcitonin/albumin ratio and other inflammatory markers in determining COVID-19 severity. *Pak J Med Sci* 39 : 450–455.
- Carter, M.J., Carrol, E.D., Ranjit, S., Mozun, R., Kisson, N., Watson, R.S., *et al.* (2024). Susceptibility to childhood sepsis, contemporary management, and future directions. *Lancet Child Adolesc. Heal.* 8 : 682–694.
- Chalisah, L., Sovira, N., Amna, E.Y., Anidar, A., Haris, S., & Bakhtiar, B. (2024). Risk factors for acute kidney injury in children with critical illness. *Paediatr. Indones.* 64 : 398–404.
- Chen, L., Wu, X., Qin, H., & Zhu, H. (2021). The PCT to Albumin Ratio Predicts Mortality in Patients With Acute Kidney Injury Caused by Abdominal Infection- Evoked Sepsis. *Front. Nutr.* 8 : 1–6.
- Chien, S.C., Chen, C.Y., Lin, C.F., & Yeh, H.I. (2017). Critical appraisal of the role of serum albumin in cardiovascular disease. *Biomark. Res.* 5 : 1–9.
- Chisti, M.J., Salam, M.A., Bardhan, P.K., Faruque, A.S.G., Shahid, A.S.M.S.B., Shahunja, K.M., *et al.* (2015). Severe sepsis in severely Malnourished Young Bangladeshi children with pneumonia: A retrospective case control study. *PLoS One* 10 : 2–11.
- Dauhan, A.C., Lubis, A.D., & Lubis, M. (2021). Vasoactive-inotropic Score for Early Detection and Mortality Prediction of Sepsis in Children. *Indones. Biomed. J.* 13 : 34–39.
- Deng, S., Gao, J., Zhao, Z., Tian, M., Li, Y., & Gong, Y. (2019). Albumin/Procalcitonin Ratio Is a Sensitive Early Marker of Nosocomial Blood Stream Infection in Patients with Intra-Cerebral Hemorrhage. *Surg. Infect. (Larchmt).* 20 : 643–649.
- Dhochak, N., & Lodha, R. (2022). Vasoactive–Inotropic Score: An Objective Indicator of Cardiovascular Dysfunction in Children with Septic Shock? *Indian J. Pediatr.* 89

: 425–426.

- Dipasquale, V., Cucinotta, U., & Romano, C. (2020). Acute malnutrition in children: Pathophysiology, clinical effects and treatment. *Nutrients* 12 : 1–9.
- Ergenc, H., Ergenc, Z., Ozturk, C.K., Gozdas, H.T., Ocak, O.K., & Ince, O.S.E.- (2022). Procalcitonin/Albumin Ratio as a Novel Biomarker for Predicting Mortality in COVID-19. *J. Pioneer. Med. Sci.* 11 : 3–7.
- Evans, L., Rhodes, A., Alhazzani, W., Antonelli, M., Coopersmith, C.M., French, C., *et al.* (2021). Surviving sepsis campaign: international guidelines for management of sepsis and septic shock 2021. *Intensive Care Med.* 47 : 1181–1247.
- Felder, S., Braun, N., Stanga, Z., Kulkarni, P., Faessler, L., Kutz, A., *et al.* (2016). Unraveling the Link between Malnutrition and Adverse Clinical Outcomes: Association of Acute and Chronic Malnutrition Measures with Blood Biomarkers from Different Pathophysiological States. *Ann. Nutr. Metab.* 68 : 164–172.
- Ghuman, A.K., Newth, C.J.L., & Khemani, R.G. (2013). Impact of gender on sepsis mortality and severity of illness for prepubertal and postpubertal children. *J. Pediatr.* 163 : 835–840.
- Gremese, E., Bruno, D., Varriano, V., Perniola, S., Petricca, L., & Ferraccioli, G. (2023). Serum Albumin Levels: A Biomarker to Be Repurposed in Different Disease Settings in Clinical Practice. *J. Clin. Med.* 12 : 1–15.
- Guo, S.Y., Zhou, Y., Hu, Q.F., Yao, J., & Wang, H. (2015). Procalcitonin is a marker of gram-negative bacteremia in patients with sepsis. *Am. J. Med. Sci.* 349 : 499–504.
- Handayani, N., Lardo, S., & Nugrohowati, N. (2022). Difference of Procalcitonin Levels in Gram-Positive and Gram-Negative Bacterial Sepsis Patients of Indonesia Army Central Hospital Gatot Soebroto in 2016. *JUXTA J. Ilm. Mhs. Kedokt. Univ. Airlangga* 13 : 38–41.
- Hasa, V.S., Sahoo, B., Jain, M.K., Behera, M.R., & Patnaik, S. (2025). Procalcitonin-to-Albumin Ratio vs . C-reactive Protein-to-Albumin Ratio in Predicting Sepsis and Its Severity in Children : A Prospective Observational Study 17 : 1–9.
- Hermon, M.M., Etmayr, T., Brandt, J.B., Sadeghi, K., Burda, G., & Golej, J. (2021). Pediatric infection and sepsis in five age subgroups: single-center registry. *Wiener Medizinische Wochenschrift* 171 : 29–35.
- Jalan, R., & Bernardi, M. (2013). Effective albumin concentration and cirrhosis mortality: From concept to reality. *J. Hepatol.* 59 : 918–920.
- Kallekkattu, D., Rameshkumar, R., Chidambaram, M., Krishnamurthy, K., Selvan, T., & Mahadevan, S. (2022). Threshold of Inotropic Score and Vasoactive–Inotropic Score for Predicting Mortality in Pediatric Septic Shock. *Indian J. Pediatr.* 89 : 432–437.
- Keim, G., Percy, A.G., Himebauch, A.S., Hsu, J.Y., Christie, J.D., & Yehya, N. (2023). Acute respiratory failure-related excess mortality in pediatric sepsis. *Thorax* 78 : 1135–1137.
- Kementerian Kesehatan Republik Indonesia (2021). Pedoman Nasional Pelayanan Kedokteran Tata Laksana Sepsis Pada Anak. Jakarta: Kemenkes RI; h. 1–55.
- Kendall, H., Abreu, E., & Cheng, A.L. (2019). Serum Albumin Trend Is a Predictor of Mortality in ICU Patients With Sepsis. *Biol. Res. Nurs.* 21 : 237–244.
- Kennedy, U.K., Moulin, J., Bühner, L., Nian, J.L.F., Halter, L., Böhni, L., *et al.* (2025). Sex Differences in Pediatric Sepsis Mortality: A Systematic Review and Meta-

- Analysis. *Crit. Care Explor.* 7 : 1–14.
- Keskin, A., & Aci, R. (2024). Procalcitonin to Albumin Ratio as A Biomarker for Predicting Mortality in Sepsis. *J Coll Physicians Surg Pak* 34 : 360–363.
- Kim, Y.S., Sol, I.S., Kim, M.J., Kim, S.Y., Kim, J.D., Kim, Y.H., *et al.* (2017). Serum Albumin as a Biomarker of Poor Prognosis in the Pediatric Patients in Intensive Care Unit. *Korean J. Crit. Care Med.* 32 : 347–355.
- Klein, M., Israeli, A., Hassan, L., Binyamin, Y., Frank, D., Boyko, M., *et al.* (2022). Can the Duration of In-Hospital Ventilation in Patients with Sepsis Help Predict Long-Term Survival? *J. Clin. Med.* 11 : 1–8.
- Kumar, H.G., Kanakaraju, K., Manikandan, V.A.C., Patel, V., & Pranay, C. (2024). The Relationship Between Serum Albumin Levels and Sepsis in Patients Admitted to a Tertiary Care Center in India. *Cureus* 16 : 1–9.
- Kumar, L.B., & Gowda, M.A.S. (2025). Comparative Analysis of CRP / Albumin Ratio , Procalcitonin / Albumin Ratio , and Lactate / Albumin Ratio for Predicting 28-Day Mortality in ICU Patients with Sepsis. *J. Chem. Heal. Risks* 15 : 121–129.
- Kusma, J., Andrew, R., Mirea, L., Gage, S., & Kafle, M. (2023). Procalcitonin:Albumin Ratio as Predictor of Bacterial Infection in Febrile Infants. *J. Hosp. Med.* 1 : 192.
- Leteurtre, S., Duhamel, A., Salleron, J., Grandbastien, B., Lacroix, J., & Leclerc, F. (2013). PELOD-2: An Update of PEdiatric Logistic Organ Dysfunction Score. *Crit. Care Med.* 41 : 1761–1773.
- Li, F., Ye, Z., Zhu, J., Gu, S., Peng, S., Fang, Y., *et al.* (2023). Early Lactate/Albumin and Procalcitonin/ Albumin Ratios as Predictors of 28-Day Mortality in ICU-Admitted Sepsis Patients: A Retrospective Cohort Study. *Med. Sci. Monit.* 29 : 1–16.
- Li, T., Li, X., Liu, X., Zhu, Z., Zhang, M., Xu, Z., *et al.* (2022). Association of Procalcitonin to Albumin Ratio with the Presence and Severity of Sepsis in Neonates. *J. Inflamm. Res.* 15 : 2313–2321.
- Li, T., Li, X., Zhu, Z., Liu, X., Dong, G., Xu, Z., *et al.* (2023). Clinical value of procalcitonin-to-albumin ratio for identifying sepsis in neonates with pneumonia. *Ann. Med.* 55 : 920–925.
- Liu, N., Ren, J., Yu, L., & Xie, J. (2020). Mechanical ventilation associated with worse survival in septic patients: a retrospective analysis of MIMIC-III. *J. Emerg. Crit. Care Med.* 4 : 1–8.
- Lubis, M., Lubis, A.D., & Nasution, B.B. (2020). The Usefulness of C-Reactive Protein, Procalcitonin, and PELOD-2 Score as a Predictive Factor of Mortality in Sepsis. *Indones. Biomed. J.* 12 : 102–108.
- Luo, X., Yang, X., Li, J., Zou, G., Lin, Y., Qing, G., *et al.* (2018). The procalcitonin/albumin ratio as an early diagnostic predictor in discriminating urosepsis from patients with febrile urinary tract infection. *Med. (United States)* 97 : 1–6.
- Manas, S.A.A., Ibrahim, K., Mukmin, L.A., & Shukeri, W.F.W.M. (2024). Procalcitonin to Albumin Ratio as a Predictor of Intensive Care Unit Mortality in Sepsis. *J. Crit. Intensive Care* 15 : 23–29.
- Markanday, A. (2015). Acute Phase Reactants in Infections: Evidence-Based Review and a Guide for Clinicians. *Open Forum Infect. Dis.* 2 : 1–7.
- Mathias, B., Mira, J., & Larson, S.D. (2017). Pediatric Sepsis. *Curr Opin Pediatr* 28 :

380–387.

- Memar, M.Y., Varshochi, M., Shokouhi, B., Asgharzadeh, M., & Kafil, H.S. (2017). Procalcitonin: The marker of pediatric bacterial infection. *Biomed. Pharmacother.* 1 : 1–8.
- Miranda, M., & Nadel, S. (2023). Septic shock: early rapid recognition and ongoing management. *Paediatr. Child Health (Oxford)*. 33 : 134–143.
- Mohamed, S.A., & Elhawary, R. (2020). C-Reactive Protein/Albumin Ratio as an Independent Predictor of Mortality in Critically Ill Pediatric Patients. *J. Child Sci.* 10 : 1–11.
- Musick, M.A., Loftis, L.L., & Kennedy, C.E. (2018). Comparing vasoactive-inotropic score reporting strategies in the PICU relative to mortality risk. *Pediatr. Crit. Care Med.* 19 : 1130–1136.
- Nargis, W., Ibrahim, M., & Ahamed, B. (2014). Procalcitonin versus C-reactive protein: Usefulness as biomarker of sepsis in ICU patient. *Int. J. Crit. Illn. Inj. Sci.* 4 : 195.
- Page, A.L., De Rekeneire, N., Sayadi, S., Aberrane, S., Janssens, A.C., Dehoux, M., *et al.* (2014). Diagnostic and prognostic value of procalcitonin and C-reactive protein in malnourished children. *Pediatrics* 133 : e363–e370.
- Palupi, M., Dahesihdewi, A., & Sianipar, O. (2020). Rasio Prokalsitonin Albumin Sebagai Prediktor Urosepsis pada Pasien Infeksi Saluran Kemih. *Thesis*. Universitas Gadjah Mada: Yogyakarta. h. 70-71
- Pattinasarany, L.C., Nurnaningsih, & Noormanto (2023). Nilai Skor Vasoaktif-Inotropik sebagai Prediktor Mortalitas pada Anak dengan Syok Sepsis. *Thesis*. Universitas Gadjah Mada: Yogyakarta. h. 1-107.
- Peshimam, N., & Nadel, S. (2021). Sepsis in children: state-of-the-art treatment. *Ther Adv Infect. Dis* 8 : 1–11.
- Pudjiadi, A.H., Pramesti, D.L., Pardede, S.O., Djer, M.M., Rohsiswatmo, R., & Kaswandani, N. (2021). Validation of the vasoactive-inotropic score in predicting pediatric septic shock mortality: A retrospective cohort study. *Int. J. Crit. Illn. Inj. Sci.* 11 : 117–122.
- Randolph, A.G., & McCulloh, R.J. (2014). Pediatric sepsis: Important considerations for diagnosing and managing severe infections in infants, children, and adolescents. *Virulence* 5 : 172–182.
- Ranzani, O.T., Zampieri, F.G., Forte, D.N., Azevedo, L.C.P., & Park, M. (2013). C-Reactive Protein/Albumin Ratio Predicts 90-Day Mortality of Septic Patients. *PLoS One* 8 : 1–8.
- Rey, C., Los Arcos, M., Concha, A., Medina, A., Prieto, S., Martinez, P., *et al.* (2007). Procalcitonin and C-reactive protein as markers of systemic inflammatory response syndrome severity in critically ill children. *Intensive Care Med.* 33 : 477–484.
- Rout, N.K., Pradhan, S.K., Patro, S., & Pattanaik, A.P. (2022). Procalcitonin albumin ratio: A useful predictor in intervention of urosepsis from febrile urinary tract infection. *Int. J. Health Sci.* 6 : 9067–9075.
- Rupali, P., Afzal, A., & Mishra, P. (2020). Should serial monitoring of procalcitonin be done routinely in critically ill patients of ICU: A systematic review and meta-analysis. *J. Anaesthesiol. Clin. Pharmacol.* 36 : 458–464.
- Rusmawatingtyas, D., Rahmawati, A., Makrufardi, F., Mardhiah, N., Murni, I.K., Uiterwaal, C.S.P.M., *et al.* (2021). Factors associated with mortality of pediatric

- sepsis patients at the pediatric intensive care unit in a low-resource setting. *BMC Pediatr.* 21 : 1–10.
- Sanchez, A.M.L., Sa, F., Paed, M., Pienaar, M.A., Sa, F., Crit, C., *et al.* (2025). Association between serum procalcitonin levels and outcomes of patients admitted to two tertiary paediatric intensive care units in Bloemfontein : A retrospective analytical study 41 : 40–44.
- Sankar, J., & Singhi, S. (2020). Sepsis and Septic Shock: Pediatric Considerations, in: Todi, S., Dixit, S.B., Chaudhry, D., & Mehta, Y. (Eds.), *Critical Care Update*. pp. 497–507, New Delhi : Jaypee Brothers Medical Publishers.
- Schlapbach, L.J., Watson, R.S., Sorce, L.R., Argent, A.C., Menon, K., Hall, M.W., *et al.* (2024). International Consensus Criteria for Pediatric Sepsis and Septic Shock. *JAMA* 1 : 1–10.
- Seifu, A., Eshetu, O., Tafesse, D., & Hailu, S. (2022). Admission pattern, treatment outcomes, and associated factors for children admitted to pediatric intensive care unit of Tikur Anbessa specialized hospital, 2021: a retrospective cross-sectional study. *BMC Anesthesiol.* 22 : 1–8.
- Shalaby, M.A., Alhasan, K.A., Sandokji, I.A., Albanna, A.S., Almukhtar, Z., Elhaj, H.K., *et al.* (2024). Sepsis-Associated Acute Kidney Injury in Critically Ill Children: Incidence and Outcomes. *J. Clin. Med.* 13 : 1–13.
- Starr, M.C., Banks, R., Reeder, R.W., Fitzgerald, J.C., Pollack, M.M., Meert, K.L., *et al.* (2020). Severe Acute Kidney Injury is Associated with Increased Risk of Death and New Morbidity After Pediatric Septic Shock. *Pediatr Crit Care Med* 21 : 686–695.
- Suari, N.M.R., Latief, A., & Pudjiadi, A.H. (2021). New pelod-2 cut-off score for predicting death in children with sepsis. *Paediatr. Indones. Indones.* 61 : 39–45.
- Takrani, K.G., & Kumbhar, S.G. (2022). Study of hypoalbuminemia in paediatric intensive care unit admitted children. *Int. J. Contemp. Pediatr.* 9 : 371–375.
- Tangelangi, M., Djami, S.W., Bia, M.B., & Astuti, A. (2022). Serum total protein and albumin levels among malnourished elementary-aged children East Nusa Tenggara, Indonesia. *Public Heal. Indones.* 8 : 110–115.
- Unit Kerja Koordinasi Emergensi dan Rawat Intensif Anak dan Unit Kerja Koordinasi Infeksi dan Penyakit Tropik (2016). Hadinegoro, S.R.S, Chairulfatah, A., Latief, A., Pudjiadi, A.H., Malisie, R.F., Alam, A (Eds). *Konsensus Diagnosis dan Tata Laksana Sepsis Pada Anak*, 1st ed. Jakarta : Badan Penerbit Ikatan Dokter Anak Indonesia. h. 1-16
- Uppala, R., Sitthikarnkha, P., Kriengwatanasiri, A., Techasatian, L., Saengnipanthkul, S., Niamsanit, S., *et al.* (2025). Serum procalcitonin and procalcitonin clearance as a prognostic biomarker of sepsis in a pediatric critical care setting: A tertiary care experience 2016–2021. *PLoS One* 20 : 1–8.
- Vijayan, A.L., Ravindran, S., Saikant, R., Lakshmi, S., Kartik, R., & Manoj, G. (2017). Procalcitonin: A promising diagnostic marker for sepsis and antibiotic therapy. *J. Intensive Care* 5 : 1–7.
- Watson, R.S., Carrol, E.D., Carter, M.J., Kissoon, N., Ranjit, S., & Schlapbach, L.J. (2024). The burden and contemporary epidemiology of sepsis in children. *Lancet Child Adolesc. Heal.* 8 : 670–681.
- Weiss, S.L., Fitzgerald, J.C., & Balamuth, F. (2021). Let Us Not Forget Early Mortality in Pediatric Sepsis. *Pediatr. Crit. Care Med.* 22 : 434–436.

- Weiss, S.L., Peters, M.J., Alhazzani, W., Agus, M.S.D., Flori, H.R., Inwald, D.P., *et al.* (2020). Surviving sepsis campaign international guidelines for the management of septic shock and sepsis-associated organ dysfunction in children. *Pediatr. Crit. Care. Med.* 21(2):e52-e106.
- Wulandari, A., Martuti, S., & Kaswadi, P. (2017). Perkembangan diagnosis sepsis pada anak. *Sari Pediatr.* 19 : 237–244.
- Xu, H.G., Tian, M., & Pan, S.Y. (2022). Clinical utility of procalcitonin and its association with pathogenic microorganisms. *Crit. Rev. Clin. Lab. Sci.* 59 : 93–111.
- Yuniar, I., Karyanti, M.R., Kurniati, N., & Handayani, D. (2023). The clinical and biomarker approach to predict sepsis mortality in pediatric patients. *Paediatr. Indones. Indones.* 63 : 37–44.
- Yuniar, I., Setianingsih, U.K., Pardede, S.O., Kadim, M., Iskandar, A.T.P., & Prawira, Y. (2022). Vascular Reactivity Index and PELOD-2 as a mortality predictor in paediatric septic shock: a single-centre retrospective study. *BMJ Paediatr. Open* 6 : 1–6.
- Zarei, H., Azimi, A., Ansarian, A., Raad, A., Tabatabaei, H., Roshdi Dizaji, S., *et al.* (2025). Incidence of acute kidney injury-associated mortality in hospitalized children: a systematic review and meta-analysis. *BMC Nephrol.* 26 : 1–22.
- Zhang, X., Zhang, L., Wei, C., Feng, L., Yang, J., Zhang, G., *et al.* (2022). U-shaped association between serum albumin and pediatric intensive care unit mortality in critically ill children. *Front. Nutr.* 9 : 1–9.