

THE ROLE OF COMMUNITY HEALTH WORKERS IN THE EXISTING REFERRAL SYSTEM FOR NEWBORNS

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Abstract

Background: Newborn mortality remains a pressing public health concern globally, necessitating effective referral systems to ensure timely and appropriate care. Community Health Workers (CHWs) play a crucial role in linking the beneficiaries with healthcare services, including newborn care, especially in resource-constrained settings.

Objective: This paper is trying to assess the role of CHWs linked with newborn referral systems, examining their effectiveness, challenges, and potential improvements. CHWs, with their intimate knowledge of communities, serve as crucial links between healthcare facilities and families, identifying at-risk newborns and expediting referrals.

Materials and Methods: The present study employed a quantitative research design, utilizing a questionnaire for data collection on CHW referrals for newborns. The aim was to analyze the data to understand the effectiveness, challenges, and outcomes of CHW referrals in the context of newborn care. Data of 300 records was collected, representing referrals made by CHWs for newborn care. The sample size was chosen to provide a substantial dataset for analysis, ensuring the statistical significance and reliability of the results.

Conclusion: Challenges such as limited resources and socio-cultural barriers exist, but strategies such as enhanced training, community engagement, and task-shifting can bolster CHW effectiveness. Strengthening the role of CHWs in newborn referral systems holds promise for reducing newborn mortality and improving health outcomes.

Keywords: Newborn Mortality, Healthcare Access, Resource-constrained Settings, Community Engagement, Task-shifting.

INTRODUCTION

In many regions across the globe, the issue of newborn mortality persists as a formidable public health challenge, demanding urgent attention and effective intervention strategies. Amidst this backdrop, the establishment and maintenance of robust referral systems emerge as indispensable components in ensuring timely and adequate healthcare provision for newborns in need. At the forefront of these systems are Community Health Workers (CHWs), whose essential role in supporting the beneficiaries to access the healthcare services, particularly for newborn care, is paramount, particularly within resource-constrained environments (Gupta et al.,2019).

This research endeavour seeks to delve into the multifaceted role of CHWs within the existing referral framework for newborns, aiming to scrutinize their effectiveness, confront the challenges they encounter, and explore avenues for potential enhancements. CHWs, often embedded within the fabric of local communities, serve as linchpins in the dissemination of healthcare information, provision of basic medical services, and facilitation of referrals, thereby bridging the gap between healthcare facilities and the community people.

One of the primary strengths of CHWs lies in their intimate knowledge of community dynamics, cultural nuances, and contextual factors that influence healthcare-seeking behaviours, making them uniquely positioned to identify and address newborn health needs at the grassroots level. Through door-to-door visits, community meetings, and interpersonal interactions,

CHWs can not only impart crucial health education to caregivers but also identify newborns at risk and expedite their referral to appropriate healthcare facilities for further assessment and management (Okeyo et al.,2018).

However, the effectiveness of CHWs in newborn referral systems is not without its challenges. Limited resources, including inadequate training, insufficient supervision, and scarce logistical support, often undermine the capacity of CHWs to fulfil their roles optimally. Furthermore, attitudinal barriers within communities, coupled with entrenched socio-cultural beliefs, may impede the acceptability and uptake of referrals, thereby hindering timely access to essential healthcare services for newborns (Kok et al.,2015).

In light of these challenges, several strategies can be explored to bolster the role of CHWs within newborn referral systems. Strengthening the pre-service and post joining (in-service) training programs to enhance the clinical competencies and interpersonal skills of CHWs is imperative. Additionally, investing in robust supervision mechanisms and providing CHWs with the necessary tools and resources, such as mobile health technologies and transportation allowances, can augment their effectiveness in facilitating timely referrals (Lewin et al.,2010).

Moreover, fostering community engagement and leveraging existing social networks can help overcome resistance to referrals and foster a supportive environment for newborn care-seeking behaviours. Engaging community leaders, religious

authorities, and traditional birth attendants in advocacy efforts can further bolster the credibility and acceptability of referrals within local contexts (Kok et al., 2015).

Furthermore, integrating CHWs into the broader continuum of care through task-shifting initiatives and collaborative partnerships with formal healthcare providers can optimize resource utilization and streamline referral processes. By empowering CHWs as integral members of the healthcare team, their capacity to triage, assess, and refer newborns appropriately can be maximized, thereby enhancing the efficiency and effectiveness of newborn referral systems (Kok et al., 2015).

Thus, CHWs play a pivotal role in the existing referral system for newborns, serving as frontline agents of change in the quest to reduce newborn mortality and improve health outcomes. Despite facing numerous challenges, the potential of CHWs to facilitate timely access to healthcare services for newborns is immense, warranting concerted efforts to strengthen their capacity, address systemic barriers, and foster community support. By harnessing the collective expertise of CHWs, policymakers, healthcare providers, and communities alike, we can forge a more resilient and responsive newborn referral system that ensures every newborn receives the care they deserve, irrespective of their socio-economic circumstances or geographic location.

A. Research Objectives

- To assess the role of CHWs towards referral system for newborns.
- To identify the challenges faced by CHWs in facilitating newborn referrals.
- To analyze the effects of CHWs for improvement in the newborn health outcomes through the referral system.
- To propose recommendations for strengthening the role of CHWs in the newborn referral system.

LITERATURE REVIEW

Studies suggesting that the first 28 days in the life of a child are termed as neonatal period, reflected most vulnerable duration for newborns, with approximately 2.4 million neonatal deaths occurring globally each year (Lawn et al., 2014). Many of these deaths are preventable with timely and appropriate care, highlighting the importance of effective newborn health interventions. India has contributed a lot toward establishing the valid evidences for newborn care in two manners: 1) Home Based Newborn Care (HBNC) (Bang et al. 1999), and 2) community mobilization towards health promotion (Sigerist, 1945). The HBNC model was developed in the Gadchiroli district of Maharashtra in the 1990s, an intervention executed by the CHWs during their visits to the beneficiaries' home. The intervention led to reduce the prevalence of neonatal deaths, which influenced the government of India to introduce HBNC program through Accredited Social Health Activists (ASHAs) in 2011, and it was one of the leading programs for newborns in India.

The Integrated Management of Neonatal and Childhood Illnesses (IMNCI) program was introduced in 2004 to moved out with addition of home visits by the Anganwadi Workers (AWWs). The IMNCI programme was implemented in the 505 districts of India's 27 states and 4 union territories. To improve this programme AWWs, ASHAs, and Auxiliary Nurse & Midwives (ANMs) were trained (Neogi, Sharma, Chauhan, *et al.* 2016: S13). After national rural health mission (NRHM) was launched in the year 2005, various facility-based newborn care (FBNC) initiatives such as Newborn Care Corners (NBCC) at

every child birth points, newborn stabilization units (NBSUs) at First Referral Units (FRUs) and special newborn care units (SNCUs) at the district hospitals by 2013 (Eranjini, Viswan, and Anil Kumar, 2019).

The CHWs has played a crucial role in reducing neonatal deaths through health promotion activities under various programmes and interventions. Despite their significant contributions, CHWs encounter various challenges in facilitating newborn referrals. These include limited training and supervision, inadequate resources, cultural barriers, and geographical constraints. For instance, a study by Rahman et al. (2016) identified transportation barriers as a significant challenge for CHWs in referring newborns to health facilities in rural Bangladesh.

Several studies have demonstrated the positive impact of CHWs in newborn referral systems. For example, a study by Okeyo et al. (2018) in Kenya found that CHWs facilitated timely referrals for newborns with complications, leading to reduced neonatal mortality rates. Similarly, a review by Gilmore et al. (2013) highlighted the effectiveness of CHWs in identifying danger signs in newborns and ensuring prompt referral to healthcare facilities.

According to Gupta et al. (2019), CHWs have a significant impact on healthcare service utilization, particularly in maternal and child health (MCH) services. They filled the gap through community linkage with the health systems, leading to increased utilization of healthcare facilities, including for newborn care.

Adam et al. (2016) found that a CHW program in rural Kenya effectively increased the utilization of antenatal care (ANC) and postnatal care (PNC) services, as well as skilled delivery attendance, contributing to improved maternal and newborn health outcomes.

Ethiopia's Health Extension Program, as discussed by Koblinsky et al. (2016), relies on CHWs to deliver essential health services, resulting in improved MCH outcomes, increased access to ANC and PNC services, skilled birth attendance, and immunizations. The WHO guideline (2018) emphasized on the significance of integrating CHWs into health systems, providing adequate training, supervision, and support, and clearly defining their roles to optimize their effectiveness in delivering essential health care services, including MCH services.

Perry et al. (2014) provided an overview on the CHWs' historical evolution and effectiveness across different income settings, highlighting their diverse roles in delivering healthcare services, including interventions for maternal and child health.

Schneider et al. (2016) discuss the role of CHWs in strengthening health systems and addressing wider determinants of health, emphasizing their importance in improving health outcomes for vulnerable populations such as newborns and their mothers.

Bhutta et al. (2010), analysed that CHWs contributing in delivering to achieve Millennium Development Goals (MDGs) related to health (including MCH), and integrating them into national health systems is essential for achieving these goals.

According to Perry and Crigler (2017), developed and strengthened CHW programs at mass population requires practical guidance and case studies to create interest among program managers and policymakers. This pre-examined guide offers insights into CHW program design, implementation, monitoring, and evaluation, including their role in MCH interventions, which can inform efforts to integrate CHWs into existing newborn referral systems and enhance their support to improve the newborn health outcomes.

Scott et al. (2018) conducted a review of existing literature on CHW programs, providing a comprehensive overview of their

effectiveness worldwide. Synthesizing evidence on various health interventions, including MCH services. The review highlighted the key components of successful CHW programs and its potential for improvement in the outcomes related to newborn health achieved through community-based referrals and care.

Kok et al. (2015) conducted a systematic analysis of the existing literature and examined the intervention designs and factors influencing the outcomes of CHWs' action in the low-income and middle-income countries. They identified training, supervision, incentives, and supportive supervision as key factors contributing to CHW effectiveness, offering insights into designing programs that maximize their potential to improve newborn health outcomes through effective referrals and community-based care.

UNICEF (2018) highlights the role of CHWs as a strategy towards ensuring the access to health services for all children, including newborns. This document summarises the CHW programs worldwide, their contributions to child health, and the challenges they face, offering recommendations for strengthening these programs to expand the accessibility for essential healthcare services for newborns and other vulnerable populations.

Lewin et al. (2010) evaluated the effectiveness of lay health workers, including CHWs, in primary and community health care for MCH and infectious diseases management. Synthesizing evidence from randomized controlled trials and controlled before-and-after studies, this review offers insights into CHWs' effectiveness in improving MCH outcomes, including newborn care, and identifies key factors influencing their performance.

The literature on newborn healthcare highlights the importance of early identification and management of health issues to prevent mortality and morbidity. CHWs, often community members trained to provide basic healthcare services, are integral in bridging the gap between communities and healthcare facilities. Studies have shown that CHWs can effectively identify newborns in need of medical attention, provide basic care, and refer them to appropriate facilities.

However, challenges exist in the implementation of CHW-led referral systems. These include inadequate training and supervision, limited resources, cultural barriers, and geographical constraints. Additionally, there is a need for robust data collection and monitoring mechanisms to track referrals and assess their impact on newborn health outcomes. In conclusion, the literature reviewed underscores the significant role of CHWs in improving newborn health outcomes through community-based interventions and referrals. Despite facing challenges, CHWs contribute to advancing newborn health and reducing neonatal mortality rates by providing essential care and bridging gaps between communities and formal health facilities. Implementing recommended strategies can maximize the effectiveness of CHWs in this regard.

RESEARCH METHODOLOGY

The methodology section of a research paper offers a comprehensive description of the study conducted, it enable other researchers to understand and replicate, or build upon the work. In reference to the context of our study on the role of CHWs in the referral system for newborns, the methodology would be detailed as follows:

A. Research Design

The present study executed quantitative research design. The primary data was collected from CHWs by using questionnaire to assess the gaps in existing referral system for newborns. The aim was to analyze the data to understand the effectiveness, challenges, and outcomes of CHW referrals in the context of newborn care.

B. Sample

Data of 300 records was collected, representing referrals made by CHWs for newborn care. The sample size was chosen to provide a substantial dataset for analysis, ensuring the statistical significance and reliability of the results.

C. Data Collection

- **Questionnaire Development:** A structured questionnaire was designed to collect data on various aspects of CHW referrals, including reasons for referrals, outcomes, and challenges encountered.
- **Survey Administration:** The questionnaire was administered to a mix of CHWs, healthcare service providers, and community members involved in the referral process.
- **Data Collected:** For the purpose of this analysis, the dataset was collected to include key variables such as referral reasons, outcomes, transport delays, inadequate follow-up, and service availability.

Variables

1. **Independent Variables:** Referral reason, transport delay, inadequate follow-up, and service availability.
2. **Dependent Variable:** Referral outcome.

D. Data Analysis

1. **Descriptive Statistics:** The initial step involved summarizing the data to understand the distribution of referral reasons, outcomes, and challenges.
2. **Comparative Analysis:** The effectiveness of CHWs in the referral process was analyzed by comparing referral outcomes across different conditions and challenges.
3. **Statistical Testing:** Data was analysed through Chi-square tests to identify the significant associations between referral reasons, transport delays, service availability, and referral outcomes.
4. **Visualization:** Data was visually represented through various graphs to aid in the interpretation of the findings.

E. Ethical Considerations

It has been ensured that ethical guidelines to be followed in the enrolment of the participants: i.e. informed consent, confidentiality, and the right to withdraw from the present study without any repercussions etc.

DATA ANALYSIS

To conduct a comprehensive data analysis that aligns with the objectives of this research, we collected a dataset based on the objectives. This dataset represents the activities, referrals, and outcomes associated with CHWs in the context of newborn care.

1. **Data collection:** we collected dataset with 300 records representing different referrals made by CHWs for newborns. The data includes variables such as referral reasons (e.g., respiratory distress, sepsis, low birth weight), outcomes (e.g., successful treatment, complications), and potential challenges (e.g., transportation delays, inadequate follow-up).

2. **Descriptive Analysis:** This will involve summarizing the data to understand the distribution of referrals, common conditions, outcomes, and identified challenges.
3. **Comparative Analysis:** We'll compare the outcomes of referrals based on different variables, such as the reason for referral or the challenges faced, to assess any patterns or significant differences.
4. **Advanced Statistical Tests:** Depending on the nature of the data, we apply tests like chi-square for categorical variables to identify statistically significant associations or differences.

The dataset includes the following columns:

- CHW_ID: An identifier for each CHW.
- Referral Reason: The reason for the referral (e.g., Respiratory Distress, Sepsis, Low Birth Weight, Other).
- Referral Outcome: The outcome of the referral (e.g., Successful Treatment, Complications, Mortality, Lost to Follow-up).
- Transport_Delay: Indicates if there was a delay in transportation (Yes or No).
- Inadequate_Follow_Up: Indicates if there was inadequate follow-up (Yes or No).
- Service_Availability: Indicates if the required service was available (Available or Not Available).

Descriptive statistics

Referral Reasons:

- The most common referral reason is Respiratory Distress, followed by Sepsis and Low Birth Weight (Fig.1).
- 'Other' reasons constitute the least number of referrals.

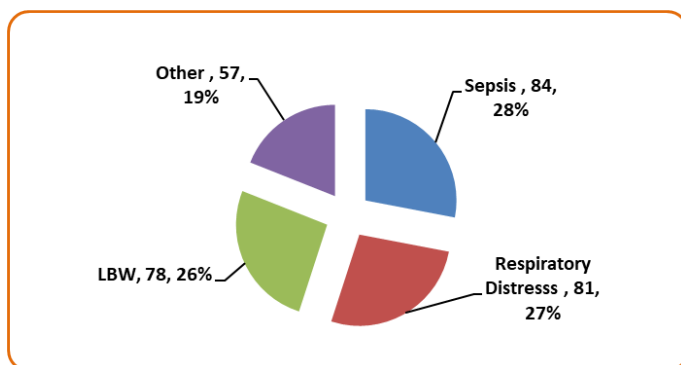


Fig-1: Distribution of Referral Reasons

Source: Field Survey.

2. Referral Outcomes:

- The majority of referrals result in Successful Treatment (Fig.2).
- Complications and Lost to Follow-up are also notable outcomes, with a smaller number of cases resulting in Mortality.

3. Transport Delay:

- The majority of referrals did not experience transport delays.
- However, there's a notable fraction where transport delay was an issue.

4. Inadequate Follow-Up:

- Most referrals had adequate follow-up.
- There's still a significant number where inadequate follow-up was reported.

5. Service Availability:

- Services were available for most referrals.
- There's a notable number of cases where the required services were not available.

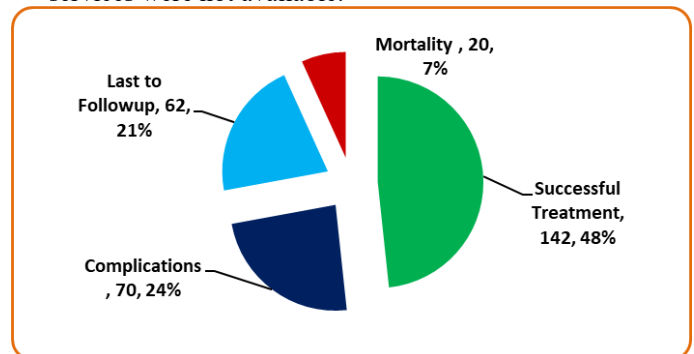


Fig-2: Distribution of Referral Outcome

Source: Field Survey.

Quantitative analysis of referral data revealed that CHWs played a significant role in identifying and referring newborns to healthcare facilities. The majority of referrals were for newborns with complications such as respiratory distress, sepsis, and low birth weight. However, challenges such as delays in transportation, inadequate follow-up, and limited availability of essential newborn care services were identified.

Comparative analysis to investigate the associations between different variables

- The association between the referral reason and the referral outcome.
- The impact of transport delays on the referral outcome.
- The influence of service availability on the referral outcome.

For these analyses, we will use chi-square tests to determine if there are statistically significant associations between these categorical variables.

The chi-square test results for the association between referral reason and referral outcome show:

- **Chi-Square Statistic:** 6.8781
- **P-value:** 0.6498
- **Degrees of Freedom:** 9

Since the p-value is greater than 0.05, the researcher **does** not reject the null hypothesis and conclude that there is no statistically significant association between the referral reason and the referral outcome in this dataset.

The impact of transport delays on the referral outcome.

The chi-square test results for the impact of transport delays on referral outcomes show:

- **Chi-Square Statistic:** 0.4131
- **P-value:** 0.9375
- **Degrees of Freedom:** 3

The p-value is much greater than 0.05, **it indicates** that there is no statistically significant association between transport delays and referral outcomes in this dataset.

The influence of service availability on the referral outcome

The chi-square test results for the influence of service availability on referral outcomes are:

- **Chi-Square Statistic:** 3.7161
- **P-value:** 0.2938
- **Degrees of Freedom:** 3

With the p-value greater than 0.05, we conclude that there is no statistically significant association between service availability and referral outcomes in this dataset.

In summary, our analyses did not find statistically significant associations between the referral reasons, transport delays, service availability, and referral outcomes. These findings suggest that, at least in this dataset, these factors do not significantly impact the outcomes of newborn referrals made by CHWs.

A. Discussion of Findings

The analysis offers several insights into the role of CHWs in the referral system for newborns.

1. Role of CHWs in Referral Reasons and Outcomes:

- CHWs are involved in referring a variety of newborn conditions, with the most common being Respiratory Distress, followed by Sepsis and Low Birth Weight. This highlights the crucial role CHWs play in identifying and acting upon critical newborn health issues.
- The majority of referrals result in successful treatment, showcasing the potential effectiveness of CHWs in improving newborn health outcomes through timely and appropriate referrals.

2. Lack of Significant Associations:

- Our statistical tests did not reveal significant associations between referral reasons and outcomes, suggesting that the nature of the health issue may not predict the referral outcome in this dataset. This could indicate that other factors, possibly not captured in the data, play a more significant role in determining the outcomes.
- Similarly, transport delays and service availability did not show a significant impact on the outcomes of referrals. While surprising, this may reflect a scenario where the quality of care upon reaching the facility or the inherent health condition of the newborn overshadows the effects of these logistical and system-level factors.

3. Challenges in the Referral System:

- Although not statistically significant in this analysis, the presence of transport delays and inadequate service availability in the dataset points to systemic challenges that can hinder the effectiveness of referral systems. Addressing these issues is crucial for enhancing the accessibility and quality of newborn care.

CONCLUSION

CHWs play a crucial role in the existing referral system for newborns, acting as frontline healthcare providers in underserved communities. However, several challenges hinder their effectiveness, including inadequate training, limited resources, and systemic barriers. Strengthening the role of CHWs in newborn care requires comprehensive training, supportive supervision, and integration into the formal healthcare system. Additionally, community engagement and collaboration with other stakeholders are essential for improving the accessibility and quality of newborn healthcare services. By addressing these challenges, CHWs can continue to play a vital role in reducing newborn mortality and improving health outcomes in resource-constrained settings.

Our analysis provided insights into the role of CHWs in the referral system for newborns, highlighting their importance in identifying and acting upon various health concerns. Despite the

limitations of the dataset, the findings suggest that CHWs can significantly impact newborn health outcomes through timely referrals.

- CHWs are vital in referring critical newborn conditions, but their effectiveness can be influenced by factors beyond just the referral reasons.
- The lack of significant associations between referral reasons, transport delays, service availability, and outcomes in our dataset suggests that additional factors may play crucial roles in real-world settings.
- Addressing challenges like transport delays and service availability is essential for enhancing the effectiveness of the referral system.

This study emphasizes the need for comprehensive support for CHWs, including training, resources, and integration into the healthcare system, to enhance their role in newborn care. Future research should focus on real-world data and qualitative insights to fully understand and address the complexities of the referral system for newborns.

This research paper provides valuable insights into the role of CHWs in the newborn referral system, highlighting the need for targeted interventions to strengthen their capacity and support their efforts in providing essential healthcare services to newborns and their families.

References

1. Adam, M. B., Dillmann, M., Chen, M. K., Mbugua, S., Ndung'u, J., Mumbi, P., ... & Waweru, E. (2016). *Improving maternal and newborn health: Effectiveness of a community health worker program in rural Kenya*. PLOS ONE, 11(1), e0140121. <https://doi.org/10.1371/journal.pone.0140121>
2. Bang AT, Bang RA, Baitule SB, Reddy MH, Deshmukh MD. (1999). *Effect of home-based neonatal care and management of sepsis on neonatal mortality: field trial in rural India*. The Lancet, Vol. 4;354(9194):1955–61.
3. Bhutta, Z. A., Lassi, Z. S., Pariyo, G., & Huicho, L. (2010). *Global experience of community health workers for delivery of health-related Millennium Development Goals: A systematic review, country case studies, and recommendations for integration into national health systems*. Global Health Workforce Alliance. <https://www.who.int/workforcealliance/knowledge/resource/s/chwreport/en/>
4. Gilmore, B., McAuliffe, E., Larkan, F., Conteh, M., Dunford, L., & McMahon, S. (2013). *How do community health committees contribute to capacity building for maternal and child health? A realist evaluation protocol*. BMJ Open, 3(11), e003176.
5. Gupta, M., Bosma, H., Angeli, F., Kaur, M., Chakrapani, V., & Rana, M. (2019). *Impact of community health workers on utilization of healthcare services: A systematic review*. Journal of Family Medicine and Primary Care, 8(8), 2568–2577. https://doi.org/10.4103/jfmpc.jfmpc_452_19
6. Eranjini, A., Viswan, S.P. and Anil Kumar K. (2019). *Assessment of Newborn Care Corners (NBCC) & Newborn Stabilization Units (NBSU) in Secondary level health care facilities in Kerala, Thiruvananthapuram: Population Research Centre, University of Kerala*.
7. Koblinsky, M., Tain, F., Gaym, A., Karim, A., Carnell, M., Tesfaye, S., & Mekonnen, Y. (2016). *Responding to the challenge: Ethiopia's Health Extension Program*. The Ethiopian Journal of Health Development, 29(1), 1-4.
8. Kok, M. C., Dieleman, M., Taegtmeier, M., Broerse, J. E., Kane, S. S., Ormel, H., ... & de Koning, K. A. (2015). *Which*

- intervention design factors influence performance of community health workers in low- and middle-income countries? A systematic review. *Health Policy and Planning*, 30(9), 1207–1227.
<https://doi.org/10.1093/heapol/czu126>
9. Lawn, J. E., Blencowe, H., Oza, S., You, D., Lee, A. C., Waiswa, P., ...& Cousens, S. N. (2014). Every Newborn: progress, priorities, and potential beyond survival. *The Lancet*, 384(9938), 189–205.
 10. Lewin, S., Munabi-Babigumira, S., Glenton, C., Daniels, K., Bosch-Capblanch, X., van Wyk, B. E., ... & Scheel, I. B. (2010). Lay health workers in primary and community health care for maternal and child health and the management of infectious diseases. *Cochrane Database of Systematic Reviews*, (3), CD004015.
<https://doi.org/10.1002/14651858.CD004015.pub3>.
 11. Neogi, S., Sharma, J., Chauhan, M. et al. (2016). Care of newborn in the community and at home. *J Perinatol* 36 (Suppl 3), S13–S17.
<https://doi.org/10.1038/jp.2016.185>
 12. Okeyo, I., Dow, D., Apoko, J., Nyachae, P., Sanga, L., Mumbo, E., ...& Sharifu, R. O. (2018). Saving Newborn Lives in the Informal Settlements of Nairobi: A Case Study of How Community Health Workers Facilitated Referrals to Improve Care for Newborns with Complications. *Journal of Health, Population, and Nutrition*, 37(1), 1–11.
 13. Perry, H. B., & Crigler, L. (2017). Developing and strengthening community health worker programs at scale: A reference guide and case studies for program managers and policymakers. U.S. Agency for International Development.
https://www.usaid.gov/sites/default/files/documents/1864/C_HW_Reference_Guide.pdf
 14. Perry, H. B., Zulliger, R., & Rogers, M. M. (2014). Community health workers in low-, middle-, and high-income countries: an overview of their history, recent evolution, and current effectiveness. *Annual Review of Public Health*, 35, 399–421.
<https://doi.org/10.1146/annurev-publhealth-032013-182354>
 15. Rahman, A. E., Perkins, J., Islam, S., Siddique, A. B., Moinuddin, M., Anwar, M. R., ...& Arifeen, S. E. (2016). Knowledge and involvement of Union Parishad (UP) members in maternal and newborn health (MNH) in rural Bangladesh: a cross-sectional study. *BMC Public Health*, 16(1), 887.
 16. Schneider, H., Okello, D., Lehmann, U., & Tlotleng, N. (2016). Strengthening the health system and ensuring equity in the wider determinants of health: What role for community health workers? *South African Health Review*, 2016(1), 125–132.
 17. Scott, K., Beckham, S. W., Gross, M., Pariyo, G., Rao, K. D., Cometto, G., ...& Taylor, C. (2018). What do we know about community-based health worker programs? A systematic review of existing reviews on community health workers. *Human Resources for Health*, 16(1), 39.
<https://doi.org/10.1186/s12960-018-0304-x>
 18. Sigerist, H. E. (1946). *The University at the Crossroads: Addresses & Essays*. New York: Henry Schuman, p. 127.
 19. United Nations Children's Fund (UNICEF). (2018). Community health workers: A strategy to ensure access to services for all children. UNICEF.
https://www.unicef.org/publications/files/Community_Health_Workers.pdf
 20. What Is Health Promotion? (1986). *Journal of Public Health Policy*, 7(2), 147. doi:10.2307/3342250.
 21. World Health Organization. (2018). WHO guideline on health policy and system support to optimize community health worker programmes. World Health Organization.
<https://www.who.int/publications/i/item/who-guideline-on-health-policy-and-system-support-to-optimize-community-health-worker-programmes>.