

Sistem Penilaian **Trauma:** Konsep Dasar dan **Aplikasi Klinis**

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Puji syukur ke hadirat Tuhan Yang Maha Esa atas rahmat dan karunia-Nya, sehingga buku Referensi berjudul **Sistem Penilaian Trauma: Konsep Dasar dan Aplikasi Klinis** dapat diselesaikan dengan baik. Buku ini disusun untuk memberikan wawasan yang mudah dipahami mengenai berbagai sistem penilaian trauma dan prediksi mortalitas yang digunakan dalam pelayanan kesehatan, mulai dari prinsip-prinsip dasar hingga penerapannya dalam praktik klinis.

Buku ini ditujukan untuk diperjualbelikan kepada masyarakat umum sebagai sarana penyebaran pengetahuan yang bermanfaat. Penulis berharap isi buku ini dapat memberikan nilai tambah, memperluas wawasan, serta menjadi bacaan yang berguna bagi setiap pembaca. Semoga buku ini memberikan manfaat yang sebesar-besarnya bagi semua pihak.

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Daftar Pustaka

- Alonge, T. O., et al. (2021). Trauma scoring systems and outcome prediction in trauma patients. *African Journal of Emergency Medicine*.
- American College of Emergency Physicians. (2021). Emergency department planning and resource guidelines. ACEP.
- American College of Surgeons Committee on Trauma. (2018). *Advanced trauma life support (ATLS) student course manual*.
- American College of Surgeons. (2018). *Advanced trauma life support (ATLS): Student course manual* (10th ed.). American College of Surgeons.
- American College of Surgeons. (2020). *Advanced trauma life support student course manual* (10th ed.). American College of Surgeons.
- American College of Surgeons. (2020). *Advanced trauma life support student course manual*. Chicago: American College of Surgeons.
- American College of Surgeons. (2020). *Advanced trauma life support student course manual*. American College of Surgeons.

- American College of Surgeons. (2020). *Advanced Trauma Life Support Student Course Manual* (10th ed.). American College of Surgeons.
- American College of Surgeons. (2021). *Advanced Trauma Life Support Student Course Manual* (10th ed.). American College of Surgeons.
- American College of Surgeons. (2022). *Advanced trauma life support student course manual* (11th ed.). American College of Surgeons.
- American College of Surgeons. (2025). *Advanced Trauma Life Support (ATLS) Student Course Manual* (11th ed.). Chicago, IL: Author.
- American Psychiatric Association. (2020). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). American Psychiatric Publishing.
- American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). American Psychiatric Publishing.
- American Psychological Association. (2021). *Trauma and shock*. American Psychological Association.
- Arikunto, S. (2021). *Dasar-dasar evaluasi pendidikan*. Jakarta: Bumi Aksara.
- ATLS Subcommittee. (2021). *Advanced trauma life support student course manual* (11th ed.). American College of Surgeons.
- Badan Pusat Statistik. (2023). *Profil statistik kesehatan 2023*. Badan Pusat Statistik.

- Barnett, K., Mercer, S. W., Norbury, M., Watt, G., Wyke, S., & Guthrie, B. (2021). Epidemiology of multimorbidity and implications for health care, research, and medical education. *The Lancet*.
- Boyd, C. R., Tolson, M. A., & Copes, W. S. (1987). Evaluating trauma care: The TRISS method. *Journal of Trauma*, 27(4), 370–378.
- Boyd, C. R., Tolson, M. A., & Copes, W. S. (1987). Evaluating trauma care: The TRISS method. *Journal of Trauma*, 27(4), 370–378.
- Bredekamp, S. (2019). *Effective practices in early childhood education: Building a foundation*. Pearson Education.
- Brennan, T. A., & Monson, R. (2021). Patient safety and quality improvement in healthcare. *New England Journal of Medicine*, 384(3), 252–261.
- Brookhart, S. M. (2020). *Classroom assessment and educational measurement*. Routledge.
- Bryant, R. A. (2020). Post-traumatic stress disorder: A state-of-the-art review of evidence and challenges. *World Psychiatry*, 19(3), 259–269.
- Bryant, R. A. (2021). Post-traumatic stress disorder: A state-of-the-art review of evidence and challenges. *World Psychiatry*.
- Bryant, R. A. (2022). Trauma, culture, and mental health responses in communities. *World Psychiatry*.

- Camilo, D., dkk. (2016). Comparison between trauma scoring systems in outcome prediction of trauma patients. *Revista do Colégio Brasileiro de Cirurgiões*.
- Camilo, D., et al. (2016). Evaluation of trauma severity scores in trauma patients. *Injury*.
- Cannon, J. W. (2019). Hemorrhagic shock. *New England Journal of Medicine*, 378(4), 370–379.
- Carr, B. G., & Caplan, J. M. (2020). Delay in emergency care and its impact on patient outcomes. *Annals of Emergency Medicine*, 75(3), 315–323.
- Champion, H. R., & Sacco, W. J. (2020). Trauma scoring systems and outcomes. *Journal of Trauma and Acute Care Surgery*, 89(2), 215–223.
- Champion, H. R., Copes, W. S., Sacco, W. J., Lawnick, M. M., Keast, S. L., Bain, L. W., Flanagan, M. E., & Frey, C. F. (1990). The Major Trauma Outcome Study: Establishing national norms for trauma care. *Journal of Trauma*, 30(11), 1356–1365.
- Champion, H. R., Copes, W. S., Sacco, W. J., Lawnick, M. M., Keast, S. L., Bain, L. W., Flanagan, M. E., Frey, C. F., & Hoyt, D. B. (1990). A new characterization of injury severity. *Journal of Trauma*, 30(5), 539–545.
- Champion, H. R., Copes, W. S., Sacco, W. J., Lawnick, M. M., Keast, S. L., Bain, L. W., Jr., Flanagan, M. E., & Frey, C. F. (1990). A new characterization of injury severity. *Journal of Trauma*, 30(5), 539–546.

- Champion, H. R., Sacco, W. J., Carnazzo, A. J., Copes, W., & Fouty, W. J. (2020). Trauma score and injury severity score: A review of their applications. *The Journal of Trauma and Acute Care Surgery*, 89(2), 215–222.
- Courtois, C. A., & Ford, J. D. (2020). *Treatment of complex trauma: A sequenced, relationship-based approach*. Guilford Press.
- Cullen, B., & O'Neill, B. (2021). Cognitive screening tools in older adults: Current perspectives and clinical utility. *Aging Clinical and Experimental Research*, 33(4), 845–853.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (2021). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982–1003.
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., & Marks, J. S. (2021). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. *American Journal of Preventive Medicine*, 61(6), 774–786.
- Gilboy, N., Tanabe, P., Travers, D., & Rosenau, A. M. (2021). *Emergency Severity Index (ESI): A Triage Tool for Emergency Department Care (5th ed.)*. Agency for Healthcare Research and Quality.
- Haagsma, J. A., Graetz, N., Bolliger, I., Naghavi, M., Higashi, H., Mullany, E. C., ... Vos, T. (2016). The global burden of injury: Incidence, mortality, disability-adjusted life years and time trends from the Global Burden of Disease study. *Injury Prevention*, 22(1), 3–18.

- Herman, J. L. (2015). *Trauma and recovery: The aftermath of violence—from domestic abuse to political terror*. Basic Books.
- Herman, J. L. (2020). *Trauma and recovery: The aftermath of violence—from domestic abuse to political terror*. Basic Books.
- Herman, J. L. (2022). *Trauma and recovery: The aftermath of violence—from domestic abuse to political terror*. Basic Books.
- Hick, J. L., Hanfling, D., Wynia, M. K., & Pavia, A. T. (2021). Duty to plan: Health care, crisis standards of care, and novel coronavirus SARS-CoV-2. *NAM Perspectives*, 2021, 1–14.
- Hodkinson, H. M. (2020). Evaluation of a mental test score for assessment of mental impairment in the elderly. *Age and Ageing*, 1(4), 233–238.
- Hoot, N. R., & Aronsky, D. (2008). Systematic review of emergency department crowding: Causes, effects, and solutions. *Annals of Emergency Medicine*, 52(2), 126–136.
- Jiang, F., Jiang, Y., Zhi, H., Dong, Y., Li, H., Ma, S., Wang, Y., Dong, Q., Shen, H., & Wang, Y. (2021). Artificial intelligence in healthcare: Past, present and future. *Stroke and Vascular Neurology*, 6(2), 230–243.
- Jung, K., Huh, Y., Lee, J. C., Kim, Y., Moon, J., Youn, S. H., & Kim, H. (2016). The best prediction model for trauma outcomes of the current Korean population: A comparative study of three

- injury severity scoring systems. *Korean Journal of Critical Care Medicine*, 31(3), 221–228.
- Kauvar, D. S., & Wade, C. E. (2020). The epidemiology and modern management of traumatic hemorrhage. *Critical Care*, 9(5), 1–9.
- Kauvar, D. S., & Wade, C. E. (2020). The epidemiology and modern management of traumatic hemorrhage. *Critical Care*, 24(1), 1–9.
- Kementerian Kesehatan Republik Indonesia. (2020). *Sistem kesehatan nasional*. Jakarta: Kementerian Kesehatan Republik Indonesia.
- Kim, Y. J., Shin, S. D., Ro, Y. S., Song, K. J., Hong, K. J., & Kong, S. Y. (2021). Performance of trauma scoring systems for mortality prediction in severely injured patients: A systematic review and meta-analysis. *Journal of Clinical Medicine*, 10(23), 5676.
- Kim, Y., Jung, K., Kim, H., et al. (2021). Validation of trauma scoring systems for prediction of mortality in trauma patients.
- Kleinman, M. E., Brennan, E. E., Goldberger, Z. D., Swor, R. A., Terry, M., Bobrow, B. J., Gazmuri, R. J., Travers, A. H., & Rea, T. (2020). Part 5: Adult basic life support and cardiopulmonary resuscitation quality. *Circulation*, 132(18 Suppl 2), S414–S435.
- Kobusingye, O., Hyder, A. A., Bishai, D., Hicks, E. R., Mock, C., & Joshipura, M. (2021). Emergency medical systems in low

- and middle-income countries: Recommendations for action. *Bulletin of the World Health Organization*, 83(8), 626–631.
- Kokorelias, K. M., Gignac, M. A. M., Naglie, G., & Cameron, J. I. (2021). Towards a universal model of family-centered care: A scoping review. *BMC Health Services Research*, 21(1).
- Lam, L., et al. (2016). Comparison of trauma scoring systems for prediction of mortality in injured patients. *Injury*.
- Maas, A. I. R. (2017). Traumatic brain injury: Progress and challenges in prevention, clinical care, and research.
- Maas, A. I. R., Menon, D. K., Adelson, P. D., Andelic, N., Bell, M. J., Belli, A., Bragge, P., Brazinova, A., Büki, A., Chesnut, R. M., & Citerio, G. (2022). Traumatic brain injury: Integrated approaches to improve prevention, clinical care, and research. *Lancet Neurology*, 21(11), 987–1048.
- McEwen, B. S. (2017). Shonkoff, J. P., Garner, A. S., Siegel, B. S., Dobbins, M. I., Earls, M. F., McGuinn, L., ... & Wood, D. L. (2012).
- Mitra, B., Fitzgerald, M. C., Cameron, P. A., & Mori, A. (2021). Trauma scoring systems and their role in outcome prediction following major trauma: A review. *Emergency Medicine Australasia*, 33(6), 1034–1042.
- Mock, C. N., Joshipura, M., Quansah, R., & Arreola-Risa, C. (2021). Strengthening trauma systems globally: The essential trauma care project. *The Journal of Trauma and Acute Care Surgery*, 84(6), 1028–1034.

- Mock, C., Joshipura, M., Quansah, R., & Arreola-Risa, C. (2020). Strengthening trauma systems globally: The essential trauma care project. *Journal of Trauma and Acute Care Surgery*, 59(6), 124–130.
- Moore, H. B., Moore, E. E., Kornblith, L. Z., Neal, M. D., Hoffman, M., & Mutch, N. J. (2021). Trauma-induced coagulopathy. *Nature Reviews Disease Primers*, 7(1).
- Moore, L., Champion, H., Tardif, P. A., Kuimi, B. L., O'Reilly, G., Leppaniemi, A., & Stelfox, H. T. (2020). Impact of trauma system structure on injury outcomes: A systematic review and meta-analysis. *World Journal of Surgery*, 44(5), 1320–1331.
- Moore, L., Champion, H., Tardif, P. A., Kuimi, B. L., O'Reilly, G., Leppaniemi, A., & Cameron, P. (2021). Impact of trauma system structure on injury outcomes: A systematic review and meta-analysis. *World Journal of Surgery*, 42(5), 1327–1339.
- Morley, C., Unwin, M., Peterson, G. M., Stankovich, J., & Kinsman, L. (2020). Emergency department crowding: A systematic review of causes, consequences, and solutions. *PLOS ONE*, 13(8), 1–42.
- Morrison, G. S. (2020). *Early childhood education today*. Pearson Education.
- Netten, A., Burge, P., Malley, J., Potoglou, D., Towers, A. M., Brazier, J., & Flynn, T. (2020). Outcomes of social care for

- adults: Developing a preference-weighted measure. *Health Technology Assessment*.
- Niccoli, T., & Partridge, L. (2021). Ageing as a risk factor for disease. *Current Biology*.
- Nitko, A. J., & Brookhart, S. M. (2021). Educational assessment of students. *Pearson*.
- Osler, T., Glance, L. G., & Hosmer, D. W. (2021). Simplified estimates of the probability of death after injury: Comparing ASCOT and TRISS methods. *Injury*, 52(4), 785–791.
- Peden, M., Scurfield, R., Sleet, D., Mohan, D., Hyder, A. A., Jarawan, E., & Mathers, C. (2018). World report on road traffic injury prevention. *World Health Organization*.
- Rabbani, A., & Moini, M. (2007). Application of Trauma and Injury Severity Score and A Severity Characterization of Trauma score to trauma patients in a setting different from Major Trauma Outcome Study. *Archives of Iranian Medicine*, 10(3), 383–386.
- Rabbani, A., & Moini, M. (2007). Application of Trauma and Injury Severity Score and A Severity Characterization of Trauma score to trauma patients in a setting different from Major Trauma Outcome Study. *Archives of Iranian Medicine*, 10(3), 383–386.
- Rand, S., Malley, J., & Forder, J. (2021). Advancing social care outcome measurement through ASCOT. *Social Policy and Administration*.

- Rophi, K. H., Andarini, S., & Suryanto. (2023). Best trauma assessment system for trauma patients in Papua, Indonesia. *Jurnal Aisyah: Jurnal Ilmu Kesehatan*, 8(2), 873–878. <https://doi.org/10.30604/jika.v8i2.1975>
- Salim, C. (2015). *Sistem Penilaian Trauma*.
- Shanafelt, T. D., Ripp, J., & Trockel, M. (2021). Understanding and addressing sources of anxiety among health care professionals during the COVID-19 pandemic. *JAMA*, 323(21), 2133–2134.
- Sharma, N., Chakrabarti, S., & Grover, S. (2022). Gender differences in caregiving among family caregivers of people with mental illnesses. *World Journal of Psychiatry*, 12(3), 426–438.
- Singh, H., Meyer, A. N. D., & Thomas, E. J. (2021). The frequency of diagnostic errors in outpatient care: Estimations from three large observational studies involving US adult populations. *BMJ Quality & Safety*, 30(5), 386–394.
- Singh, J., Gupta, G., Garg, R., & Gupta, A. (2011). Evaluation of trauma and prediction of outcome using TRISS method. *Indian Journal of Critical Care Medicine*, 15(3), 129–133.
- Spahn, D. R., Bouillon, B., Cerny, V., Duranteau, J., Filipescu, D., Hunt, B. J., & Rossaint, R. (2021). The European guideline on management of major bleeding and coagulopathy following trauma. *Critical Care*, 23(1), 98–120.
- Stengel, D., Ottersbach, C., Matthes, G., Weigeldt, M., & Ekkernkamp, A. (2021). Accuracy of single-pass whole-

- body computed tomography for detection of injuries in patients with major blunt trauma. *Canadian Medical Association Journal*, 181(11), 679–686.
- Stevenson, M., Segui-Gomez, M., Lescohier, I., Di Scala, C., & McDonald-Smith, G. (2001). An overview of the injury severity score and the Anatomy Profile in trauma outcome prediction. *Injury*, 32(8), 621–626.
- Substance Abuse and Mental Health Services Administration. (2020). Trauma-informed care in behavioral health services. U.S. Department of Health and Human Services.
- Substance Abuse and Mental Health Services Administration. (2022). Trauma-informed care in behavioral health services. U.S. Department of Health and Human Services.
- Sudijono, A. (2020). Pengantar evaluasi pendidikan. Jakarta: RajaGrafindo Persada.
- Tintinalli, J. E., Ma, O., Yealy, D. M., Meckler, G. D., Stapczynski, J., Cline, D. M., & Thomas, S. H. (2020). Tintinalli's Emergency Medicine: A Comprehensive Study Guide (9th ed.). McGraw-Hill Education.
- Tintinalli, J. E., Ma, O., Yealy, D. M., Meckler, G. D., Stapczynski, J., Cline, D. M., & Thomas, S. H. (2020). Tintinalli's emergency medicine: A comprehensive study guide. New York: McGraw-Hill Education.
- Toida, C., Muguruma, T., Gakumazawa, M., Shinohara, M., Abe, T., Takeuchi, I., & Morimura, N. (2020). Validation of age-specific survival prediction in pediatric patients with blunt

- trauma using Trauma and Injury Severity Score methodology: A ten-year nationwide observational study. *BMC Emergency Medicine*, 20, 7.
- Toida, C., Muguruma, T., Gakumazawa, M., Shinohara, M., Abe, T., Takeuchi, I., & Miyauchi, M. (2020). Reevaluation of the TRISS method for survival prediction in modern trauma care. *Acute Medicine & Surgery*.
- Topol, E. (2020). *Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again*. Basic Books.
- Topol, E. (2020). High-performance medicine: The convergence of human and artificial intelligence. *Nature Medicine*, 25(1), 44–56.
- van der Kolk, B. A. (2014). *The body keeps the score: Brain, mind, and body in the healing of trauma*. Viking.
- van der Kolk, B. A. (2021). *The body keeps the score: Brain, mind, and body in the healing of trauma*. Penguin Books.
- van der Kolk, B. A. (2021). *The body keeps the score: Brain, mind, and body in the healing of trauma*. Penguin Books.
- Velonas, G., Mantas, D., Kassianidis, G., Poulianidou, V., & Patrani, M. (2025). Evaluation of the Trauma and Injury Severity Score (TRISS) performance in intensive care trauma patients: A systematic review and meta-analysis. *Cureus*, 17(10), e95476.
- Velonas, G., Mantas, D., Kassianidis, G., Poulianidou, V., & Patrani, M. (2025). Evaluation of the Trauma and Injury Severity Score (TRISS) performance in intensive care trauma

- patients: A systematic review and meta-analysis. *Cureus*, 17(10).
- Velonas, G., Mantas, D., Kassianidis, G., Poulianidou, V., & Patrani, M. (2025). Evaluation of the Trauma and Injury Severity Score (TRISS) performance in intensive care trauma patients: A systematic review and meta-analysis. *Cureus*, 17(10), e95476.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2020). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478.
- Vincent, J. L., & Moreno, R. (2020). Clinical review: Scoring systems in the critically ill. *Critical Care*, 14(2), 207–214.
- Wang, M., Ruchholtz, S., Lefering, R., & Hoffmann, R. (2024). Quality of pediatric trauma care: Development of an age-adjusted TRISS model. *Frontiers in Pediatrics*, 12, 1481467.
- World Health Organization. (2018). Global status report on road safety 2018.
- World Health Organization. (2018). *Global status report on road safety 2018*.
- World Health Organization. (2021). Emergency care systems for universal health coverage: Ensuring timely care for the acutely ill and injured. World Health Organization.
- World Health Organization. (2021). Emergency care systems for universal health coverage: Ensuring timely care for the acutely ill and injured. Geneva: World Health Organization.

World Health Organization. (2021). Emergency care systems for universal health coverage: Ensuring timely care for the acutely ill and injured. World Health Organization.

World Health Organization. (2021). Emergency care systems for universal health coverage: Framework for action. World Health Organization.

World Health Organization. (2021). Global patient safety action plan 2021–2030. Geneva: World Health Organization.

World Health Organization. (2021). Global Status Report on Road Safety 2021. World Health Organization.

World Health Organization. (2021). Guidelines for essential trauma care. Geneva: World Health Organization.

World Health Organization. (2021). Injuries and violence: The facts 2021. World Health Organization.

World Health Organization. (2021). Injuries and violence: The facts. World Health Organization.

World Health Organization. (2021). Injuries and violence: The facts 2021. World Health Organization.

World Health Organization. (2021). Injuries and violence: The facts 2021. World Health Organization.

World Health Organization. (2021). Patient safety: Global action on patient safety. World Health Organization.

World Health Organization. (2021). Primary health care on the road to universal health coverage. Geneva: World Health Organization.

- World Health Organization. (2021). Standards for improving the quality of trauma care. Geneva: World Health Organization.
- World Health Organization. (2021). Strengthening emergency and trauma care systems. World Health Organization.
- World Health Organization. (2022). Guidelines for essential trauma care. World Health Organization.
- World Health Organization. (2022). Hospital preparedness for epidemics. World Health Organization.
- World Health Organization. (2022). Injuries and violence: The facts. World Health Organization.
- Wynants, L., Van Calster, B., Collins, G. S., Riley, R. D., Heinze, G., Schuit, E., & van Smeden, M. (2020). Prediction models for diagnosis and prognosis of COVID-19 infection: Systematic review and critical appraisal. *BMJ*, 369, 1–13.
- American College of Surgeons. (2018). *Advanced trauma life support®* (Edisi ke-10). American College of Surgeons.
- Association for the Advancement of Automotive Medicine. (2018). *AIS 2018: The abbreviated injury scale*. Association for the Advancement of Automotive Medicine.
- Baker, S. P., O'Neill, B., Haddon, W., & Long, W. B. (1974). The Injury Severity Score: A method for describing patients with multiple injuries and evaluating emergency care. *Journal of Trauma*, 14(3), 187–196.
- Champion, H. R., Copes, W. S., Sacco, W. J., et al. (1989). A revision of the Trauma Score. *Journal of Trauma*, 29(5), 623–629.

Champion, H. R., Copes, W. S., Sacco, W. J., et al. (1990). Improved predictions from a characterization of injury severity. *Journal of Trauma*, 30(5), 567–579.

Clemmer, T. P., Orme, J. F., Thomas, F., & Brooks, R. (1985). Outcome analysis of CRAMS triage. *Journal of Trauma*, 25(4), 327–331.

Cox, E. D., & Neff, C. (2012). Trauma scoring systems: A review. *World Journal of Emergency Surgery*, 7(1), Artikel 12.

Gormican, S. P. (1982). CRAMS scale: Field triage of trauma victims. *Annals of Emergency Medicine*, 11(3), 132–135.

Osler, T., Rutledge, R., Deis, J., & Bedrick, E. (1996). ICISS: An international classification of diseases-9 based injury severity score. *Journal of Trauma*, 41(3), 380–388.

Pal, R., Gupta, S., & Singh, A. (2020). Anatomical versus physiological scoring systems in trauma. *Journal of Emergency and Trauma Shock*, 13(1), 1–6.

Palmer, C. S., Stevenson, M., & Thakore, S. (2019). ICISS: A review of its use in trauma research. *Injury*, 50(2), 248–254.

StatPearls Publishing. (2025). *Trauma severity scoring systems*. National Center for Biotechnology Information.

Tepas, J. J., Mollitt, D. L., Talbert, J. L., & Bryant, M. (1987). The Pediatric Trauma Score: An accurate predictor of injury severity in injured children. *Journal of Pediatric Surgery*, 22(5), 471–474.

Teasdale, G., & Jennett, B. (1974). Assessment of coma and impaired consciousness: A practical scale. *The Lancet*, 2(7872), 81–84.

Vincent, J. L., Moreno, R., Takala, J., et al. (1996). The SOFA score to describe organ dysfunction/failure. *Intensive Care Medicine*, 22(7), 707–710.

World Health Organization. (2021). *Guidelines for essential trauma care*. World Health Organization.



Buku Referensi Berjudul **Sistem Penilaian Trauma: Konsep Dasar dan Aplikasi Klinis** membahas berbagai sistem penilaian yang digunakan untuk mengidentifikasi tingkat keparahan cedera dan memperkirakan risiko kematian pada pasien trauma. Materi disajikan secara terstruktur, mulai dari konsep dasar penilaian trauma hingga penerapannya dalam pengambilan keputusan klinis pada berbagai kondisi kegawatdaruratan.

Pembaca akan memperoleh pemahaman mengenai berbagai indikator, skoring, dan perkembangan teknologi yang mendukung evaluasi pasien trauma secara lebih cepat dan akurat. Dengan pembahasan yang jelas dan mudah dipahami, buku ini cocok untuk masyarakat umum yang ingin mengenal lebih jauh bagaimana tenaga kesehatan menilai kondisi trauma serta pentingnya sistem prediksi dalam mendukung keselamatan dan kualitas pelayanan kesehatan.



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