ORIGINAL RESEARCH ARTICLE

The role of crisis management in preventing postpartum infections and enhancing recovery quality in pregnant women with premature rupture of membranes

DOI: 10.29063/ajrh2026/v30i5.3

Danhong Wu[1] and Hongwei Lv[2]*

Department of Pediatric, Heilongjiang Provincial Hospital, Harbin, Heilongjiang, 150000, China[1]; Department of Infect Monitoring, Heilongjiang Provincial Hospital, Harbin, Heilongjiang, 150000, China[2]

[*]**For Correspondence:** Email: *13936131652@163.com/ darius-wang@crecentsci.cn*

Abstract

This study analyzed the impact of crisis management on premature rupture of membranes (PROM). Between March 2023 and April 2025, 146 pregnant women diagnosed with PROM were recruited from Heilongjiang Provincial Hospital. The cohort was randomized using computer-generated random numbers with concealed allocation envelopes into an intervention group (n=73) employing crisis management strategies and a control group (n=73) following routine protocols. The specific contents of crisis management include: Dynamic risk assessment, Multidisciplinary collaborative response, patient-engaged management and Rehabilitation support. A notable reduction in postpartum infection rates was observed in the intervention group versus controls, along with shorter antibiotic treatment duration, enhanced perineal wound healing, increased pelvic floor muscle strength scores, and elevated neonatal Apgar scores. No statistical inter-group difference was found in neonatal infection rates; however, the concurrent improvements in maternal-infant outcomes and medical service efficiency confirmed the validity of crisis management used in the intervention group. *(Afr J Reprod Health 2026; 30 [5]: 26-33).*

Keywords: Premature rupture of membranes, crisis management, postpartum infection, postpartum rehabilitation, newborn health

Résumé

Cette étude a analysé l'impact de la prise en charge de crise sur la rupture prématurée des membranes (RPM). Entre mars 2023 et avril 2025, 146 femmes enceintes ayant reçu un diagnostic de RPM ont été recrutées à l'hôpital provincial du Heilongjiang. La cohorte a été randomisée, à l'aide d'un générateur de nombres aléatoires informatisé et d'enveloppes d'attribution dissimulées, en un groupe d'intervention (n=73) bénéficiant de stratégies de prise en charge de crise et un groupe témoin (n=73) suivant les protocoles habituels. La prise en charge de crise comprenait : une évaluation dynamique des risques, une réponse multidisciplinaire et collaborative, une prise en charge participative et un soutien à la réadaptation. Une réduction notable du taux d'infections post-partum a été observée dans le groupe d'intervention par rapport au groupe témoin, ainsi qu'une durée de traitement antibiotique plus courte, une meilleure cicatrisation de la plaie périnéale, une augmentation du score de force des muscles du plancher pelvien et une amélioration du score d'Apgar néonatal. Aucune différence statistiquement significative n'a été observée entre les groupes concernant le taux d'infections néonatales ; cependant, l'amélioration concomitante des résultats materno-infantiles et de l'efficience des services médicaux a confirmé la validité de la prise en charge de crise mise en œuvre dans le groupe d'intervention.*(Afr J Reprod Health 2026; 30 [5]: 26-33).*

Mots-clés : Rupture prématurée des membranes, Gestion de crise, Infection post-partum, Réhabilitation post-partum, Santé du nouveau-né

Introduction

Premature rupture of membranes (PROM) is a frequent complication in obstetric pregnancies. It describes the spontaneous rupture of the fetal membranes before labor begins, with an incidence of 2.7% to 17.0% across all deliveries.[1] In particular, preterm PROM (PPROM) tends to lead to critical outcomes like preterm birth, chorioamnionitis, fetal distress, and neonatal sepsis, which has long made it a central issue in clinical obstetrics.[2] Postpartum infections, covering endometritis, pelvic peritonitis, and incision infections, are among the major short- and long-term complications for pregnant women with PROM. The reported incidence ranges from 10% to 20%, markedly exceeding that of non-PROM

deliveries.[3]Beyond extending hospitalization periods and increasing healthcare expenses, infections are likely to result in long-term adverse effects for parturients, including chronic pelvic pain and secondary infertility through inflammatory responses causing tubal adhesions or impaired endometrial repair.[4] They also exert a detrimental influence on newborns' immune system development and the mother-infant emotional bond. For this reason, finding effective ways to prevent and manage postpartum infections in PROM patients and enhance their rehabilitation outcomes is an urgent priority in obstetrics.

Crisis management, which focuses on the full-cycle dynamics of "prevention, early warning, intervention, and recovery," is now commonly utilized in emergency and critical care medicine.[5,6] Unlike well-established applications in emergency medicine,its theoretical structure and practical strategies remain underexplored when it comes to obstetric emergencies like PROM. Current research seldom connects key components of crisis management—such as dynamic risk assessment, multidisciplinary collaborative response, efficient resource deployment, and patient-involved decision-making—to the prevention and control of post-delivery infections in PROM patients. Moreover, systematic analysis of how "infection control" relates to "rehabilitation outcomes" is lacking.

This study is the first to apply crisis management theory to postpartum infection prevention in PROM patients. The proposed strategy is expected to lower infection rates, enhance satisfaction regarding maternal and neonatal outcomes, and offer evidence for revising PROM clinical guidelines. Furthermore, the research findings can be extended to crisis management for other obstetric emergencies like placental abruption and preeclampsia. This will drive the transformation of overall obstetric care toward proactive, precision-based approaches, ultimately maximizing maternal-fetal health and medical resource allocation **.**

Methods

Research subjects

We conducted a single-center prospective cohort study on PROM patients treated at our hospital from March 2023 to April 2025.

Eligibility criteria

Eligibility criteria included:Confirmed PROM (spontaneous membrane rupture prior to labor, with either direct visualization of fluid or pH-confirmed alkalinity in vaginal discharge); Singleton gestation ≥28 weeks; Planned vaginal or cesarean delivery;Willingness to participate and provide signed consent.

Exclusion criteria comprised: Severe systemic diseases(e.g., congenital heart disease, chronic hepatic/renal disorders, malignancies); Major obstetric complications (severe preeclampsia, eclampsia, or diabetic ketoacidosis);Active infections (group B streptococcus [GBS] positivity with genital tract infection symptoms, urinary tract infection, or pneumonia);Conditions obscuring infection assessment (multi-fetal gestation, placental abnormalities);Mental illness or cognitive deficits impairing participation; Previous hysterectomy or uterine anomalies (e.g., septate uterus) influencing infection outcome evaluation.

Sample size estimation and allocation

Sample size calculation was based on the primary outcome measure, i.e., the incidence of postpartum infections. Based on previous data,[7] the control group's infection rate was assumed to be 18%, while the intervention group aimed for a 15% reduction relative to the control group (i.e., expected infection rate = 18% × (1-0.15) = 15.3%). With α=0.05 (two-sided) and 80% power (β=0.2), PASS 15.0 software analysis suggested 65 subjects per group.To compensate for potential 10% attrition (dropouts or lost follow-up), 73 participants were recruited in each group. Through screening, 73 patients treated with crisis management were assigned to the intervention group (age :28.55±2.76; gestational age: 34.14±3.71 weeks; 65 primiparas, 8 multiparas), and 73 patients with matched baseline information (age, gestational week, etc.) receiving routine management formed the control group (age: 28.05±2.48; gestational age: 33.93±3.88 weeks; 70 primiparas, 3 multiparas).

No significant differences (P>0.05) were found in baseline characteristics, ensuring group comparability. Figure 1 outlines the sample size methodology and study workflow.

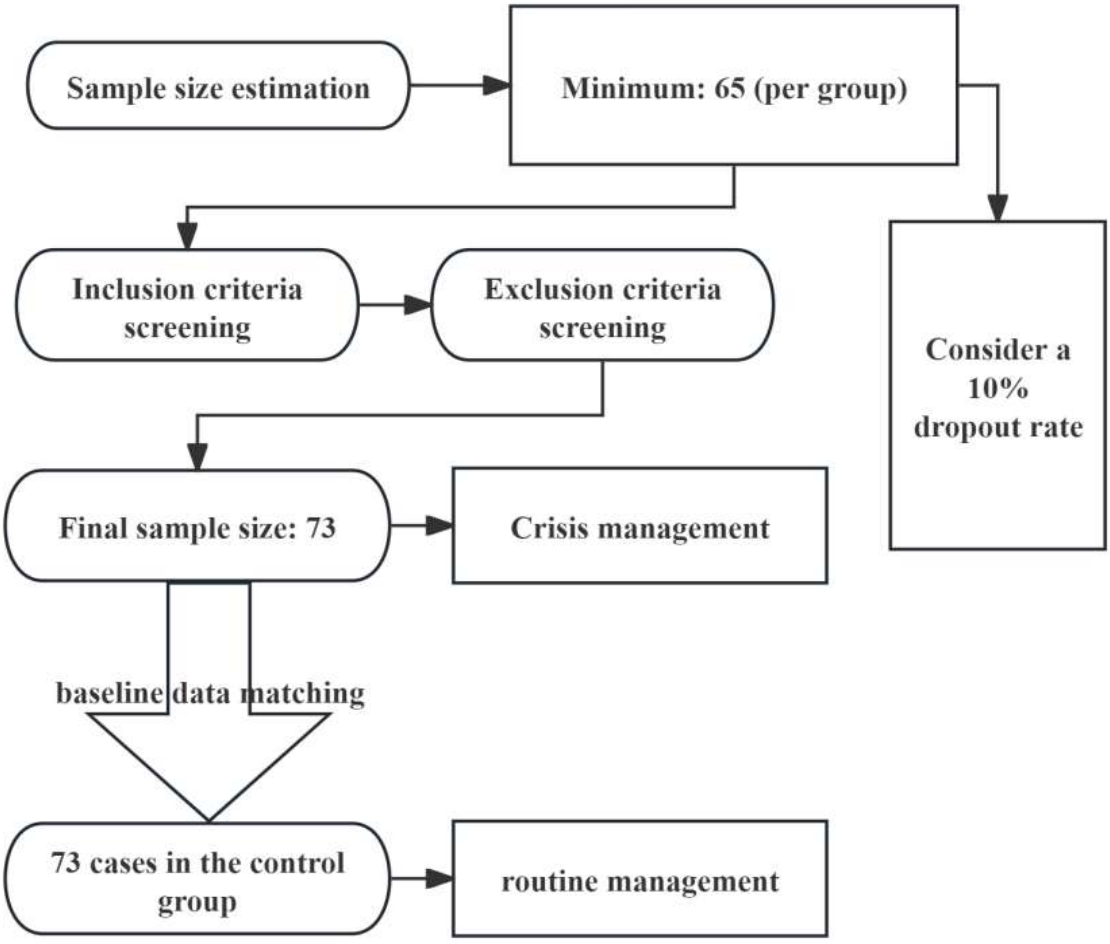

Figure 1: Screening process for research subjects**.**

Methods

Routine management: Patients were managed according to PPROM clinical guidelines. Key measures included: Infection prevention: For term PROM (≥37 weeks) without signs of infection, oral amoxicillin-clavulanate (375 mg every 8 hours) was administered for 48 hours. In cases of PPROM (<37 weeks), antibiotics were selected based on cervical secretion culture results (penicillin as first-line, with cephalosporins for allergic patients), with a treatment duration of 7–10 days. Expectant management: In cases of PPROM where no contraindications existed, treatment included tocolytic agents (e.g., ritodrine), corticosteroids for lung maturation (dexamethasone 6 mg every 12 hours for 2 days), and bed rest with pelvic elevation. Parameter monitoring: Temperature, white blood cell count (WBC), and plateletcrit (PCT) were measured daily, along with evaluation of uterine tenderness and lochia. Perineal incisions received antiseptic care twice daily, with observations recorded for redness, swelling, or exudate.

Crisis management: Building upon routine management, this strategy employs dynamic risk assessment, multidisciplinary collaborative response, and patient-engaged management, which includes: Dynamic risk assessment: Maternal vital signs were continuously monitored via the electronic medical record system. Risk degrees were judged

based on temperature, vaginal discharge traits, abdominal pain intensity, and lochia quantity.

A scoring system (threshold:≥8/10; see Appendix A for detailed criteria, e.g., temperature ≥38.5°C=3 points, purulent lochia=2 points) identifies critical cases requiring urgent action.Multidisciplinary collaborative response:

The multidisciplinary team (MDT) comprised an obstetrician, an infectious disease specialist (associate senior doctor), the lead obstetrics nurse, a midwife, and a dietitian, with neonatal specialists involved if required. Nurses alerted the physician within 10 minutes for high-risk pregnancies, prompting an MDT bedside review within 30 minutes to customize interventions (e.g., intensifying antibiotics, altering uterine relaxants, or improving wound management).

In confirmed infection cases (such as endometritis), therapy was refined within 2 hours. Patient-engaged management: Educational materials (illustrated manuals and videos) were provided at admission to explain infection risk indicators, self-monitoring approaches, and rehabilitation objectives.

Prior to antibiotic regimen adjustments, patients were informed of potential outcomes (e.g., reduced infection likelihood with shorter courses but increased need for monitoring), and treatment plans were finalized via joint decision-making. Discharge arrangements were customized according to recovery status (e.g., wound healing, physical stamina) and patient preference, with follow-up frequency adjusted accordingly. Rehabilitation support: Nutritionists developed dietary plans based on the pregnant woman's BMI, gestational week, and infection status (e.g., high-protein diets to promote wound healing and increased fluid intake during fever).

Endpoints

The incidence of postpartum infections (determined if two or more criteria were satisfied: temperature elevation (≥38℃ for ≥2 h), uterine tenderness, presence of purulent lochia, or elevated biomarkers (WBC>15×10^9/L or PCT >2 ng/mL) was recorded; Infection status: Fever duration, antibiotic therapy duration, and postpartum (day 3) WBC/PCT levels were documented. Rehabilitation conditions: Recovery metrics included hospital stay duration, perineal wound healing rate (Grade A: no redness, swelling, or exudate), pelvic floor muscle strength (assessed via electromyographic biofeedback using the Modified Oxford Scale: 0 = no contraction; 1 = flicker; 2 = weak squeeze; 3 = moderate lift; 4 = good lift; 5 = strong lift), and psychological status (assessed on postpartum day 5 using Patient Health Questionnaire-9 [PHQ-9]).[8] Maternal and infant outcomes: Apgar scores (at 1 and 5 minutes), Neonatal Intensive Care Unit (NICU) admission rates, and neonatal infection rates (confirmed by positive blood culture or clinical diagnosis) were recorded.Quality of medical care: Healthcare service quality was assessed by measuring infection response time (interval between postpartum infection onset and treatment initiation) and treatment adherence (number of patients with full compliance/total number of patients ×100%). Additionally, patient satisfaction was surveyed upon discharge using the validated Newcastle nursing satisfaction scale (NSNS, Cronbach's α=0.91 in Chinese populations).[9]

Statistical methods

Statistical processing was carried out using SPSS 33.0. Categorical variables were reported as frequencies [n (%)] and assessed with the chi-square test, Yates correction chi-square test, and Fisher's exact test. Quantitative data were checked for normal distribution via the Shapiro-Wilk test. If normally distributed, values were given as ($\bar{\chi}\pm s$), with intergroup comparisons made using independent t-tests. For non-normal distributions, data were shown as [M(P25, P75)], and group differences were examined using Mann-Whitney U (between groups). A significance threshold of $p<0.05$ was applied.

Ethical consideration

This study was conducted in accordance with ethical standards after being approved by the review board of Heilongjiang Provincial Hospital (No. 20230208084-y, Date: February 8, 2023), and all participants gave written informed consent.

Results

Comparison of postpartum infection rates

Key Outcome Summary: The incidence of postpartum infections was statistically lower in the intervention group (10.96%, 8/73) than in the control group (23.29%, 17/73), with the difference reaching statistical significance (χ^2=3.909, p=0.048).

Comparison of infection status

The fever duration did not differ significantly between groups (p>0.05, Table 1). In contrast, the intervention group required a shorter course of antibiotic treatment compared to controls (p<0.05). Furthermore, postpartum blood tests (day 3) demonstrated lower WBC and PCT values in the intervention group (p<0.05).

Comparison of rehabilitation conditions

According to the inter-group comparison of recovery outcomes (Table 2), the intervention group had a more evident reduction in PHQ-9 score (p<0.05), along with improved perineal wound healing and enhanced pelvic floor muscle strength than controls (p<0.05). Furthermore, a shorter hospitalization period was determined in the intervention group (p<0.05).

Comparison of maternal and infant outcomes

No statistical difference in neonatal infection rates (p>0.05) likely reflects the study's focus on maternal interventions; neonatal outcomes may require targeted neonatal sepsis protocols. Nevertheless, the intervention group exhibited notably higher Apgar scores at the 1-minute and 5-minute intervals than controls (p<0.05) (Table 3).

Comparison of medical service quality

A comparative analysis of healthcare service quality was ultimately conducted, with the results presented in Table 4. The intervention group manifested a statistically reduction in infection response time along with an elevated treatment adherence rate relative to the control group (p<0.05). Patient satisfaction survey outcomes also showed a superior overall satisfaction rate for the intervention group (p<0.05).

Discussion

The serious consequences of postpartum infections following PROM—chronic maternal morbidity like pelvic pain and infertility, and neonatal immune deficiency—are well-established.[10] This study is the first to integrate crisis management theory into postpartum infection prevention and control among women with PROM. We established a comprehensive intervention model featuring dynamic risk assessment, multidisciplinary collaborative response, and patient-engaged management. The analysis revealed a statistically reduction in postpartum infections in the intervention group relative to controls. Results pertaining to infections, rehabilitation quality, and maternal-infant outcomes were also optimal in the crisis management cohort. This implies that the crisis management model potentially introduces a new approach for infection control in PROM cases through more efficient resource distribution and proactive risk warning.

We posit that crisis management exerts a positive influence on PROM patients through three primary mechanisms: (1) Enhancement of infection prevention and control efficacy: The core strength of this model lies in its integrated "Prevention-Early Warning-Intervention" framework.[11] Our findings demonstrate that the intervention group, benefiting from proactive surveillance of body temperature, vaginal discharge traits, inflammatory markers (PCT/IL-6), and subjective patient reports (e.g., foul-smelling lochia), achieved a markedly reduced response time to potential infections. This observation aligns with findings in emergency medicine, where crisis management has been shown to improve outcomes in sepsis by facilitating earlier intervention through robust early warning systems.[12] A shorter antibiotic course in the intervention group further indicates that precise risk stratification prevents overmedication, supporting the global Antimicrobial Stewardship initiative.[13] Comprehensive optimization of rehabilitation quality: The adoption of crisis management, integrating MDT and patient involvement, facilitated personalized rehabilitation.

Table 1: Comparison of infection status

Groups	Fever duration (h)	Course of antibiotic (d)	WBC ($\times 10^9$/L)	PCT (ng/mL)
Control (n=73)	17.99±3.13	6.18±1.35	13.22±3.15	3.24±1.15
Intervention (n=73)	17.27±4.49	5.75±1.08	11.80±1.89	2.25±0.67
T	1.112	2.103	3.299	4.832
p	0.268	0.037	0.001	<0.001

Table 2: Comparison of rehabilitation conditions

Groups	PHQ-9 score	Perineal wound healing (%)	Pelvic floor muscle strength	Hospitalization time (d)
Control (n=73)	9.63±2.16	62 (84.93)	3.74±1.05	8.15±1.84
Intervention (n=73)	7.38±1.70	70 (95.89)	4.15±0.62	7.30±1.57
Methods of statistical	Independent sample t	Chi-square	Independent sample t	Independent sample t
Statistics	t=6.981	χ^2=5.056	t=2.875	t=3.002
p		0.025	0.005	0.003

Table 3: Comparison of maternal and infant outcomes

Groups	Neonatal infection (%)	NICU admission (%)	Apgar score 1 min	5 min
Control (n=73)	7 (9.59)	11 (15.07)	8.63±0.81	9.01±0.84
Intervention (n=73)	5 (6.85)	8 (10.96)	9.10±0.48	9.34±0.65
Methods of statistical	Chi-square	Chi-square	Independent sample t	Independent sample t
Statistics	χ^2=0.363	χ^2=0.545	t=4.243	t=2.641
p	0.547	0.461	<0.001	0.009

Table 4: Comparison of medical service quality

Groups	Infection response time (min)	Treatment adherence (%)	NSNS Very satisfied (%)	Satisfied (%)	General (%)	Dissatisfied (%)	Very dissatisfied (%)	Overall satisfaction (%)
Control (n=73)	43.07±12.68	58 (79.45)	15 (20.55)	36 (49.32)	11 (15.07)	7 (9.59)	4 (5.48)	51 (69.86)
Intervention (n=73)	33.45±7.90	67 (91.78)	29 (39.73)	34 (46.58)	6 (8.22)	3 (4.11)	1 (1.37)	63 (86.30)
Methods of statistical	Independent sample t	Chi-square	Yates correction chi-square	Yates correction chi-square	Yates correction chi-square	Fisher's exact	Fisher's exact	Chi-square
Statistics	t=5.498	χ^2=4.505	χ^2=5.498	χ^2=0.027	χ^2=1.065	-	-	χ^2=5.763
p	<0.001	0.034	0.019	0.868	0.302	0.367	0.366	0.016

In this study, the intervention group demonstrated superior perineal wound healing rates and pelvic floor muscle strength scores compared to the control group. The absence of intergroup difference in fever duration may be attributed to prompt antipyretic interventions triggered by the crisis management protocol, which mitigated prolonged fever in both groups despite differential infection rates.

These outcomes validate the effectiveness of standardized wound care protocols like preemptive debridement for high-risk infection cases and guided early mobilization. Furthermore, a noted reduction in depression scores from psychological modules suggests a psyche-soma interplay, where reduced anxiety improved sleep quality and nutritional intake, thus indirectly aiding tissue repair.[14] This

finding aligns with the principle of "prioritizing perinatal mental health" recommended in obstetric psychological intervention guidelines.[15] (3) Synergistic improvement of maternal and infant outcomes: The intervention group exhibited higher Apgar scores, despite no statistically significant inter-group difference in neonatal infection rates. This suggests that controlling maternal infection may stabilize the intrauterine environment, leading to better neonatal vitality.[16] This finding aligns with preterm birth research, which links maternal infection mitigation in gestation to a decreased risk of neonatal asphyxia.[17] This aligns with the established correlation between maternal infection control and reduced fetal inflammatory response syndrome, which may attenuate neonatal cardiorespiratory depression. In terms of medical service quality, the intervention group achieved a reduced infection response time of 33 minutes. This was also a 55% reduction from the agency's baseline of 73 minutes (internal audit data). This suggests that the rapid response team mechanism can effectively curb the time-efficiency limitations inherent in traditional multidisciplinary collaboration. The concurrent rise in patient satisfaction underscores how the "shared decision-making" model reinforces physician-patient trust.[18]

Based on our findings, we propose several strategies to facilitate the clinical translation of crisis management protocols. These include the incorporation of these protocols into PROM clinical guidelines with clearly defined infection alert thresholds and response procedures. Furthermore, establishing a dedicated MDT comprising obstetrics, infectious disease, nursing, and psychological specialties is recommended. Conducting regular simulation drills for this team is crucial to streamlining response times. Moreover, creating smart monitors (e.g., wearable devices for temperature and uterine contraction tracking) that connect to a mobile APP could help clinicians intervene more effectively in PROM cases by providing real-time data and alerts. A pivotal focus for future research lies in constructing a reliable predictive algorithm to identify high-risk cases. Still, our findings are hampered by limitations, including a limited sample size (n=146) from a single center, which reduced the statistical power, especially for subgroup analyses of infant and maternal outcomes. Besides, the short 7-day postpartum observation window precluded assessment of long-term effects. Future research should prioritize multi-center validation (Phase 1) before extending follow-up periods (Phase 2), and assess the feasibility of implementing the crisis management model in primary care settings.

Strengths and limitations

This paper systematically applied crisis management theory (including dynamic risk assessment, multidisciplinary collaboration, and patient participation) to the prevention of postpartum infection in patients with PROM for the first time, which filled the gap in the field of obstetric emergency management. This integration provides a full-cycle perspective of "prevention, early warning, intervention, and recovery", which goes beyond the limitations of traditional conventional management and reflects forward-looking thinking. The results revealed the potential of crisis management in improving medical efficiency, which laid a reliable foundation for the optimization of medical resources. The results support the inclusion of crisis management protocols in clinical guidelines for PROM, and this model can be used by policy makers to promote the transformation of obstetric care to proactive prevention. However, the main limitations were the small sample size (n=146) and the single-center study, which limited the statistical power. Second, the postpartum observation period was only 7 days, making it impossible to assess long-term outcomes**.**

Conclusion

Operating through a core mechanism of dynamic risk assessment, multidisciplinary collaborative response, and patient-engaged management, the crisis management protocol demonstrates efficacy in PPROM care. Key benefits include a marked reduction in postpartum infections, hastened patient recuperation, and enhanced short-term prognoses for both mother and infant, alongside gains in operational efficiency. This strategy offers a proactive prevention, precision-intervention framework for managing acute obstetric situations, meriting its progressive implementation in

appropriately resourced medical facilities. Subsequent research with larger, multi-center cohorts will be crucial to ascertain the sustainability of these outcomes.

Conflicts of Interest

The authors report no conflict of interest.

Availability of data and materials

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Funding

Not applicable.

References

1. Lee WL, Chang WH, Wang PH. Risk factors associated with preterm premature rupture of membranes (PPROM). Taiwan J Obstet Gynecol. 2021;60(5):805-6.
2. Chien E, Mercer BM. Preterm Premature Rupture of the Membranes in the Twenty-First Century. Obstet Gynecol Clin North Am. 2020;47(4):xiii-xiv.
3. Lin D, Hu B, Xiu Y, Ji R, Zeng H, Chen H, et al. Risk factors for premature rupture of membranes in pregnant women: a systematic review and meta-analysis. BMJ open. 2024;14(3):e077727.
4. Saucedo AM, Calvert C, Chiem A, Groves A, Ghartey K, Cahill AG, et al. Periviable Premature Rupture of Membranes-Maternal and Neonatal Risks: A Systematic Review and Meta-analysis. Am J Perinatol. 2024;41(12):1604-15.
5. Pring ET, Malietzis G, Kendall SWH, Jenkins JT, Athanasiou T. Crisis management for surgical teams and their leaders, lessons from the COVID-19 pandemic; A structured approach to developing resilience or natural organisational responses. Int J Surg. 2021;91:105987.
6. Tedeschi GJ, Pratt AS. Crisis Management in Social Service Call Centers. Crisis. 2025;46(2):99-105.
7. Kraft K, Schutze S, Essers J, Tschurtz AK, Huner B, Janni W, et al. Pre-viable preterm premature rupture of membranes under 20 weeks of pregnancy: A retrospective cohort analysis for potential outcome predictors. European journal of obstetrics, gynecology, and reproductive biology. 2022;278:177-82.
8. Costantini L, Pasquarella C, Odone A, Colucci ME, Costanza A, Serafini G, et al. Screening for depression in primary care with Patient Health Questionnaire-9 (PHQ-9): A systematic review. J Affect Disord. 2021;279:473-83.
9. Zhang J, Yang L, Wang X, Dai J, Shan W, Wang J. Inpatient satisfaction with nursing care in a backward region: a cross-sectional study from northwestern China. BMJ open. 2020;10(9):e034196.
10. Boettcher LB, Clark EAS. Neonatal and Childhood Outcomes Following Preterm Premature Rupture of Membranes. Obstet Gynecol Clin North Am. 2020;47(4):671-80.
11. Rosenback R, Eriksson KM. COVID-19 healthcare success or failure? Crisis management explained by dynamic capabilities. BMC health services research. 2024;24(1):759.
12. Wu C, Su J, Zhao L, Xia Q, Xia L, Ma W, et al. [Effective implementation of hour-1 bundle for sepsis patients in emergency department based on crisis resource management]. Zhonghua wei zhong bing ji jiu yi xue. 2025;37(1):23-8.
13. Lanckohr C, Bracht H. Antimicrobial stewardship. Curr Opin Crit Care. 2022;28(5):551-6.
14. Wang Y, Guang Z, Zhang J, Han L, Zhang R, Chen Y, et al. Effect of Sleep Quality on Anxiety and Depression Symptoms among College Students in China's Xizang Region: The Mediating Effect of Cognitive Emotion Regulation. Behav Sci (Basel). 2023;13(10).
15. Simpson KR. Maternal Mental Health. MCN Am J Matern Child Nurs. 2022;47(1):59.
16. Murillo C, Ferrero S, Cobo T, Renau MI, Aldecoa V, Grau L, et al. Outpatient management of preterm prelabor rupture of membranes before 34 weeks: Maternal and neonatal outcomes. Int J Gynaecol Obstet. 2023;162(2):703-10.
17. Tang C, Lei F, Liu J, Gong F. Infection prevention and early warning in neonatal intensive care unit based on physiological sensor monitoring. Front Bioeng Biotechnol. 2023;11:1241287.
18. Paez G, Forte DN, Gabeiras M. Exploring the Relationship between Shared Decision-Making, Patient-Centered Medicine, and Evidence-Based Medicine. Linacre Q. 2021;88(3):272-80..