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**ORIGINAL ARTICLE**

# FACILITATORS AND BARRIERS OF MATERNAL HEALTH SERVICE DELIVERY PERFORMANCE IN NORTH-WEST ETHIOPIA: EXPERIENCES OF CAPACITY-BUILDING PROGRAM PARTICIPANTS

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## ABSTRACT

**Background:** *Achieving incredible performance is a function of the way in which the health system organizes the six key building blocks. Particularly, strengthening leadership and governance supports understanding the proximate facilitators and barriers of maternal health delivery performance. This study aimed at exploring facilitators and barriers of maternal health performance with special reference on institutional delivery performance in North-West Ethiopia.*

***Methods:*** *Phenomenological study was conducted from October to November 2018 at health centers located in North-West Ethiopia. Data were collected, until information saturation, from eleven purposively selected key-informant interviews. Using open code software, data were analyzed thematically. Data were transcribed, coded, categorized and thematized.*

***Results:*** *Strong management system, enhanced work environment, ambulance, integrated maternal waiting home, and quality maternal service emerged as core dimensions for improved institutional delivery performance. Strong management system was characterized by the involvement of key stakeholders, strong ambulatory health team, functional health development army, and regular pregnant women's conference. Enhanced work environment was explained by staff morale and ethics, improved staff motivation and commitment and strong health center -health post linkage. The ambulance service was described in terms of ownership, and whether the ambulance was used to transport women home after giving birth. Integrated maternal waiting home was linked to basic services (food, water, and bathroom), cultural ceremonies. Quality maternal service was defined with staff empathy, improved pregnant women counseling, enhanced communication, strong referral linkage, and enhanced customer satisfaction.*

***Conclusions:*** *Strong management system, enhanced work environment, ambulance, integrated maternal waiting home, and quality service facilitate the institutional delivery performance. Applied research could be conducted to test the practicability of these facilitators.*

***Keywords:*** *Facilitators and barriers, Institutional delivery, Experiences, Capacity-building, Ethiopia*

## INTRODUCTION

Achieving incredible performance is a function of the way in which the health system organizes the key building blocks: service delivery, health workforce, medical products, health information systems, healthcare financing, and leadership and governance (1). Particularly, strengthening leadership and governance supports understanding the proximate facilitators and barriers of the health system performance including institutional delivery. Ethiopia has put improved institutional delivery performance as one of the key performance indicators in reducing maternal mortality rate from 353 to less than 70 per 100,000 live births by 2030 (2).

To maximize the benefits of leadership and governance in improving and sustaining health system results, the Management Sciences for Health (MSH), a non-governmental organization, developed a leadership development program that currently centers integrated leading, managing and governing for results model (3). This model comprises three logically related elements: people and teams empowered to lead and manage and govern the health delivery system, improved health system performance, and better outcomes and impacts aligned with the national and international health goals. In turn, three dimensions such as enhanced work environment, strong management system, and responsiveness characterize improved health system performance. The improvement of these dimensions thereby increases service access, expands service availability, brings better quality and ensures lower cost.

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Regarding this, enhanced knowledge, increased demand and access, adequate finance and supply and transportation were reported as important characteristics of improved health system performance (4-8). Focus on community health needs, teamwork, financial limpidity, amplified use of research evidence, and monitoring and evaluation were also identified as characteristics of improved health system performance (9-12). In turn, improved health system performance contributes for health service results improvement (4, 13, 14).

Therefore, constructing facilitators and barriers of maternal health performance with special reference to institutional delivery performance is important (15, 16). This could highlight the scientific and empirical underpinning of facilitators and barriers affecting such performance in a specific society.

## METHODS

### *Study design and participants*

A phenomenological study was conducted from October to November 2018 in Northwest Ethiopia. Eleven key-informants were selected from seven health facilities purposively. These key-informants were among the intervention group who took integrated leadership, management and governance capacity building. This capacity building was implemented to examine its effect on institutional delivery performance among health facility teams. To grant informative data: age, sex, qualification, profession, service year and responsibility of the participants were taken into consideration in the sampling process.

### *Data collection*

Data were collected using unstructured key-informant interview guide, which was developed by an expert panel. Five area experts participated. Audiotape records were used to collect the data. The principal investigator conducted all the interviews. A strong attention was given to initial contact with participants, sequencing of questions, probing of information, control of conversations, and creating an atmosphere in which participants can willingly explain their views and opinions.

The interview continued until saturation of information was obtained. Probing was used to explore adequate data on the field. Average interviewing time was 50 minutes per participant. A unique code was given to each participant. Each key-informant was interviewed in her/his own facility. The focus areas of the interview were indicated in **Table 1**.

**Table 1:** Topic guide for exploring participants' experiences, North-West Ethiopia, 2018

| Questions | Prompts |
|---|---|
| How important is the leadership development program in improving institutional delivery performance? | Would you elaborate? |
| How was your facility's institutional delivery performance in the last six months? | Improved/not improved |
| What factors affect institutional delivery performance? | Would you list? |
| Is /are there any indigenous knowledge that support to improve institutional delivery performance? | Would you express? |

### *Trustworthiness*

The credibility of data was enhanced through three fold of data triangulation techniques. The first technique was translating the data collection guide to the local language, Amharic. The second technique was linking with diversified data sources using age, sex, qualification, profession, service year and responsibility as diversification parameters. The last technique was linking to physical back-checks of participants prior to interview dates.

### *Data analysis*

In analyzing the data using open code software, five critical principles were considered. These included recognize and account for own perspective, understand the context in identifying the views, know that theory guides approach to analyze, comprehend that attention to deviant cases yield new insights, and be thoughtful that data analysis is iterative or nonlinearly process.

Bearing these principles in mind, data were analyzed using the thematic analysis technique that allowed for a variety of ontological and epistemological viewpoints. It was done by distilling the information into meaningful themes.

Overall, five interrelated stages were followed in analyzing the data:

a) The interview records were transcribed verbatim. The transcriptions were read and re-read to familiarize the data, which led to data immersion. This enables to examine patterns such as relationships or contradictory responses. At this level, the transcribed data were translated to English.

b) The data were coded into exhaustive, mutually exclusive and clearly specified categories to identify the emerging themes. The MSH integrated leading, managing and governing for results framework elements were used as a priori codes, and then elaborated new codes underneath these.

c) Data of a topic was displayed by reviewing the coded data, to examine each important theme in developing a hypothesis and extract meaning.

d) Data reduction, getting the big picture by looking for patterns across themes, was done to filter the most essential concepts and relationships.

e) Data interpretation was done by searching core meanings of the participants' thoughts, feelings and behaviors described but with wider social and theoretical relevance. The overall interpretation was made by identifying how themes related to each other, explained how study questions were answered, and what the findings mean beyond the context of the study.

In addition, the most important quotations were presented to illustrate the main ideas. Moreover, dependability, confirmability and transferability of attributed meanings and lessons were evaluated. Dependability was assessed by the replicability of the meanings by multiple analysts. Confirmability of the meanings were ensured through audit trial, i.e., permit external review of analysis decision. Transferability of the lessons from one context to another was explained by proposing a model (put in the results section).

### *Ethical consideration*

Ethical approval was secured from the institutional review board of Bahir Dar University with a protocol record 090/18-04. Additionally, permission letter was obtained from Amhara Public Health Institute with a protocol record number 1/780. Moreover, written consent was obtained from each participant. Furthermore, data were stored with a locked cabinet.

## RESULTS

### *Basic characteristics of the study participants*

The total participants were eleven. Their age ranges from 25 to 30 years. Sixty five percent of them were male. Their average service year was 5.6 years, which ranged from 3 to 10 years. Nine of them had BSc degree (**Table 2**).

**Table 2:** Basic characteristics of the participants, North-West Ethiopia, 2018 (n=11)

| Code | Age (years) | Sex | Qualification | Profession | Service year | Responsibility |
|---|---|---|---|---|---|---|
| A | 26 | M | BSc | Health officer | 3 | Head of the facility |
| B | 28 | M | BSc | Health officer | 8 | Head of the facility |
| C | 30 | F | BSc | Midwife | 7 | Maternal service owner |
| D | 29 | M | BSc | Nurse | 7 | Health extension program coordinator |
| E | 26 | F | BSc | Midwife | 3 | Maternal service owner |
| F | 30 | M | BSc | Health officer | 10 | Head of the facility |
| G | 30 | F | BSc | Nurse | 9 | Health extension program coordinator |
| H | 25 | M | Diploma | Nurse | 3 | Health extension program coordinator |
| I | 27 | M | Diploma | Midwife | 3 | Maternal service owner |
| J | 29 | M | BSc | Health officer | 4 | Head of the facility |
| K | 30 | F | BSc | Midwife | 5 | Maternal service owner |

### *Facilitators and barriers of institutional delivery performance*

Strong management system, Enhanced work environment, Ambulance, Integrated maternal waiting home, and Quality maternal service were emerged as facilitators and barriers of institutional delivery performance **(Table 3).**

**Table 3:** Facilitators and barriers of institutional delivery performance, North-West Ethiopia, 2018

| Dimensions | Dimensions description | Participants involved |
|---|---|---|
| Strong management system | Involvement of key stakeholders | A,B,C,E,H,I,J,K |
| | Strong ambulatory health team | A,B |
| | Functional health development army | A,C,D,F,G,H |
| | Regular pregnant women's conference | A,B,D,G,H,I |
| Enhanced work environment | Improved staff morale and ethics | A,B,E,G,I |
| | Improved staff motivation | A,B,E,I,J |
| | Improved staff commitment | A,B,C,D,E,F,G,I,J,K |
| | Strong health center-health post linkage | B,C,E,G,I,J |
| | Empowered staff that enjoy personal life | E,G,J |
| Ambulance | Facility ownership | A,B,C,D,E,G,H,I,K |
| | Back the delivery mother to home | A,B,D,F,I,J |
| Integrated maternal waiting home | Basic services (food, water, bathrooms) | A, B,E,F,G,H,J,K |
| | Porridge ceremony | A,B,C,D,F,G,H |
| | Coffee ceremony | A,B,C,D,E,F,G,H,I,K |
| Quality maternal service | Compassionate, respecting and caring staff | B,C,F |
| | Improved pregnant women counseling | A,B,C,D,H,I,J |
| | Improved communication | B,H,I,J |
| | Strong referral linkage | A,B,C,D,H,K |
| | Enhanced customer satisfaction | A,B,E,G,K |

***Note:*** *Key stakeholders refer to husband, in-law, father confessor, traditional birth attendants and organizations working on maternal health.*

***Strong management system***

Majority of the participants (n=8) stated that involving key stakeholders such as husband, in-law, father confessor and traditional birth attendants influenced institutional delivery performance (**Table 3**). Particularly, they explained that involving the father confessors and traditional birth attendants who were highly listened by the community exceedingly strengthened the performance. These people, when they believed in the issues, had the power to excommunicate traditional beliefs towards institutional delivery, and to support nurturing institutional delivery.

> *"[…]. While we started working closely with the father confessors and traditional birth attendants, many pregnant mothers give birth in our facility."* B, 28-years old male health officer.

Besides, identifying and functioning closely with organizations working on maternal health improved institutional delivery performance. In collaboration with such organizations, the health facilities prepared a community-based data for decision-making map that shows the relationship between the father confessor, traditional birth attendant, developmental army leader, and the pregnant women. They also prepared a Gospel check with the key message that is thank you for giving birth in your facility.

Indirectly, the health centers and the health posts communicated through this Gospel check that comprised Name of the health center, Name of the mother, Kebele, Got, Name of the developmental army leader, House number, Delivery date, Newborn's weight, any complex problem, Health services offered, and Date in that the Gospel check was given.

*"Working with the Pathfinder, […] we prepared a Gospel check with the key message that is thank you for giving birth in your facility."* A, 26-years old male health officer.

The other element that influenced institutional delivery performance within the strong management system was the ambulatory health team. This had three-fold responsibilities. First, it empowered the leaders of the health development army to advocate for the institutional delivery service. The health developmental army supported to function responsibilities in an integrated way and to benchmark lessons is an important indigenous platform.

Thus, by strengthening 1 to 5 networks, the women can be saved from death while giving birth. Second, it supported these people to explore the home-based challenges of the pregnant women that made them not to give birth at the facility. Last, it brought a change of idea or breakthrough initiative with key stakeholders to overcome the challenges.

*"… The ambulatory health team is responsible to design indigenous change ideas. It does so with a field checklist that contains elements such as number of developmental army leaders educated, number of households visited, number of pregnant women and key stakeholders contacted, problem they raised, the problem-based cases developed and shared breakthrough initiatives set."* G, 30-years old female nurse.

Regular pregnant women's conference was also reported as an influencing element of institutional delivery performance. People involved, skills of the facilitators, contents, methodology, and timing, influenced conference outcomes. From the participants point of view, unlike the previous pregnant women's conferences that involved only pregnant women, the current pregnant women's conferences included the husbands, in-laws, father confessors, traditional birth attendants, leaders of the development army, and members of organizations working on maternal health. In fact, this brought a remarkable improvement on institutional delivery.

*"[…]. The presentation of the stage drama entitled, Tutelage my mother from suffering and death to the conference participants supports to improve the institutional delivery performance."* K, 30-years old female midwife

***Enhanced work environment***

As indicated in Table 3, five participants reported that the presence of morally and ethically sound staff was among the characteristics of an enhanced work environment. Such a staff was empowered to face actual pregnant women's challenges regarding institutional delivery and achieve better results. The complexity of the challenges encouraged the staff to strengthen the existed health system that is the health center-health post linkage overseeing the developmental army. Oftentimes, committed staff is ready to sacrifice something in creating a conducive environment for mothers to give birth at the facility. Such staff always has exemplary deeds to scale up in improving institutional delivery.

*"Morally speaking, our deeds towards institutional delivery before participating in the leadership development program were empty promises. But, when we committed to strengthening the health center-health post linkage that oversees the developmental army; we get the institutional delivery performance improved."* I, a 27-year male midwife

***Ambulance***

All the study participants pointed out that the ambulance service influenced the institutional delivery performance in a greater way (**Table 3**). They characterized it by both the facility's ownership of the ambulance and the transport service it gave in taking the mothers back to their homes after giving birth.

However, most of the participants expressed that the ownership of the ambulance was to the district health office. They also noted that the ambulance only brought the pregnant mother to the health facility. This remained a challenge to the families to back the mothers and newborns to home. Concerning this, some facilities improved institutional delivery performance by taking mothers back home after delivery, using the ambulance.

*"You know! Pregnant women are more than bridegrooms are. In our locality, the groom used special mule, horse, or car to bring the brides from the nuptial house and use some better thing to back, perhaps, with special gifts to the family. Here, the bride might give … virginity, but the pregnant women provide baby or life that ensures the continuity of the human race."* E, 26-year female midwife.

***Integrated maternal waiting home***

Integrated maternal waiting home is a temporary residence built near a health facility where women stayed in their final weeks of pregnancy to bridge the geographical gap with obstetric care. It is an equity-based strategy and low-cost solution to increase institutional delivery. It is characterized by the availability of basic services such as food, water, rest and bathrooms; porridge and coffee ceremonies; counseling and health education; recreation platforms like television (**Table 3**).

This modality was important because of three main reasons, i.e., the far-apartness between the households and the health facility; the absence of vehicle roads in most of the villages; the tradition that the pregnant women functioned routine tasks fighting with labor pain. The integrated waiting home, launched with the full participation of the community, encouraged the women to come early to the health facility. Additionally, to improve the community's ownership, the supplies of the waiting home-like food, coffee, and porridge cereals were mobilized from them.

*"…Six months ago, only 1-2 pregnant women a month stayed at the waiting home, but now it is 1-2 women a day."* K, 30-year female midwife

***Quality of maternal service***

Quality maternal service emerged as the last core dimensions that explain the institutional delivery performance (**Table 3**). Empathy (compassion, respect and caring) was expressed among elements that affected quality maternal service. The formal service to the pregnant women started at a time she got the ambulance team that was responsible to bring the pregnant women to the health facility. Serving the pregnant women with compassion, respect and care from this point satisfied both the woman and whole family, alongside applying science and technology in facilitating the labor.

*"…. You can* imagine *that they will talk about it for years."* C, 30-year female midwife

While the pregnant women arrived at the health facility, the staff counseled and communicated both the pregnant women and family members with great empathy to reduce their disturbance. This created trust and family hood between the staff and pregnant women including the whole family.

*"… Though pregnancy is not a disease, it is among the potential killing* health-*related issues … thus caring the women closely, and counseling and communicating their family is important".* A, 26-year male health officer

The other element that influenced the institutional delivery performance within quality maternal service was the strong referral linkage between the health post and health center that oversaw the developmental army. This army was structured in 1 to 5 and 1 to 30 networks. The 1 to 5 network had a daily meeting, and the 1 to 30 network had a weekly meeting. After the meeting, each of the 1 to 5 networks reported the pregnant mothers who were at term to the 1 to 30 network leaders. By aggregating the reports, the 1 to 30 network leaders reported to the health extension workers. In turn, the health extension workers communicated the mothers and the family to be ready for institutional delivery. These workers stressed on referral to the health center for integrated maternal waiting home services. This improved quality service and thereby contributed to improving institutional delivery performance.

*"…We have established an uninterrupted reporting system between the 1 to 5 and 1 to 30 networks, the health posts and* the *health center. It avoids unnecessary delay among pregnant women, which consequently enable us to provide quality institutional delivery service that satisfied both the pregnant women and families."* D, 29-year male nurse.

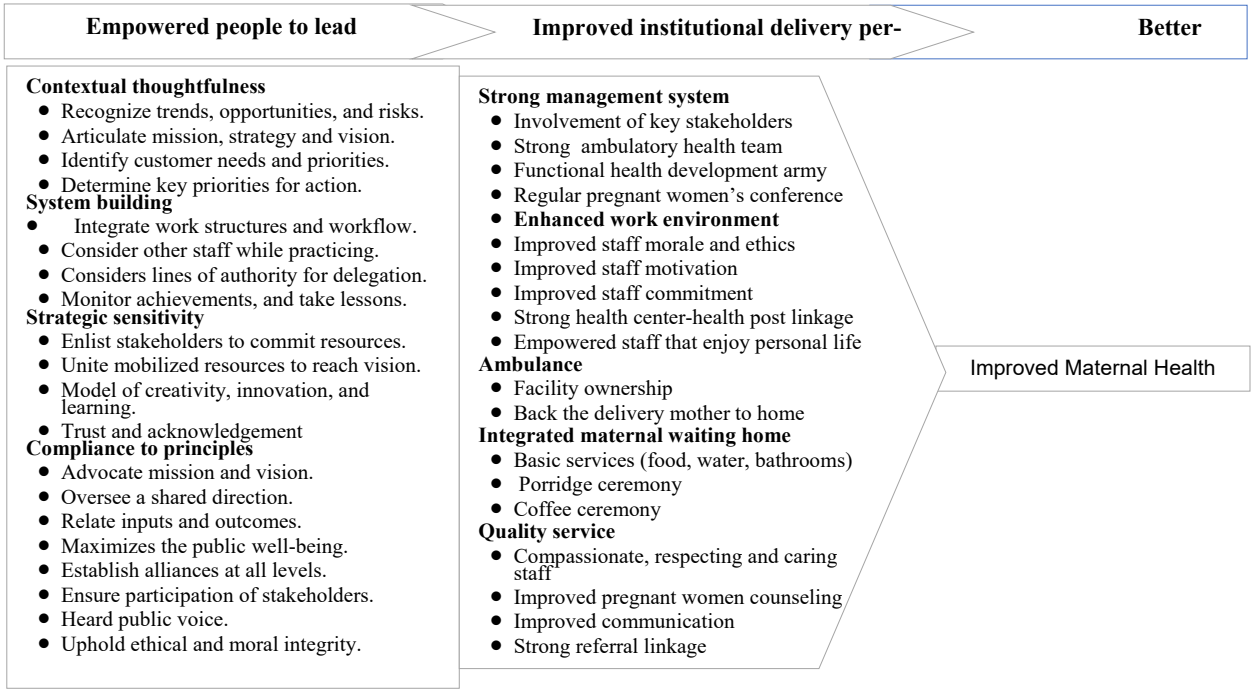


**Figure 1.** Leadership for better health outcomes framework, Northwest Ethiopia, 2018

**Figure 1** displays the facilitators and barriers of maternal health service delivery performance. The elements clustered within empowered people to lead the health delivery system in the figure were the latent factors extracted elsewhere (17).

## DISCUSSION

This study provides five core dimensions that facilitate institutional delivery performance to improve the maternal health outcomes. These were strong management system, enhanced work environment, ambulance, integrated maternal waiting home, and quality maternal service.

A *strong management system* is related to the involvement of key stakeholders, strong ambulatory health team, functional health development army, and regular pregnant women's conference. The ambulatory health team is responsible to design and benchmark indigenous change of ideas, educate leaders of the developmental army, visit households to contact pregnant women and key stakeholders, identify local problems related to institutional delivery service, and develop problem-based cases to present in the pregnant women's conference and set a shared breakthrough initiative.

Empowering the health developmental army simplifies the task of the ambulatory health team in executing responsibilities to the household level. These findings are consistent with results of other studies that reported increased community awareness, development army, cultural tradition and rituals and knowledge regarding pregnancy danger signs as predictors of institutional delivery (18, 19). The similarity of the settings for the studies might be a potential reason for such dependability.

*Enhanced work environment* is characterized by sound staff morale and ethics, improved staff motivation and commitment, strong health center-health post linkage and employee empowerment to enjoy personal life. Other studies indicated that enhanced work environment mediated between transformational leadership and employee creativity and performance (20-22). Enhanced work environment is also reported as an enabler of creating conditions for effective and efficient work, boosting morale, and reducing turnover and attrition (23). This shows that how creating enhanced work environment is important across different settings.

*Ambulance* service has a remarkable association with improved institutional delivery performance. Particularly, some facilities improved institutional delivery performance by taking mothers back home after delivery, using the ambulance. These finding is supported by other studies that reported freely available transport predicted utilization of institutional delivery (24-26). This illustrates that lack of transportation infrastructure is a common barrier for improved institutional delivery.

*Integrated maternal waiting home* has also notable consequence to improve institutional delivery performance. Its consequence is more visible, particularly, in areas that pregnant women travel long distance fighting with hilly street and river overflow to give birth at a health facility. Thus, establishing the integrated waiting home can also highly influence the pregnant mothers to love giving birth at the health facility, though no other study has reported it to the best of our knowledge.

The last core dimension *is quality maternal service.* It is described by the presence of compassionate, respectful and caring staff; improved pregnant women counseling; improved communication; strong referral linkage and enhanced customer satisfaction. These findings are supported by previous studies that reported lack of quality care, abominable behavior of staff, and frequent referrals to higher centers as reasons for underutilization of public health facilities for delivery services (21, 27). The importance of quality service to address client expectations and achieve the highest possible service outcomes with the resources available is also reported by other studies (28, 29). This manner of service delivery might encourage pregnant women to win all the challenges they faced and give birth at the facility. Additionally, both the women and the families might promote the service for their lifetime.

Generally, the current factors affecting institutional delivery performance, which are assembled in the leadership for better maternal health outcomes framework could be transferable across time and similar settings.

Away from all the implications, the social desirability bias is the major limitation that twists the current findings.

## CONCLUSION

Strong management system, enhanced work environment, ambulance, integrated maternal waiting home, and quality service facilitate the institutional delivery performance. Applied research could be conducted to test the practicability of these facilitators and barriers.

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## CONFLICT OF INTERESTS

All the authors declare that they have no both financial and non-financial competing interests.

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## REFERENCES


1. Bhutta ZA, Chopra M, Axelson H, Berman P, Boerma T, Bryce J, *et al.* Countdown to 2015 decade report (2000–10): taking stock of maternal, newborn, and child survival. The lancet. 2010;375(9730):2032-44.
2. Ethiopia F. Health sector transformation plan I. Adis Ababa. 2015.
3. Management Sciences for Health. Rice JA, Shukla, Mahesh, Johnson Lassner, Karen *et al*. Leaders Who Govern. 2015.
4. Levey S, Vaughn T, Koepke M, Moore D, Lehrman W, Sinha S. Hospital leadership and quality improvement: rhetoric versus reality. Journal of Patient Safety. 2007;3(1):9-15.
5. Rowe AK, de Savigny D, Lanata CF, Victora CG. How can we achieve and maintain high-quality performance of health workers in low-resource settings? The Lancet. 2005;366(9490):1026-35.
6. Oberoi S, Chaudhary N, Patnaik S, Singh A. Understanding health seeking behavior. Journal of family medicine and primary care. 2016;5(2):463.
7. Odberg Pettersson K, Christensson K, da Gloria Gomes de Freitas E, Johansson E. Adaptation of health care seeking behavior during childbirth: Focus group discussions with women living in the suburban areas of Luanda, Angola. Health Care for Women International. 2004;25(3):255-80.
8. Larsen A, Exavery A, Phillips JF, Tani K, Kanté AM. Predictors of health care seeking behavior during pregnancy, delivery, and the postnatal period in rural Tanzania. Maternal and child health journal. 2016;20 (8):1726-34.
9. O'Neil M, Seims LR, Cheburet S, Dedzo M, Vriesendorp S, Sapati B, *et al*. Leadership and Management to Empower the Health Workforce. 2013.
10. Langlois EV, Montekio VB, Young T, Song K, Alcalde-Rabanal J, Tran N. Enhancing evidence informed policymaking in complex health systems: lessons from multi-site collaborative approaches. Health research policy and systems. 2016;14(1):20.
11. Farling ML, Stone AG, Winston BE. Servant leadership: Setting the stage for empirical research. Journal of Leadership Studies. 1999;6(1-2):49-72.
12. Murray CJ, Frenk J. A framework for assessing the performance of health systems. Bulletin of the world Health Organization. 2000;78:717-31.
13. MSH. Improving work climate to strengthen performance. 2005. [51-79].
14. Van Belle S, Mayhew SH. Public accountability needs to be enforced–a case study of the governance arrangements and accountability practices in a rural health district in Ghana. BMC health services research. 2016;16(1):568.
15. Vriesendorp S, De La Peza L, Perry C, Seltzer J, ONeil M. Health systems in action: an ehandbook for leaders and managers. 2010.
16. Daire J, Gilson L, Cleary S. Developing leadership and management competencies in low and middle-income country health systems: a review of the literature. Cape Town: Resilient and Responsive Health Systems (RESYST). 2014.
17. Ambelie Y, Alene G, Gebrekiros D. Modeling a reliable and valid framework for building and measuring the health system workforce's competence to lead, manage and govern in Ethiopia: Factor analysis approach. 2020.
18. Demilew YM, Gebregergs GB, Negusie AA. Factors associated with institutional delivery in Dangila district, North West Ethiopia: a cross-sectional study. African health sciences. 2016;16(1):10-7.
19. Gebrehiwot T, San Sebastian M, Edin K, Goicolea I. Health workers' perceptions of facilitators of and barriers to institutional delivery in Tigray, Northern Ethiopia. BMC pregnancy and childbirth. 2014;14(1):137.
20. Wang P, Rode JC, Shi K, Luo Z, Chen W. A workgroup climate perspective on the relationships among transformational leadership, workgroup diversity, and employee creativity. Group & Organization Management. 2013;38(3):334-60.
21. Silan V, Kant S, Archana S, Misra P, Rizwan S. Facilitators and barriers of underutilisation of free delivery services in an area with high institutional delivery rate: a qualitative study. North American journal of medical sciences. 2014;6(7):315.
22. McMurray AJ, Islam M, Sarros JC, Pirola-Merlo A. The impact of leadership on workgroup climate and performance in a non-profit organization. Leadership & Organization Development Journal. 2012;33(6):522 -49.
23. Jaskiewicz W, Tulenko K. Increasing community health worker productivity and effectiveness: a review of the influence of the work environment. Human resources for health. 2012;10(1):38.
24. Hailemichael F, Woldie M, Tafese F. Predictors of institutional delivery in Sodo town, Southern Ethiopia. African journal of primary health care & family medicine. 2013;5(1).
25. Godefay H, Kinsman J, Admasu K, Byass P. Can innovative ambulance transport avert pregnancy–related deaths? One–year operational assessment in Ethiopia. Journal of global health. 2016;6(1).

## REFERENCES


26. Mekonnen MG, Yalew KN, Umer JY, Melese M. Facilitators and barriers of delivery practices among Afar pastoralists of Ethiopia. The Pan African medical journal. 2012;13(Suppl 1).
27. Prinja S, Jeet G, Kaur M, Aggarwal AK, Manchanda N, Kumar R. Impact of referral transport system on institutional deliveries in Haryana, India. The Indian journal of medical research. 2014;139(6):883.
28. Berwick D, Fox DM. "Evaluating the quality of medical care": Donabedian's classic article 50 years later. The Milbank Quarterly. 2016;94(2):237.
29. Ovretveit J. Health service quality: an introduction to quality methods for health services: Blackwell Scientific; 1992.