PREDICTIVE ACCURACY OF CRIB-II AND SNAPPE-II SCORES FOR MORTALITY RISK IN PRETERM NEONATES: A CROSS-SECTIONAL VALIDATION STUDY AT BENAZIR BHUTTO HOSPITAL, RAWALPINDI

MUHAMMAD USMAN ALI[1], MAHNOOR FATIMA[2]
[1,2]*Postgraduate Resident, Rawalpindi Medical University, Rawalpindi.*

ABSTRACT

Background: Preterm birth is a major contributor to neonatal mortality and long-term neurodevelopmental complications globally, largely due to the immaturity of essential organ systems such as the lungs, brain, gastrointestinal tract, and immune system.

Objectives: To compare the diagnostic performance of the CRIB-II and SNAPPE-II scoring systems in predicting mortality among preterm neonates.

Methods: It is Cross-sectional validation study conducted at Department of Paediatrics, Benazir Bhutto Hospital, Rawalpindi, from 15th February to 15th May 2025. This study included preterm neonates with a gestational age of less than 32 weeks and a birth weight below 1500 grams, selected through non-probability consecutive sampling. Both CRIB-II and SNAPPE-II scores were calculated within 12 hours of admission according to standard criteria. Mortality risk was classified using cutoffs of ≥8.5 for the CRIB-II and ≥27.5 for the SNAPPE-II. Neonatal outcomes were monitored for 28 days. Diagnostic indicators, including sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), likelihood ratios, and the area under the receiver operating characteristic curve (AUC), were determined.

Results: Of the 122 neonates enrolled, 15 (12.3%) did not survive. The CRIB-II scores correctly identified 11 deaths, with a sensitivity of 73.33%, specificity of 79.44%, PPV of 33.33%, NPV of 95.51%, accuracy of 78.69%, and an AUC of 0.925. SNAPPE-II identified 12 deaths, demonstrating a sensitivity of 80.00%, specificity of 84.11%, PPV of 41.38%, NPV of 96.77%, accuracy of 83.61%, and an AUC of 0.952.

Conclusion: Both scoring systems demonstrated reliable diagnostic value for early mortality prediction in preterm neonates. In this cohort, SNAPPE-II exhibited superior overall performance.

Keywords: Predictive Value of Tests, ROC Curve, Infant, Newborn, Gestational Age

How to cite this article: Ali MU, Fatima M Predictive Accuracy Of Crib-Ii And Snappe-Ii Scores For Mortality Risk In Preterm Neonates: A Cross-Sectional Validation Study At Benazir Bhutto Hospital, Rawalpindi: A Cross-Sectional Study. Pak Postgrad Med J 2026;37(2): 77-81

Correspondence to: *Muhammad Usman Ali*
Postgraduate Resident, Rawalpindi Medical University, Rawalpindi, Pakistan.

Email: *usmnali244@gmail.com*

Received: Aug 14,2025; Revised: Jun 20,2026
Accepted: Mar 30,2026

DOI: https://doi.org/10.51642/ppmj.v37i02.823

INTRODUCTION

Preterm birth is a major contributor to neonatal mortality and long-term neurodevelopmental complications globally, largely due to the immaturity of essential organ systems such as the lungs, brain, gastrointestinal tract, and immune system. Despite improvements in perinatal and neonatal care, preterm infants remain susceptible to life-threatening conditions, including respiratory distress, sepsis, intraventricular hsaemorrhage, and necrotizing enterocolitis, necessitating prolonged intensive care and individualised clinical management.[1, 2]

Early identification of neonates at increased risk of mortality plays a critical role in guiding life-saving interventions and optimizing resource allocation in neonatal intensive care units (NICUs). Risk prediction models, such as CRIB-II and SNAPPE-II, assist clinicians in stratifying neonates according to mortality risk using clinical and laboratory parameters collected during the early hours of life. CRIB-II, designed for simplicity, includes birth weight, gestational age, admission temperature, base deficit, and gender.[3, 4]

SNAPPE-II incorporates more extensive physiological measures, including mean arterial pressure, serum pH, temperature, oxygenation status, five-minute Apgar score, urine output, seizures, and growth status, offering a broader assessment of neonatal condition.[5,6]

Comparative studies have reported variable results. Hao et al. [7] demonstrated a higher predictive accuracy for SNAPPE-II (AUC 0.82) compared to CRIB-II (AUC 0.79), while Dalili et al. [8] found SNAPPE-II had greater sensitivity. Conversely, Vardhelli et al. [9] and Nyamathi et al. [10] suggested CRIB-II's practicality and comparable accuracy, particularly in resource-limited environments. The rationale of the current study is to compare the predictive accuracy of the Clinical Risk Index for Babies II (CRIB-II) and the Score for Neonatal Acute Physiology Perinatal Extension II (SNAPPE-II) in estimating mortality risk among preterm neonates. Most existing evidence originates from high-income countries, and data from resource-limited settings are limited. Differences in neonatal care practices, disease burden, and population characteristics may influence the accuracy of these scoring systems. Therefore, local validation is necessary to determine their clinical utility. This study aims to provide context-specific evidence by assessing the ability of CRIB-II and SNAPPE-II to predict 28-day mortality in preterm neonates admitted to a tertiary care neonatal intensive care unit, with the goal of supporting informed clinical decision-making and improved neonatal outcomes.

METHODS

This cross-sectional validation study was carried out at the Department of Paediatrics, Benazir Bhutto Hospital, Rawalpindi, following approval from the hospital's ethical review committee in January 2025, cover letter number 1803/11th July 2025. The study was conducted over three months from 15th Feb to 15th May 2025. A sample of 122 preterm neonates was recruited using non-probability consecutive sampling, and informed consent was taken, based on an anticipated mortality prevalence of 41.7%, [10], a 95% confidence interval, 10% precision, and expected SNAPPE-II sensitivity of 84.44% and specificity of 79.05%.[8]

Preterm neonates of either gender with a gestational age of less than 32 weeks and a birth weight below 1,500 grams were included in the study. Neonates with congenital anomalies, those lacking a documented Apgar score at birth, and those who were discharged against medical advice within the first 24 hours of admission were excluded.

Demographic and clinical information, including gestational age, gender, birth weight, type of pregnancy, and mode of delivery, was collected for all enrolled neonates. Birth weight was measured using a calibrated digital scale, and rectal temperature was recorded at admission using a digital thermometer. The five-minute Apgar score was retrieved from delivery records. Both CRIB-II and SNAPPE-II scores were calculated within the first 12 hours of admission. CRIB-II was based on gestational age, birth weight, gender, admission temperature, and base deficit, with a cutoff value of ≥8.5 used for mortality risk classification. SNAPPE-II incorporated nine physiological parameters and was assessed using a threshold of ≥27.5 to indicate increased mortality risk. Neonatal outcomes were monitored over 28 days. All data were documented using a standardised proforma and analysed using SPSS version 26.0. The predictive performance of both scoring systems was evaluated through ROC curves and 2×2 contingency tables to calculate diagnostic accuracy for mortality prediction.

RESULTS

Among 122 neonates included in the study, the mean gestational age was 27.71 ± 2.014 weeks, and the average birth weight was 1116.58 ± 214.310 grams. Of the total cohort, 60 (49.2%) were male, and 62 (50.8%) were female. Cesarean section was the mode of delivery in 68 cases (55.7%), while 54 (44.3%) were delivered vaginally. Fifteen infants (12.3%) did not survive the 28-day observation period, while 107 (87.7%) survived. The mean CRIB-II score was 6.03 ± 2.412, and the mean SNAPPE-II score was 21.47 ± 7.109. Based on predefined thresholds, CRIB-II (≥8.5) predicted mortality in 33 cases (27.0%), and SNAPPE-II (≥27.5) identified 29 cases (23.8%) as high-risk (Table I). The area under the ROC curve (AUC) for CRIB-II was 0.925, and for SNAPPE-II it was 0.952, indicating high discriminative performance for both scores.

Table I: Baseline Characteristics of the Study Population (n = 122)

Variable	Value
Gestational age (weeks), mean ± SD	27.71 ± 2.01
Birth weight (grams), mean ± SD	1116.58 ± 214.31
Gender	
Male	60 (49.2%)
Female	62 (50.8%)
Mode of delivery	
Cesarean section	68 (55.7%)
Vaginal delivery	54 (44.3%)
Survival status at 28 days	
Survived	107 (87.7%)
Died	15 (12.3%)
CRIB-II score, mean ± SD	6.03 ± 2.41
SNAPPE-II score, mean ± SD	21.47 ± 7.11
CRIB-II ≥ 8.5 (high risk)	33 (27.0%)
SNAPPE-II ≥ 27.5 (high risk)	29 (23.8%)

Using the CRIB-II threshold of ≥8.5, 11 of 15 deaths were correctly predicted (true positives: 9.0%), and 85 of 107 survivors were accurately classified (true negatives: 69.7%). False positives accounted for 22 cases (18.0%), while 4 deaths were missed (false negatives: 3.3%). This resulted in a sensitivity of 73.33% (95% CI: 44.90%–92.21%) and specificity of 79.44% (95% CI: 70.54%–86.64%). The positive predictive value was 33.33% (95% CI: 23.60%–44.73%) and the negative predictive value was 95.51% (95% CI: 90.13%–98.02%). The positive likelihood ratio was 3.57 (95% CI: 2.20–5.77), the negative likelihood ratio was 0.34 (95% CI: 0.14–0.78), and overall diagnostic accuracy was 78.69% (95% CI: 70.35%–85.58%).

For SNAPPE-II with a cutoff score of ≥27.5, 12 out of 15 deaths were correctly identified (true positives: 9.8%), while 90 of 107 survivors were correctly classified (true negatives: 73.8%). Seventeen survivors were misclassified as high-risk (false positives: 13.9%), and 3 deaths were not identified (false negatives: 2.5%). Sensitivity was 80.00% (95% CI: 51.91%–95.67%), and specificity was 84.11% (95% CI: 75.79%–90.46%). The PPV was 41.38% (95% CI: 29.89%–53.89%), NPV was 96.77% (95% CI: 91.57%–98.81%), with a positive likelihood ratio of 5.04 (95% CI: 3.04–8.34) and a negative likelihood ratio of 0.24 (95% CI: 0.09–0.66). The overall accuracy of the SNAPPE-II model was 83.61% (95% CI: 75.82%–89.69%) (Table II).

Table II: Diagnostic Performance of CRIB-II and SNAPPE-II Scores for Predicting 28-Day Mortality

Diagnostic Parameter	**CRIB-II (≥ 8.5)**	**SNAPPE-II (≥ 27.5)**
True positives	11 (9.0%)	12 (9.8%)
True negatives	85 (69.7%)	90 (73.8%)
False positives	22 (18.0%)	17 (13.9%)
False negatives	4 (3.3%)	3 (2.5%)
Sensitivity (%)	73.33 (95% CI: 44.90–92.21)	80.00 (95% CI: 51.91–95.67)
Specificity (%)	79.44 (95% CI: 70.54–86.64)	84.11 (95% CI: 75.79–90.46)
Positive predictive value (%)	33.33 (95% CI: 23.60–44.73)	41.38 (95% CI: 29.89–53.89)
Negative predictive value (%)	95.51 (95% CI: 90.13–98.02)	96.77 (95% CI: 91.57–98.81)
Positive likelihood ratio	3.57 (95% CI: 2.20–5.77)	5.04 (95% CI: 3.04–8.34)
Negative likelihood ratio	0.34 (95% CI: 0.14–0.78)	0.24 (95% CI: 0.09–0.66)
Diagnostic accuracy (%)	78.69 (95% CI: 70.35–85.58)	83.61 (95% CI: 75.82–89.69)
Area under ROC curve (AUC)	0.925	0.952

DISCUSSION

CRIB-II and SNAPPE-II were both effective in assessing mortality risk among preterm neonates. In this study, SNAPPE-II showed higher predictive accuracy and better clinical performance. Comparative analysis shows alignment with Hao et al, who studied 759 preterm infants with an 11.6% mortality rate, reporting SNAPPE-II (cutoff 26.5) with an AUC of 0.82, sensitivity of 72%, specificity of 82%, and accuracy of 77%, while CRIB-II (cutoff 8.5) had an AUC of 0.79, sensitivity of 58%, specificity of 85%, and accuracy of 72% ($p<0.001$).[7] Dalili et al. analyzed 344 neonates with a 26.5% mortality rate, finding CRIB-II (cutoff 8.5) with an AUC of 0.838, sensitivity of 74.4%, specificity of 78.65%, PPV of 55.37%, and NPV of 89.68%, and SNAPPE-II (cutoff 27.5) with an AUC of 0.887, sensitivity of 84.44%, specificity of 79.05%, PPV of 58.91%, and NPV of 93.46%. Our SNAPPE-II results (sensitivity 80.00%, specificity 84.11%) align with a higher AUC (0.952 vs. 0.887) and NPV (96.77% vs. 93.46%), possibly due to a less severe cohort, while PPV (41.38% vs. 58.91%) varies with local prevalence.[8]

Contrasting findings emerge from Nyamathi et al., who studied 193 neonates, including 77 preterm, with a 41.7% mortality rate, reporting CRIB-II with a sensitivity of 62% and specificity of 92.34%, and SNAPPE-II with a sensitivity of 64% and specificity of 94.41%, favoring CRIB-II's simplicity. Our SNAPPE-II dominance differs, likely due to their smaller sample (77 vs. 122) and higher mortality, which skewed sensitivity toward a severe group, whereas CRIB-II's ease was beneficial. The 12-hour data collection enhanced SNAPPE-II's discrimination in our less acute cohort.[10] Vardhelli et al. assessed 419 neonates across five NICUs, with an 8.8% mortality rate, and reported AUCs of 0.795 for CRIB-II and 0.78 for SNAPPE-II, favouring CRIB-II's simplicity. Our SNAPPE-II lead (AUC 0.952 vs. 0.925 for CRIB-II) may result from single-centre consistency and a 12-hour window, contrasting their multicenter variability, with lower mortality (12.3% vs. 8.8%) and broader SNAPPE-II parameters boosting its efficacy.[9] Akhila et al. compared CRIB-II (cutoff ≥10) with ESNS in 110 neonates, noting an AUC of 0.91, sensitivity of 85.2%, and specificity of 96.4% for CRIB-II, outperforming ESNS (AUC 0.85). Our CRIB-II AUC (0.925) is similar, though lower sensitivity (73.33%) and specificity (79.44%) may reflect a different cutoff (8.5) and milder cohort, with SNAPPE-II adding value via extra markers.[11]

Other studies reveal varied applications. Sotodate et al.'s retrospective analysis of 171 extremely premature infants (gestational age 22–27 weeks) with an 11.1% mortality rate reported CRIB-II with an AUC of 0.93, SNAP-II with 0.90, and SNAPPE-II with 0.95, all effective for early death. Our SNAPPE-II AUC (0.952) aligns, confirming its early prognostic strength, while CRIB-II's slight drop (0.925 vs. 0.93) may stem from

our broader gestational range (up to 32 weeks), including less severe cases.[12] Qasim et al.'s study of 240 preterm neonates with a 34.17% mortality rate reported CRIB-II with a sensitivity of 92.68%, specificity of 94.94%, PPV of 90.48%, and NPV of 96.15%, exceeding our values (73.33%, 79.44%, 33.33%, 95.51%), likely due to higher mortality and an unspecified cutoff in a critical cohort, with our mean score (6.03±2.412 vs. 10.95±2.79) indicating milder cases.[13] Fijas et al.'s focus on 64 neonates with necrotizing enterocolitis showed SNAPPE-II with an AUC of 0.71 for surgical prediction, below our 0.952 for mortality, reflecting a specific endpoint limiting general use, with higher surgical scores (38 vs. 19) suggesting context-specificity.[14] Alshafei et al.'s study of 404 neonates with a 6.9% mortality rate reported a CRIB-II AUC of 0.85, rising to 0.91 with mean platelet volume (MPV, AUC 0.68 alone), aligning with our 0.925, though MPV's potential enhancement was unexplored.[15] Kumar et al.'s analysis of 125 neonates found perfusion index (PI) with an AUC of 0.776 outperforming CRIB-II (AUC 0.622), unlike our 0.925, with a weak negative correlation (r=-0.272) indicating PI's added value, omitted here.[16] Rehman et al.'s study of 145 very preterm neonates with a 36.55% mortality rate reported a CRIB-II AUC of 0.840, sensitivity of 84.91%, and specificity of 83.70%, close to our 0.925 and 73.33%, with higher mortality and mean score (5.03±3.04 vs. 6.03±2.412), suggesting a severe cohort.[17] Ali et al.'s cohort of 333 neonates with a 9.1% mortality rate reported a SNAPPE-II AUC of 0.802, below our 0.952, possibly due to a respiratory support focus increasing specificity (98.7% vs. 84.11%).[5] Pakhathirathien et al.'s study of 146 PPHN neonates found SNAPPE-II with an AUC of 0.84, below our 0.952, with OI72max (AUC 0.88) leading, indicating condition-specific limits.[18] Bhandekar et al.'s study of 44 neonates reported a CRIB-II AUC of 0.83, near our 0.925, with higher median scores (9.5 vs. 6.03) suggesting a critical group.[6] Madabhushi et al.'s study of 39 very low birth weight neonates reported a CRIB-II AUC of 0.909 and SNAPPE-II AUC of 0.869, close to our 0.925 and 0.952, with a smaller cohort possibly limiting SNAPPE-II's edge.[19] Bayen et al.'s study of preterm infants before 32 weeks reported CRIB-II AUC of 0.862 and SNAPPE-II AUC of 0.919, similar to ours, with SNAPPE-II's neurodevelopmental relevance noted.[20] Zeng et al.'s meta-analysis of 14,377 preterm infants ranked CRIB (AUC 0.980) highest, with CRIB-II (0.525) and SNAPPE-II (0.298) lower, differing from our findings, likely due to diverse aggregated data versus our controlled setting.[21] The comparative evaluation of the CRIB-II and SNAPPE-II scoring systems in this study demonstrates the reliability of both tools for assessing early mortality risk in preterm neonates. While both scores demonstrated substantial predictive value, SNAPPE-II consistently outperformed CRIB-II across diagnostic parameters, including sensitivity, specificity, and AUC. The inclusion of a wider range of physiological and clinical variables likely enhanced its discriminative ability, particularly in a less severely ill cohort. Findings from this study align with several national and international studies, while minor variations in performance metrics can be attributed to differences in sample size, mortality prevalence, gestational age range, and timing of score application. These observations suggest that while both scoring systems remain clinically useful, SNAPPE-II may offer greater precision for stratifying risk and guiding clinical decision-making in neonatal intensive care settings.

The study has certain limitations. Both CRIB-II and SNAPPE-II scores were derived from clinical and laboratory data obtained within the first 12 hours of admission, which may not account for subsequent changes in the neonates' clinical status. The use of fixed cutoff values for each scoring system may not reflect variations in population characteristics or differences in clinical practices across diverse healthcare settings, potentially limiting the generalizability of the results.

CONCLUSION

SNAPPE-II demonstrated higher predictive accuracy than CRIB-II for mortality prediction in preterm neonates. This suggests that SNAPPE-II may be a more reliable scoring tool in neonatal intensive care settings.

ETHICAL APPROVAL

Ethical Approval of article was granted by the Ethical Committee of Benizer Bhutto Hospital, Rawalpindi Medical University, Rawalpindi vide reference No: 1803, Dated: July 18, 2025.

AUTHOR'S CONTRIBUTIONS

MUA: Conceived idea, design, manuscript writing, data collection

MF: Review of Literature, critical review

All Authors: Approval of the final version of the manuscript to be published

CONFLICT OF INTEREST

Authors declare no conflict of interest.

FUNDING SOURCE: None

REFERENCES

1. Lalani S, Premji SS, Shaikh K, Sulaiman S, Yim IS, Forcheh N, et al. Individual and collective contribution of antenatal psychosocial distress conditions and preterm

birth in pakistani women. PLoS One. 2023;18(3):e0282582.10.1371/journal.pone.0282582
2. Ohuma EO, Moller AB, Bradley E, Chakwera S, Hussain-Alkhateeb L, Lewin A, et al. National, regional, and global estimates of preterm birth in 2020, with trends from 2010: A systematic analysis. Lancet. 2023;402(10409):1261-71.10.1016/S0140-6736(23)00878-4
3. Machado JS, Ferreira TS, Lima RCG, Vieira VC, Medeiros DS. Premature birth: Topics in physiology and pharmacological characteristics. Rev Assoc Med Bras (1992). 2021;67(1):150-5.10.1590/1806-9282.67.01.20200501
4. Veloso FCS, Barros CRA, Kassar SB, Gurgel RQ. Neonatal death prediction scores: A systematic review and meta-analysis. BMJ Paediatr Open. 2024;8(1):e003067.10.1136/bmjpo-2024-003067
5. Ali A, Ariff S, Rajani R, Khowaja WH, Leghari AL, Wali S, et al. Snappe ii score as a predictor of neonatal mortality in nicu at a tertiary care hospital in pakistan. Cureus. 2021;13(12):e20427.10.7759/cureus.20427
6. Bhandekar H, Bansode Bangartale S, Arora I. Evaluating the clinical risk index for babies (crib) ii score for mortality prediction in preterm newborns: A prospective observational study at a tertiary care hospital. Cureus. 2024;16(4):e58672.10.7759/cureus.58672
7. Hao Q, Chen J, Chen H, Zhang J, Du Y, Cheng X. Comparing nsofa, crib-ii, and snappe-ii for predicting mortality and short-term morbidities in preterm infants </=32 weeks gestation. Ann Med. 2024;56(1):2426752.10.1080/07853890.2024.2426752
8. Dalili H, Farrokhzad N, Kavyani Z, Sahebi L, Habibelahi A, Ashrafzade M, et al. Determination of predictive power of crib-ii and snappe-ii in mortality risk of neonates with low gestational age or birth weight admitted to the neonatal intensive care unit. Iran J Neonatol. 2020;11(4):74-80.10.22038/ijn.2020.42513.1704
9. Vardhelli V, Murki S, Tandur B, Saha B, Oleti TP, Deshabhotla S, et al. Comparison of crib-ii with snappe-ii for predicting survival and morbidities before hospital discharge in neonates with gestation </= 32 weeks: A prospective multicentric observational study. Eur J Pediatr. 2022;181(7):2831-8.10.1007/s00431-022-04463-2
10. Nyamthi SO, Dhavaleshwar A, Soans S. Comparison between snappe-ii and crib-ii scoring methods in predicting neonatal mortality in the nicu. Perinatology. 2024;25(2):102-8.10.1080/07853890.2024.2426752
11. Akhila G, Choudhury J, Krishnegowda VK, Nanda D. Comparison of clinical risk index for babies (crib) ii score and extended sick neonatal score (esns) as a predictor of in-hospital mortality in premature neonates with gestational age </= 32 weeks. Indian Pediatr. 2025:1-5.10.1007/s13312-025-00107-4
12. Sotodate G, Oyama K, Matsumoto A, Konishi Y, Toya Y, Takashimizu N. Predictive ability of neonatal illness severity scores for early death in extremely premature infants. J Matern Fetal Neonatal Med. 2022;35(5):846-51.10.1080/14767058.2020.1731794
13. Qasim S, Zahid S, Islam A, Anwar M, Siddique S, Rafique A. Clinical risk index score (crib ii) as a predictor of neonatal mortality among premature babies. Pakistan Journal of Medical & Health Sciences. 2022;16(08):70-.10.53350/pjmhs2216870
14. Fijas M, Vega M, Xie X, Kim M, Havranek T. Snappe-ii and mdas scores as predictors for surgical intervention in very low birth weight neonates with necrotizing enterocolitis. J Matern Fetal Neonatal Med.2023;36(1):2148096.10.1080/14767058.2022.2148096
15. Alshafei A, Zawam E, Galal M, Khan A, El Saba Y, Hassan M. Validity of the mean platelet volume and revised clinical risk index for babies (crib-ii) score to assess mortality risk in preterm infants. New Emirates Medical Journal. 2024;5(1):e040923220679.10.2174/0250688205666230904104508
16. Kumar D, Kumar D, Irfan U, Yadav YS, Yadav RK, Kanti V, et al. Predictive values and correlation of crib score ii and perfusion index in assessment of severity of illness in sick preterm neonates: An observational study. J Neonatal Perinatal Med. 2024;17(5):723-30.10.3233/NPM-240084
17. Rehman A, Hamid MH. Accuracy of crib ii score in predicting the neonatal mortality in very preterm babies. Pakistan Journal of Medical & Health Sciences. 2022;16(03):564-.10.53350/pjmhs22163564
18. Pakhathirathien P, Maneenil G, Thatrimontrichai A, Dissaneevate S, Praditaukrit M. Mortality prediction in newborns with persistent pulmonary hypertension: A comparison of four illness severity scores. Pediatr Pulmonol. 2025;60(1):e27484.10.1002/ppul.27484
19. Madabhushi S, Naik SA, Shah MH. Clinical risk index of babies-ii versus score for neonatal acute physiology-ii in predicting mortality and morbidity in preterm babies. Int J Contemp Pediatr. 2022;9:247-52.10.18203/2349-3291.ijcp20220378
20. Bayen A, Sk MH, Chaudhuri S, Saha B. Comparison of crib-ii with snappe-ii as a predictor of mortality and neurodevelopmental outcome at 12 months of age for newborns≤ 32 weeks of gestational age. Journal of Neonatology. 2025;39(2):104-12.10.1177/09732179241258250
21. Zeng Z, Shi Z, Li X. Comparing different scoring systems for predicting mortality risk in preterm infants: A systematic review and network meta-analysis. Front Pediatr. 2023;11:1287774.10.3389/fped.2023.1287774