



Improving Maternal Health: An Extensive Analysis of ANM's Critical Involvement in Birth Preparedness and Complication Readiness (BP/CR) for Safe Motherhood-A Comprehensive Review

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ABSTRACT:

Introduction: A preparation for a typical delivery and being ready for any emergency that may occur is called delivery Preparedness and Complication Readiness, or BPCR. To ensure that a pregnant woman has access to professional obstetric health services when labour starts, it entails proactive planning and decision-making for the moment of birth. These consist of several little actions that, when taken collectively, have a significant impact on enhancing maternal health and lowering maternal mortality. This review critically examines the pivotal role of Auxiliary Nurse Midwives (ANMs) in ensuring safe motherhood through birth preparedness and complication readiness (BP/CR) strategies. By analysing existing literature, this paper underscores the importance of ANMs in improving maternal health outcomes, particularly in low-resource settings. Through a comprehensive review of relevant studies, policies, and programs, the review highlights the multifaceted responsibilities of ANMs and their critical involvement in BP/CR initiatives. Moreover, the paper identifies key challenges faced by ANMs and offers recommendations for empowering them to effectively fulfil their role in promoting safe motherhood.

Objectives: This comprehensive review aims to analyse the pivotal role of Auxiliary Nurse Midwives (ANMs) in facilitating birth preparedness and complication readiness (BP/CR) to ensure safe motherhood. By examining existing literature, guidelines, and practices, the review seeks to



evaluate the significance of ANMs in maternal healthcare systems worldwide, investigate the components of birth preparedness and complication readiness (BP/CR) and their impact on maternal and neonatal outcomes, examine the challenges and barriers faced by ANMs in delivering effective BP/CR services, and explore successful strategies and interventions employed by ANMs to enhance BP/CR and maternal health outcomes.

Methods: A systematic search was conducted across electronic databases such as PubMed, Google Scholar, MEDLINE, and relevant organizational websites (e.g., WHO, UNFPA) using keywords such as "Auxiliary Nurse Midwives," "Birth Preparedness," "Complication Readiness," "Maternal Health," and variations thereof. The search was limited to articles published in English within the last ten years (2014-2024) to ensure relevance. Data Extraction and Synthesis done with relevant data, including study design, population characteristics, key findings, and recommendations, were extracted from selected articles and synthesized to identify common themes, trends, and gaps in the literature.

Results: Gaps in Research and Practice: Despite the progress made, there are notable gaps in research and practice regarding ANMs' involvement in BP/CR. Limited evidence exists on the long-term effectiveness of BP/CR interventions, especially in diverse settings. Moreover, the perspectives of ANMs themselves and the communities they serve are often overlooked in program design and evaluation.

Conclusions: Based on the findings, recommendations are provided for policymakers, healthcare providers, and stakeholders to strengthen ANMs' role in promoting safe motherhood through BP/CR initiatives. These include investing in comprehensive training programs, improving access to essential resources, addressing systemic barriers, and fostering multi-sectoral collaboration to enhance maternal healthcare delivery.

1. Introduction

Birth preparation and complication readiness, or BP/CR, is a technique designed to encourage prompt utilisation of professional maternal and neonatal care, particularly during childbirth. It is predicated on the idea that being ready for difficulties and well prepared for labour can shorten the time it takes to get treatment. According to Thaddeus and Maine, there are three delays that affect the availability and utilisation of obstetric services: (a) waiting to seek treatment until a problem arises; (b) taking longer to get to the facility; and (c) waiting to get care.¹ Compared to uneducated women, women with higher levels of education and awareness of obstetric difficulties are better prepared for childbirth and any issues that may arise. One strategy that tackles these delays is called BP/CR, which teaches expectant mothers, their families, and the community how to properly prepare for deliveries and handle crises when they arise. The fundamental ideas of BP/CR include finding a trained birth attendant for the delivery, locating a medical facility in

case of emergency, making plans for transportation to a skilled care location in case of emergency, setting up alternative funding sources or saving money for the costs of skilled and emergency care, and locating a companion to accompany the woman to the emergency room or during childbirth. Other precautions include finding a compatible blood donor in the event of a haemorrhage, obtaining permission from the head of household to seek skilled care if a birth emergency occurs while he is away, and arranging for a source of household support to provide temporary family care during his absence.²

Globally, more than 40% of pregnant women encounter acute obstetric complications that result in either poor maternal or newborn outcomes.³ Maternal issues include anaemia, malnutrition, infections (UTI, etc.), hypocalcaemia, gestational hypertension, gestational diabetes mellitus, preterm birth, and many more.⁴ In 2015, WHO projected that over 830 women died every day from avoidable causes during



pregnancy and delivery, with poor countries accounting for 99% of all maternal fatalities.⁵

According to the November 2019 SRS (Sample Registration System 2015-2017) bulletin, India's Maternal Mortality Ratio (MMR) is 122 per 100,000 live births (95% confidence interval: 112-133).⁶

The National Family and Health Survey (NFHS)-4 revealed that 18.2% of all reported births in India were low birth weight (LBW), with 16.7% of births in West Bengal and 18.5% in rural India. Other pregnancy-related adverse outcomes and non-live birth rates in West Bengal were 8.5% and 9.2%, respectively.

Perinatal mortality was also found to be significant, with 36 fatalities per 1,000 pregnancies during the last five years. Furthermore, it was discovered to be greater in rural areas (40 fatalities per 1,000 pregnancies) than in urban ones (26 deaths per 1,000 pregnancies).

Being ready for birth ensures that when labour starts, women may get competent delivery care. Because it guarantees the availability and prompt use of professional maternity and newborn health care, this also lessens the delays that arise when women have obstetric difficulties⁷. The goal of Birth Preparedness and Complication Readiness (BPACR) is to guarantee that women may have a professional delivery, which will lower the risk of obstetric problems. It also encourages the prompt utilization of expert maternal and neonatal care, particularly during childbirth⁸. Knowledge of warning signs, finding a trained birth attendant, locating the closest suitable care facility, organizing transportation to this facility for deliveries and/or obstetric emergencies, setting aside money for care and other resources, identifying a potential blood donor, and acting as the decision-maker in an emergency were the main components of BPACR⁹. Pregnancy-related issues claim the lives of women.

Birth preparedness and complication readiness (BP/CR) is a strategy aimed at promoting the timely use of skilled maternal and neonatal care, particularly during childbirth and the immediate postpartum period. It involves educating and empowering pregnant women, their families, and communities to anticipate potential complications

during pregnancy, labour, delivery, and the postpartum period, and to take appropriate actions to address them.

The components of birth preparedness and complication readiness typically include:

- Knowledge about danger signs: Pregnant women and their families are educated about the signs and symptoms of potential complications during pregnancy, labour, delivery, and the postpartum period. This includes recognizing signs such as severe bleeding, prolonged labour, convulsions, and other indicators of obstetric emergencies.
- Planning for birth: This involves making arrangements for skilled birth attendance, identifying the location of the nearest health facility capable of providing emergency obstetric care, arranging transportation to the facility, and saving money for potential expenses related to childbirth.
- Saving money and arranging transportation: Families are encouraged to set aside funds for transportation and other potential costs associated with accessing maternal health services. Additionally, arrangements for transportation to the health facility in case of an emergency are made well in advance.
- Identifying a skilled birth attendant: Women are encouraged to seek care from trained healthcare providers, such as doctors, midwives, or skilled birth attendants, for prenatal care, childbirth, and postnatal care. This ensures that they receive appropriate medical attention during pregnancy and childbirth.
- Community mobilization and support: Community members, including traditional birth attendants, religious leaders, and community health workers, play a crucial role in promoting birth preparedness and complication readiness. They can provide support, encouragement, and assistance to pregnant women and their families.

By promoting birth preparedness and complication readiness, the aim is to reduce delays in accessing appropriate maternal and neonatal care, thereby improving maternal and neonatal health outcomes and reducing maternal and neonatal mortality. This approach emphasizes the importance of proactive planning and community engagement in



ensuring safe childbirth and reducing the risk of complications during pregnancy and childbirth.

The majority of maternal fatalities may be avoided since there are well-established medical interventions to control or prevent complications¹⁰. Prenatal care, professional care during childbirth, and care and support in the weeks following childbirth must be accessible to all women. Maternal mortality rates that are high in some parts of the world are a reflection of disparities in access to essential health services¹¹. Pregnant women who are aware of BPACR are better able to identify any problems throughout their pregnancy, make decisions to seek treatment sooner, and seek care more quickly because they have access to information on suitable providers of care¹². It is recommended that expectant mothers, along with their families and communities, make appropriate plans for childbirth and handle any unforeseen medical issues that may arise¹³. For both the expectant woman and the unborn child, prompt management and care by qualified medical personnel can mean the difference between life and death.

Maternal mortality remains a significant global health challenge, particularly in resource-constrained settings. Birth preparedness and complication readiness (BP/CR) strategies have emerged as crucial interventions for reducing maternal mortality and morbidity. Central to the success of BP/CR initiatives are Auxiliary Nurse Midwives (ANMs), who play a central role in providing essential maternal health services at the community level. This review aims to elucidate the indispensable contributions of ANMs in promoting safe motherhood through comprehensive BP/CR approaches.

ANMs' Role in BP/CR:

ANMs serve as frontline healthcare providers, delivering essential maternal and child health services in both rural and urban communities. Their responsibilities encompass a wide range of activities, including antenatal care, skilled birth attendance, postnatal care, and family planning counselling. Within the framework of BP/CR, ANMs are tasked with educating pregnant women and their families about the importance of planning for childbirth and recognizing potential complications. They facilitate the creation of birth preparedness plans, which involve

identifying transportation options, saving money for healthcare expenses, and identifying a skilled birth attendant. Additionally, ANMs conduct regular home visits to monitor pregnant women, provide timely referrals in case of complications, and promote healthy behaviours.

Challenges Faced by ANMs:

Despite their crucial role, ANMs encounter various challenges that impede their ability to effectively implement BP/CR interventions. These challenges include inadequate training and resources, high workload, insufficient support from the healthcare system, cultural barriers, and limited community engagement. Additionally, ANMs often face logistical barriers in reaching remote and marginalized populations, exacerbating disparities in maternal healthcare access and outcomes.

One of the main responsibilities as an ANM will be to make sure that every pregnant woman receives the required counselling, either from you at the HWC-SHC or from other members of your team during the outreach ANC sessions for VHSND.

Counselling is necessary for all expectant mother regarding the following:

- Birth preparation for a safe institutional birth and government programs and entitlements for expectant women.
- Early detection of problems - identifying warning indicators during pregnancy, during labour, and following delivery or abortion.
- Guidance on Nutrition: The Value of Breastfeeding
- Having sex when expecting
- Stopping Domestic Abuse
- Post -Natal Family Planning.

Recommendations for Empowerment:

To enhance the effectiveness of ANMs in promoting safe motherhood, it is imperative to address the challenges they face and provide them with the necessary support and resources. This may entail comprehensive training programs that equip ANMs with the knowledge and skills needed to deliver quality maternal healthcare services and effectively engage



with communities. Strengthening health systems to ensure adequate staffing, infrastructure, and supplies is essential. Furthermore, community involvement and partnerships with local organizations can enhance the reach and impact of ANM-led BP/CR initiatives.

Objectives: This comprehensive review aims to analyse the pivotal role of Auxiliary Nurse Midwives (ANMs) in facilitating birth preparedness and complication readiness (BP/CR) to ensure safe motherhood. By examining existing literature, guidelines, and practices, the review seeks to:

- Evaluate the significance of ANMs in maternal healthcare systems worldwide.
- Investigate the components of birth preparedness and complication readiness (BP/CR) and their impact on maternal and neonatal outcomes.
- Examine the challenges and barriers faced by ANMs in delivering effective BP/CR services.
- Explore successful strategies and interventions employed by ANMs to enhance BP/CR and maternal health outcomes.
- Assess the effectiveness of training programs and capacity-building initiatives for ANMs in improving BP/CR services.
- Identify gaps in current research and practice concerning ANMs' involvement in BP/CR and suggest areas for further investigation.

- Provide recommendations for policymakers, healthcare providers, and stakeholders to strengthen ANMs' role in promoting safe motherhood through comprehensive BP/CR initiatives.

Methods: Literature Search: A systematic search was conducted across electronic databases such as PubMed, Google Scholar, MEDLINE, and relevant organizational websites (e.g., WHO, UNFPA) using keywords such as "Auxiliary Nurse Midwives," "Birth Preparedness," "Complication Readiness," "Maternal Health," and variations thereof. The search was limited to articles published in English within the last ten years (2014-2024) to ensure relevance.

Inclusion Criteria: Studies, reviews, guidelines, and reports focusing on the role of ANMs in birth preparedness and complication readiness (BP/CR) for safe motherhood were included. Emphasis was placed on publications highlighting ANMs' contributions, challenges, strategies, and outcomes related to BP/CR interventions.

Data Extraction and Synthesis: Relevant data, including study design, population characteristics, key findings, and recommendations, were extracted from selected articles and synthesized to identify common themes, trends, and gaps in the literature.

Data Extraction table:

S.no.	Authors	Title	Country	Finding
1.	Kamineni, Vasundhara Murki, Anuradha, Kota, Venkata Lakshmi I	Readiness for complications and readiness for delivery in expectant patients visiting an urban tertiary care hospital. (2021)	India	Birth preparedness and complication readiness (BP/CR) is a technique designed to encourage prompt utilization of professional maternal and neonatal care. It is predicated on the idea that being ready for difficulties and adequately preparing for childbirth can shorten the time it takes to get treatment. Results: The study included six hundred pregnant participants. The respondents' average age was 25.2 (± 4) years old. At enrolment, the mean gestation was 18.7 $\pm$ 8



				weeks. 20% of the women who took part in the poll were illiterate, 70% were homemakers, and almost 70% made more than Rs. 15,197 per month as a household (n = 405). 516% of the moms, or 316, were primigravida's. According to the study's definition, 71.5% were ready at birth. But 99 moms (16.5%) were unaware of buying birth supplies, 102 women (17%) had not begun saving money, and 59 women (9.8%) could not name a delivery location. Conclusions: approximately three quarters of expectant mothers who visit an urban tertiary care facility are ready for childbirth. Nonetheless, there is a severe lack of danger sign knowledge and emergency preparedness. Pregnancy readiness is independently correlated with maternal education and early reservations.¹⁴
2.	Tanya Singh, Brajaraj Tripathy, Anuj Kumar Pandey. Et al.	Analysing complication readiness and delivery preparedness: a comprehensive review and meta-analysis of Indian pregnant and postpartum women. (2022)	India	Analysing complication readiness and delivery preparedness: a comprehensive review and meta-analysis of Indian pregnant and postpartum women. Method: The study employed resources including PubMed, Cochrane Library, and ProQuest and adhered to PRISMA criteria. The Joanna Briggs Institute [JBI] Tool was utilized to evaluate papers critically. R studio software and the Comprehensive Meta-Analysis [CMA] program was used to conduct the meta-analysis. Results: 35 cross-sectional studies reported knowing one or more aspects of birth preparedness [BP], whereas 34 included studies reported knowing about danger indicators or complication readiness [CR]. With the use of the random effect model, the combined result revealed that just around half of the women [49%; 95% CI: 44%, 53%] knew what the BPCR components were. In Maharashtra and Karnataka, respectively, this finding varied from 15% [95% CI: 12%, 19%] to 79% [95% CI: 72%, 84%] [I² = 94%, p = <0.01]. All components show high heterogeneity [>90%] [p<0.01]. Subgroup analysis results showed that there was no statistically significant difference in the proportion of BPCR between women who had recently given birth (54 %; 95% CI: 46,62%) and pregnant women (50 %; 95% CI: 45,55%). The incidence in southern India, however, is comparatively higher [56%; 95% CI: 45%, 67%]. Conclusion: The study draws attention to the variables that contribute to the low prevalence of BPCR in India. It is imperative to scale up low-cost therapies with favourable overall effects, such as BPCR. The authors make a compelling case for the relevance of preparing for complications and giving delivery in order to lower maternal morbidity and death and meet the Sustainable Development Goals. Strengthening current resources—such as frontline workers and primary



				healthcare—should be taken into account as a calculated method to increase the efficacy of awareness campaigns. ¹⁵
3.	Derara GirmaID, Addisu WalelignID, Hiwot Dejene	Cross-sectional research on birth preparing and complication ready practices among expectant women in Central Ethiopia, 2021, and related variables	Ethiopia	Techniques From March 1 to May 1, 2021, a cross-sectional investigation was carried out at the institution. To find 422 pregnant women, a sys-thematic random sampling approach was utilized. In order to determine the factors connected to BP/CR practice, binary logistic regression, both bivariate and multivariable, was fitted. In the multivariable analysis, variables that had a p-value of less than 0.25 in the bivariable analysis were included. The multivariable analysis employed adjusted odds ratios (AOR) together with a p-value <0.05 to identify factors that were statistically significant. Results: 414 expectant mothers in all have taken part in the study. 44.9% of practices overall (CI: 40.1, 49.7) were BP/CR. The use of preconception care (PCC) (AOR = 2.31; 95% CI:1.38–3.86), urban dwellers (AOR = 2.00; 95% CI:1.21–3.31), and BP/CR knowledge (AOR = 2.29; 95% CI:1.27–3.47), awareness of danger signs in the first and second trimesters (AOR = 2.52; 95% CI:1.40–4.52), number of ANC visits $\geq$ three (AOR = 1.66; 95% CI:1.01–2.74), knowledge of the expected date of delivery (EDD) (AOR = 3.71; 95% CI:2.01–6.82), and collaborative decision-making on Obstetric services were shown to be substantially linked with the practice of BP/CR (AOR = 3.51; 95% CI: 1.99–6.20). Conclusion: In accordance with the WHO guideline, this study found that fewer than half of pregnant women were sufficiently prepared for childbirth and associated consequences, and that there was a low level of BP/CR practice among these women. Furthermore, research has demonstrated the impact of socioeconomic, maternal, and health service-related variables on BP/CR practice. Therefore, it is advised to boost PCC and early ANC initiation by increasing pregnant women's comprehension, promote cooperative decision-making on obstetric care, and improve the status of BP/CR practice by increasing awareness creation opportunities.¹⁶
4.	Deogratius Bintabara, Mohamed A Mohamed, Janneth Mghamba, Peter Wasswa, Rose N M Mpembeni.	Cross-sectional research on birth preparedness and readiness for complications among women who have just given birth in the Chamwino area of central Tanzania. 2015	Tanzania	Methods: In January 2014, community-based cross-sectional research was carried out in Tanzania's Chamwino area among women who had given birth two years earlier. If a woman reported at least three of the following, she was deemed prepared for childbirth and its complications: she would have known the expected date of delivery, saved money, chosen a skilled birth attendant or medical institution, chosen a convenient method of transportation, and found two suitable blood donors. At the P value < 0.05 level of significance, descriptive, bivariate, and



				multivariable logistic regression analyses were carried out. Findings: A total of 428 women with a median age of 26.5 (22–33) years were interviewed. Of the responders, about 249 (58.2%) were thought to be prepared for childbirth and its consequences. Maternal education (AOR = 2.26, 95% CI; 1.39, 3.67), spouse employment (AOR = 2.18, 95% CI; 1.46, 3.25), ANC booking (AOR = 2.03, 95% CI; 1.11, 3.72), four or more antenatal visits (AOR = 1.94, 95% CI; 1.17, 3.21), and knowledge of key danger signs (AOR = 4.16, 95% CI; 2.32, 7.45) were found to be significant determinants of birth preparedness and complication readiness after controlling for confounding and clustering effect. It was discovered that institutional delivery was linked to being prepared for birth (AOR = 2.45, 95% CI; 1.12, 5.34). Conclusion: In conclusion, it was discovered that a small percentage of women were prepared for childbirth and associated consequences. Early and regular prenatal care visits should be prioritized by the district reproductive and child health coordinator, as they have been shown to be among the indicators of both birth preparedness and readiness for complications.¹⁷
5.	Pandey, Pallavi Srivastava, Ratan K, Kumari, Kalpana, Pandey, Malvika.	Birth Preparedness and Complication Status The preparedness of expectant mothers and new mothers in rural Varanasi	India	Preparation and Complications for Delivery Being prepared for childbirth involves organizing and setting up the essentials so that the woman may get timely and sufficient medical attention. The aim of the research was to evaluate the level of Birth Preparedness and Complication Readiness among expectant and recently delivered women residing in rural Varanasi. Materials and Procedures: Eleven components pertaining to prenatal care and childbirth preparations were used in interviews with 633 pregnant and recently delivered women. Findings: Of the total respondents, fewer than half (46.4%) of pregnant women and about the same percentage (45.1%) of women who had just given birth were deemed to be "Well Prepared." In order to prevent the risk to a mother's and child's lives, the study's conclusion is that people need to be made aware of the significance of careful preparation and making plans ahead of time.¹⁸
6.	Semere Sileshi Mulugeta Betre Gebremariam	Maternal readiness for childbirth, readiness for complications, and other factors influencing the delivery location in Goba District, Bale Zone, South East Ethiopia.	South East Ethiopia	Before the initial census, a community-based case control study was carried out on 358 sampled respondents (119 cases and 239 controls), who were chosen using a stratified two-stage sampling procedure. The data was gathered using a pre-tested, standardized questionnaire along with an in-person interview. It was then coded, cleaned, and imported into SPSS version-21 for analysis. To find predictors of the site of delivery, binary logistic regression models were utilized. The odds ratio with 95% confidence interval (CI) was then used to determine if any relationships existed at



			the 0.05 level of significance. Outcomes: The age of the respondents was 28.84 (± 5.7) years for the controls and 27.41 (± 5.8) years for the cases, respectively, with a standard deviation of 5.8% of the respondents, two thirds (67.1%) gave birth at home, while just thirty-nine percent (32.9%) did it in a medical facility. A significant percentage of the cases (79.7%) and two thirds (34.0%) of the controls were ready for delivery and any complications. The site of delivery was substantially correlated with maternal education, religion, proximity to a medical institution, awareness of ambulance transport availability, and history of obstetric complications (P-value < 0.01). The site of delivery was influenced independently by practices related to birth preparation and complications ready (AOR = 2.55, 95% CI: 1.12, 5.84). Conclusion: The study found that moms who were well-prepared for labour and complications used institutional delivery services more effectively. It is advised to implement strategies to improve institutional delivery services by making mothers more prepared for labour and reducing complications prior to childbirth.¹⁹
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Conclusion: One of the most significant moments in a woman's life is giving birth to a child. It ought to be a reason for celebration rather than a source of sorrow for a woman. Pregnant women must receive prompt and appropriate medical treatment in order to lower their risk because childbirth is an unpredictable event with potential risks and hazards. A preparation for a typical delivery and being ready for any emergency that may occur is called delivery Preparedness and Complication Readiness, or BPCR. To ensure that a pregnant woman has access to professional obstetric health services when labour starts, it entails proactive planning and decision-making for the moment of birth. These comprise some little actions that, when taken collectively, have a significant positive impact on maternal health.

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