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***Report on the Assessment of
the Direct Midwifery Program***

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List of Acronyms

ANC	Antenatal Care
APH	Ante partum haemorrhage
CM	Certified Midwife
CSO	Central Statistics Office
DEMs	Direct Entry Midwife
DBS	Dry Blood Collection
FP	Family Planning
FIGO	International Federation of Gynaecology and Obstetrics
GNC	General Nursing Council
ICM	International Confederation of Midwives
MCH	Maternal and Child Health
MNCH	Maternal Neonatal and Child Health
MOH	Ministry of Health
OPD	Outpatient Department
PPH	Post-Partum Haemorrhage
PMTCT	Prevention of Mother-to-Child Transmission of HIV
UNFPA	United Nation Population Fund
STI	Sexually Transmitted Infection
TBA	Traditional Birth Attendant
UNFPA	United Nationals Population Fund
UNZA	University of Zambia
VCT	Voluntary counselling and Testing
WHO	World Health Organization
ZDHS	Zambia Demographic and Health Survey
ZRM	Zambia Registered Midwife
ZEN	Zambia Enrolled Nurse
ZEM	Zambia Enrolled Midwife

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Executive Summary

Zambia is a low-income country with a high maternal mortality ratio of 591/100,000 live births¹. Midwives are critical in reducing maternal and newborn mortality. However in 2009, Zambia had 2,374 midwives against a desired target of 5,600 leaving a gap of 2,929 (52%).² In 2008, in response to the shortage of midwives, the Ministry of Health (MoH), the General Nursing Council of Zambia (GNC) and their co-operating partners introduced the Direct Entry Midwifery (DEM) training program. The DEM program created a new category, certified midwives (CMs), to increase the number of midwives over a short period of time.

An assessment of the DEM program was conducted in December 2011. The specific objectives for this assessment are to assess and understand the role of CMs in the provision of midwifery (and other) services, their workload, their work environment, as well as their skills and competencies as assessed by the CMs and their supervisors. Seventy health facilities in 58 districts in nine provinces were visited including first, second and third level hospitals and health centers. Semi-structured questionnaires were utilized to interview a total of 98 CMs and 110 supervisors of CMs. The survey tools were pre-tested prior to undertaking the assessment.

The assessment findings are summarized as follows:

- **Supervision:** Nearly all of the interviewed CMs reported having an immediate supervisor, and the majority indicated that they receive supervision on a daily basis. However, some CMs were supervised at varied intervals ranging from a weekly to a quarterly basis, which may hinder their ability adequately develop competence and training on the job and may adversely affect service quality.
- **Roles:** Nearly half of the CMs and the surveyed supervisors reported that CMs were working outside of their midwifery scope. Of the supervisors who said that the CMs work in non-MNCH wards, nearly three-fourths attributed this to a shortage of staff at the facility. While the majority of CMs reported that they have a duty rota and a work schedule for staff involved in providing midwifery services, nearly half reported that they do not have a job description.
- **Competency:** Most of the CMs and supervisors of CMs interviewed agreed that they were competent in providing midwifery-related care, including infection prevention procedures, antenatal care, management of obstetric emergencies, care during labor and delivery, and newborn care and postnatal care. However, there were some gaps in competencies in procedures such as repair of cervical tears, vacuum and outlet forceps deliveries, boiling, steaming instruments, conducting dry heat sterilization, and autoclaving.
- **Work environment:** Most of the CMs felt that there is a strong sense of team work at their facilities. The majority of the CMs had positive impressions of their supervisor and felt that their supervisor treated them well, though close to half reported not receiving positive feedback from their supervisor. Approximately a quarter of CM respondents did not agree that supervisors clearly communicate priorities or roles. While nearly all the CMs felt they are well-trained for their work, only one-third agreed that they are provided with the necessary materials for their work.

¹ Central Statistical Office (CSO), Ministry of Health (MoH), Tropical Diseases Research Centre (TDRC), University of Zambia, and Macro International Inc. 2009. Zambia Demographic and Health Survey 2007.

² Ministry of Health, 2009, Zambia National Health Strategic Plan, 2011 - 2015

- ***Supervisor's feedback:*** Supervisors demonstrated general satisfaction with the CMs, with the majority reporting that they would be willing to receive more CMs, appreciating their skills and their ability to reduce workload at the facility. Interestingly however, the majority of supervisors cited lack of competence in non-midwifery services as the main challenge that they face with the CMs, even though CMs are not trained nor expected to work outside of midwifery care.

It is important that all health personnel are oriented to the appropriate role that CMs are supposed to play, and that clear job descriptions are made available to all health workers in order to guide CMs and supervisors on expected functions. Relatedly, it is important for the MOH to address shortage of other staff at the facility in order to avoid CMs being diverted away from the delivery of midwifery care. It is important to address certain gaps in clinical practice to ensure that the CMs are able to provide all-round midwifery care. Thus expanding or improving training of CMs to include training on clinical procedures such as repair of cervical tears, vacuum and outlet forceps deliveries, and some infection prevention such as steaming instruments and conducting dry heat sterilization would be important. Finally, supervision plans and expectations need to be more clearly communicated with the CMs.

1. Background

A woman in the developing world is almost 40 times more likely to die from complications of pregnancy and childbirth than a woman living in the industrialized world³. A report from Family Care International in 2002 indicated that only 53 per cent of women in developing countries deliver with a skilled health care provider present⁴. In most parts of Asia and Africa, there is only one midwife for every 300,000 people, meaning one midwife for every 15,000 births. The recommended threshold is 2.5 nurses for 1,000 persons and one midwife for every 6,000 persons⁵.

Zambia has a vision of providing citizens with equity of access to cost effective quality health care as close to the family as possible and to achieve the health-related Millennium Development Goals (MDGs). The shortage of human resources in the health sector in Zambia has made it difficult to achieve the vision of “*a nation of healthy and productive Zambians*”. The shortage of nurses and midwives in Zambia and other Sub-Saharan African countries is exacerbated by a limited supply of newly qualified-midwives and other health workers coming into the workforce, inadequate human resource management systems for recruiting, deploying and retaining midwives, and attrition due to the HIV and AIDs pandemic which has not spared the nursing profession.

Access to a skilled birth attendant during delivery is critical in reducing maternal and newborn mortality. Midwives are often the first frontline healthcare workers that serve this role. However, because of an acute shortage of midwives throughout Zambia, Traditional Birth Attendants (TBAs), many of whom are untrained, are often still the only service provider available at the community level⁶. The 2007 Demographic and Health Survey (DHS) shows that 23% of deliveries were attended by a TBA and 25% by a relative (Figure 1). The shortage in midwives is also revealed in the National Health Strategic Plan of 2011-2015, that indicates that in 2009 there were 2,374 midwives against a required establishment of 5,600.

The GNC uses the definition of a midwife adopted by the International Confederation of Midwives (ICM) on 19th July 2005: “A midwife is a person who, having been regularly admitted to a midwifery educational program, duly recognized in the country in which it is located, has successfully completed the prescribed course of studies in midwifery and has acquired the requisite qualifications to be registered and /or legally licensed to practice midwifery”. In 2004, the World Health Organization (WHO), ICM and International Federation of Gynecologists and Obstetricians (FIGO) published a joint statement, ‘Making Pregnancy Safer.’ Midwives or doctors and nurses with midwifery skills were identified as a group of skilled attendants in the use of partograph, among other skills; the use of the partograph is one of the competencies WHO, ICM, and FIGO have designated as lifesaving and necessary to reduce maternal mortality⁷.

³ WHO(2010). Trends in maternal mortality: 1990-2008: WHO library cataloguing –in- Public Data. WHO, UNICEF, UNFPA and the World Bank, 2011 UNFPA Report: **The State of the World’s Midwifery**; <http://www.unfpa.org/sowmy/resources/en/main.htm>

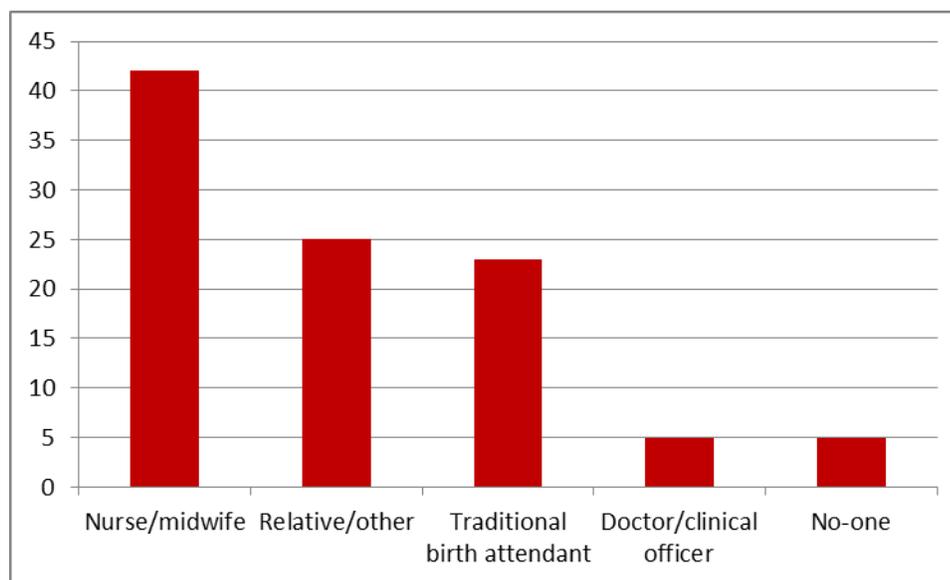
⁴ Family Care International, 2002. Skilled care during childbirth; saving women’s lives, improving newborn health

⁵ World Health Organization. (2011). *Global Health Observation Data Repository: Births Attended by Skilled Health Personnel* [Data file]. Retrieved from <http://apps.who.int/ghodata/>

⁶ Manandhar M, Maimbolwa M and O’Donovan. 2008. Integrating Safe Motherhood: Understanding and addressing socio-cultural, economic and gender contexts to strengthen safe motherhood in Zambia. Health Promotion Research Center, University of Ireland and University of Zambia

⁷ WHO (2005) ‘Making Pregnancy Safer’ from <http://www.info@maternityworldwide.org>.

FIGURE 1: PERCENTAGE OF DELIVERIES BY ASSISTANCE TYPE IN ZAMBIA



(Data obtained from Zambia Demographic Health Survey, 2007)

In April 2008, the United Nations Population Fund (UNFPA) launched a joint program, “Investing in Midwives and Others with Midwifery Skills” to accelerate progress towards increasing the number of skilled birth attendants to achieve MDG 4 and 5. The goal of the program is to improve skilled attendance at birth in low resource settings by developing a sustainable midwifery workforce. In response, the MOH, GNC and their cooperating partners such as UNFPA initiated a two-year Direct Entry Midwifery (DEM) training in 2008. The DEM program in Zambia is part of a strategy to increase the number of midwives whose role was to contribute to reducing maternal and infant morbidity and mortality.

In Zambia, the DEM program created a new category, certified midwives (CMs), to increase the number of midwives and respond to shortages over a short period of time. The aim of the program is to prepare a CM who will be self-directed, analytical, knowledgeable, skillful and able to respond to changing, emerging diseases, and contribute towards improving the quality of midwifery care. The DEM training includes six months of general nursing, one year of midwifery training (theory and practice) and six months of a practical attachment to health facilities for midwifery practice (internship).

With the addition of the DEM program, Zambia has three categories of trained midwives. Registered midwives (RMs) have a registered nurse diploma and are trained using the registered midwifery curriculum. Enrolled midwives hold an enrolled certificate and are trained using the enrolled midwifery curriculum. Unlike RMs and EMs, CMs do not have prior training in nursing. CMs have completed secondary school education and are trained using the registered midwifery curriculum with an introduction to general nursing procedures.

The stated program objectives of the registered midwifery curriculum used to train CMs are:

- “Manage and care for a woman and her infant during normal pregnancy, labor, birth and puerperium.
- Manage and care for women with selected reproductive health needs including family planning.
- Provide care for women and infants with complications related to pregnancy, labor, birth and the puerperium including initiation of emergency interventions, stabilization, and referral for medical care when necessary.
- Collaborate with other health care providers to provide integrated reproductive health services in accordance with Primary Health Care concepts in all settings.
- Adhere to legal, statutory and ethical standards of professional practice.
- Render midwifery care that is evidence based, compassionate, non-judgmental, culturally acceptable, and promotes human rights.”

CM students are trained at three midwifery schools in Zambia: Chipata in Eastern Province and Nchanga and Roan Antelope schools of midwifery in the Copperbelt Province. During the six months of internship of the CMs the supervision is done by mentors identified from the schools of midwifery. Upon completion of training, supervisory responsibility for the CM is assigned to the head of the units in the wards where the CMs work. As of 2011, the DEM in Zambia has trained 287 CMs; 98 graduated in 2009, 86 in 2010, and 103 in 2011.

2. Study Objectives

Scaling up training and development is one of the main strategies proposed in the MOH's strategic plan aimed at resolving the human resource crisis. The inception of the DEM program was one scale up strategy to significantly increase the numbers of midwives to improve quality of patient care. A review of the DEM program in 2009 focused on training related gaps experienced during the implementation of the program. Another review conducted in 2010 focused on understanding the value of the internship process in DEM training.

This study seeks to understand and assess the following:

- The role of CMs in the provision of midwifery services;
- Their workload at the facilities they work in;
- Their skills and competencies as assessed by the CMs themselves and their supervisors;
- Their work environment.

3. Methodology

3.1 Study Setting

The study was conducted in 70 health facilities in 43 districts in nine provinces (Central, Copperbelt, Eastern, Luapula, Lusaka, Northern, North-Western, Southern and Western Provinces). The health facilities were rural and urban health centers and district level, provincial level and tertiary level hospitals. The provinces and sites were conveniently selected on the basis that CMs were deployed in these sites.

3.2 Study Population

The study population included CMs and immediate supervisors of CMs deployed in the selected facilities. A sampling frame of CMs was provided by the MOH which indicated the sites where they were currently working in. The immediate supervisors were identified from the same institution as the CMs. Supervisors and CMs were asked similar questions to gain understanding of competences from each perspective.

A total of 98 CMs were interviewed. The respondents represented nine provinces, with more CMs from Lusaka and fewer from Northern, Southern, and Luapula provinces. More supervisors of CMs (108) were interviewed than CMs (Table 1).

TABLE 1: DISTRIBUTION OF SAMPLE BY PROVINCE AND LOCALITY

Characteristic	Percent of CMs	Percent of Supervisors
Province		
Lusaka	18.4	16.4
Western	13.3	14.6
Eastern	12.2	12.7
Copperbelt	11.2	10.0
North – Western	11.2	6.4
Central	10.2	10.0
Northern	8.2	13.6
Southern	8.2	7.3
Luapula	7.1	9.1
Locality		
Rural	53.1	44.6
Urban	46.9	55.5
Total Sample	98	108

3.3 Data Collection

Two semi-structured tools were used to conduct in-person interviews with CMs and immediate supervisors of CMs. Data collection tools were developed by a team of staff members from the MOH, the Zambia Systems Strengthening Program (ZISSP), Clinton Health Access Initiative, UNFPA, WHO, Jhpiego, GNC and the University of Zambia (UNZA) School of Medicine. Eighteen health professionals and monitoring and evaluation specialists were selected from the MOH, UNZA, and GNC as data collectors and oriented to the use of the tools. The tools were pre-tested in three urban health centers in Lusaka. The data from the pre-test were reviewed and the tools were adjusted accordingly prior to undertaking the assessment.

Permission to conduct the study was obtained from the MOH, Provincial Medical Officers, facility administrators and the sister-in-charge of maternal, neonatal and child health departments in the nine provinces and health facilities visited. The study team ensured that participants also gave their consent prior to being interviewed. The survey interviews were conducted from 11th - 23rd December, 2011. The data collectors were divided into six teams of 3 personnel each and each team was allocated particular provinces and districts in which to undertake the assessment.

A number of logistical challenges were encountered as the data collection was done during the rainy season (December), thus access to some health facilities was difficult. Additionally, some of the potential respondents that the survey team expected to find at specific institutions were not found at their respective stations for reasons including redeployment to other health facilities or workshop attendance. As a result, teams attempted to locate the individuals at other stations, which entailed covering long distances to interview respondents. In some instances, those who were not found at indicated sites were not interviewed.

3.4 Data Analysis

The data were entered, coded and cleaned using Epi-data and analyzed using Stata. Frequencies and tabulations to measure the association between key variables were performed. For ease of analysis, the 5-category Likert scale of assessment of competences were collapsed into two categories of “competent” – collapsing those indicated as “very competent” and “competent”; and “not competent” – collapsing categories of “not very competent,” “not competent” and “fairly competent”.

3.5 Limitations

The information collected was based on self-reported interviews without actual observation or verification of competences expressed. Therefore, the interpretation of this information is solely based on what was reported. The survey introduction informed respondents that the information would be kept confidential and that their responses would not be shared with supervisors. However, if respondents believed that they were being evaluated or that their answers might be shared, they may have altered their responses. Information elicited from the interviews came from facility-based respondents and did not include the recipients of services (clients) or the surrounding communities.

4. Findings

4.1 Certified Midwives

4.1.1 Background Characteristics

A total of 98 CMs were interviewed, most of whom (87.8%) are female. About half of the CMs (51%) had worked at their facility for more than a year, and 14.3% had transferred to their current facility from another facility. About one-fourth of the respondents (28.6%) had worked as a crew leader.

4.1.2 Supervision and Mentorship of CMs

Table 2 presents findings related to the supervision and mentorship of CMs. Nearly all of the interviewed CMs (95.9%) reported having an immediate supervisor. Among those respondents, two-thirds (67%) said that their immediate supervisor works at the department level. When asked about the frequency of supervision, more than half of the respondents (61.2%) indicated that they receive supervision on a daily basis. Less than half of the respondents (45.4%) reported receiving mentorship; more than half of those CMs receive mentorship from their immediate supervisor in their department and about one-third (37.5%) receive mentorship from other facility staff. About half of the respondents (56.8%) received mentorship within the last two weeks.

TABLE 2: SUPERVISION AND MENTORSHIP

	Percent
Has immediate supervisor	95.9
Level of supervisor (N=94)	
Department	67
Facility	30.9
District	2.1
Frequency of supervision (N=80)	
Daily	61.3
Weekly	18.8
Monthly	15
Quarterly	5
Receives mentorship	45.4
Mentor (N=40)*	
Immediate supervisor in department	60
Facility staff	37.5
Staff at district	17.5

	Percent
Last mentored (N=44)	
Within last two weeks	56.8
Three to four weeks ago	27.3
More than a month ago	15.9

*Among those who received mentorship. Categories are not mutually exclusive.

4.1.3 Work Management

The CMs were asked about documents related to work management at their facility. Less than one-third of the CMs (31.6%) are aware of an annual work plan for all staff involved in providing midwifery services. Figure 2 presents additional findings regarding the availability of work management documents. Nearly all CMs (95.9%) said that their facility has a duty rota and three-fourths reported having a work schedule for staff involved in providing midwifery services. Nearly half (49%) of the CMs said that they do not have a job description.

FIGURE 2: EXISTENCE OF WORK MANAGEMENT DOCUMENTS



4.1.4 Role of CMs

The CMs were asked to provide information about their role, such as the location and scope of their work. Nearly all CMs (93.9%) indicated that they work in the Labour Ward and two-thirds (65.3%) work in the MNCH Department (Table 3). In addition, 44.9% reported working in the Ob/Gyn Inpatient Department and about one-third work in the General Outpatient Department (34.7%) and other departments (28.6%). More than half of the CMs (57.1%) reported working outside of their scope. Of those working outside their scope, more than half (60.7%) said that they screen patients, work in the general outpatient department, and dispense drugs, and 21.4% said that they perform general ward tasks. Less than 10% of those working outside their scope conduct activities related to MCH, paediatrics, cleaning, and ART screening.

TABLE 3: LOCATION AND SCOPE OF CM WORK

	Percent
Departments* (N=98)	
Labour Ward	93.9
MNCH (ANC, PNC)	65.3
Ob/Gyn Inpatient	44.9
General Outpatient (OPD)	34.7
Other**	28.6
Work outside of scope	57.1
Activities outside of scope (N=56)	
Screening patients, OPD, drug dispensing	60.7
General ward tasks	21.4
MCH activities	8.9
Pediatrics	5.4
Cleaning	1.8
ART screening	1.8

*Categories are not mutually exclusive. **Other departments include ART clinic, drug dispensary, screening of patients, female medical ward, pediatric ward, postnatal ward, and general ward.

4.1.5 Workload of CMs

The CMs reported that there are on average three staff members in their ward in addition to themselves. The respondents indicated that they handle about four cases in their ward per shift. Table 4 shows the average distribution of cases attended to by the CMs in the week preceding the survey. About half of the respondents had ten or more cases related to postnatal care (58.2%), antenatal care (55.1%), family planning (42.9%), and labour/delivery (41.8%) in the last week. About one-fourth of respondents (23.5%) had no antenatal cases, and slightly less than half (46.9%) had no family planning cases in the last week.

TABLE 4: DISTRIBUTION OF CASES IN WEEK PRECEDING SURVEY

Types and number of cases	Percent
Postnatal Care	
0 cases	11.2
1-5 cases	22.5
6-9 cases	8.2
10+ cases	58.2
Antenatal Care	
0 cases	23.5
1-5 cases	8.2
6-9 cases	13.3
10+ cases	55.1
Family Planning	
0 cases	46.9
1-5 cases	7.1
6-9 cases	3.1
10+ cases	42.9
Labor/delivery	
0 cases	11.2
1-5 cases	32.7
6-9 cases	14.3
10+ cases	41.8

4.1.6 Competency and Comfort Providing Non-midwifery Services

The interviewed CMs were asked to assess their own competency in providing certain non-midwifery services. The respondents were also asked to assess how comfortable they felt providing these services. Overall, more than two-thirds of the CMs (68.6%) reported that are comfortable working in departments outside of the MNCH departments. Table 6 presents the respondents’ self-reported competency and comfort across a number of non-midwifery services. Nearly all respondents feel competent and comfortable administering drugs and managing malaria cases. Most feel competent and comfortable managing diarrhoea cases, screening patients, and conducting physical exams, referrals, and treatment of cases. Few CMs (32.9%) feel competent managing pneumonia cases.

TABLE 5: SELF-ASSESSED COMPETENCY AND COMFORT PROVIDING NON-MIDWIFERY SERVICES

	% feel competent	% feel comfortable
Drug administration	95.1	92.7
Clinical management malaria	91.2	86.3
Physical examination of cases	81.3	87.5
Referral of cases	80.8	80.8
Clinical management diarrhea	80.0	82.5
Treatment of cases	76.0	81.0
Screening of patients	63.6	68.8
Investigation of cases	59.0	73.1
Diagnosis of cases	55.7	68.4
Follow up of cases	53.4	64.4
Pediatric emergencies	48.7	59.0
Clinical management pneumonia	32.9	50.6

*Only respondents who answered both competency and comfort for a service are included. Number of respondents ranges from 73-82.

4.1.7 Competency Providing Midwifery Services

The CMs were asked to assess their own competency in performing various midwifery tasks, such as procedures related to infection control, antenatal care, management of obstetric emergencies, and care during labour/delivery, postnatal care, and other services. Tables 6-11 show the percentage of respondents who judge themselves as ‘very competent’ or ‘competent’ performing each procedure. The tables also show the percentage of CMs who did *not* assess their competency because the procedure in question is not applicable to them.

Infection Control

Of the CMs who rated their own competency, nearly all feel competent performing about half of the infection prevention procedures (Table 6). At least three-fourths assessed themselves as competent in other infection prevention procedures. Most respondents feel competent boiling, steaming instruments, and conducting dry heat sterilization, but only 55-65% of interviewees assessed their own competency in these procedures, suggesting that many CMs did not perform these tasks.

TABLE 6: SELF-ASSESSED COMPETENCY IN INFECTION PREVENTION

Procedure	Feel competent* (%)	Did not assess competency (%)
Decontamination	100	0.0
Hand washing for clean procedure	100	0.0
Cleaning instruments	99.0	0.0
Gloving	99.0	0.0
Hand washing for sterile procedure	97.9	1.0
Waste disposal	97.9	5.1
Hand washing with antiseptic hand rub	97.8	8.2
Autoclaving	93.8	17.4
Chemical disinfection	87.7	17.4
Chemical sterilization	83.1	21.4
Boiling	82.8	40.8
Steaming instruments	81.1	45.9
Dry heat sterilization	77.4	36.7

*Number of respondents ranges from 53 to 98.

Antenatal Care

Nearly all the CMs who self-assessed feel competent performing about half of the antenatal care procedures (Table 7). At least three-fourths assessed themselves as competent in the other procedures. Half of the CMs did not assess their own competency in PMTCT counseling, suggesting that they did not provide this type of antenatal service.

TABLE 7: SELF-ASSESSED COMPETENCY IN ANTENATAL CARE

Procedure	Feel competent* (%)	Did not assess competency (%)
Booking ANC clients	100	8.2
Full physical examination	99.0	0.0
Abdominal examination	99.0	0.0
History taking	97.9	5.1
Examination of genitalia	96.9	1.0
Health education	95.8	2.0
Breast examination	93.7	3.1
FP counseling	92.8	1.0
PMTCT counseling	85.7	52.0
HIV/AIDS/STIs counseling	84.5	1.0
Taking high vaginal swab	83.3	8.2
Dry blood Spot (DBS) collection	83.0	10.2
Speculum examination	80.7	10.2
VCT/CCT	80.4	6.1
Bimanual examination	76.5	13.3

*Number of responses ranges from 85 to 98.

Management of Obstetric Emergencies

Of the CMs who assessed their own competency, nearly all feel competent performing most procedures related to the management of obstetric emergencies (Table 8). Slightly less than half rated themselves as competent in the repair of cervical tears, and one-fourth of respondents did not assess their competency in this procedure.

TABLE 8: SELF-ASSESSED COMPETENCY IN MANAGEMENT OF OBSTETRIC EMERGENCIES

Procedure	Feel competent* (%)	Did not assess competency (%)
Newborn resuscitation	98.0	0.0
Repair of episiotomy/tears	97.9	3.1
Blood transfusion	97.7	10.2
Referral for emergency	96.7	8.2
Postpartum hemorrhage (PPH)	95.9	1.0
Antepartum hemorrhage (APH)	95.9	1.0
Initial assessment in emergency	95.9	1.0
Prolonged/obstructed labor	94.8	2.0
Eclampsia	93.8	1.0
Patient stabilization in emergency	92.8	1.0
Pre-eclampsia	92.6	3.1
Puerperal sepsis	89.4	4.1
Cord prolapse	84.2	1.0
Post abortion cases	81.4	12.2
Manual removal of retained placenta	80.2	2.0
Obstetric shock	78.7	9.2
Repair of cervical tear	45.2	25.5

*Number of responses ranges from 73 to 98.

Care during Labor and Delivery

Nearly all of the CMs who rated their competency feel competent performing most procedures related to care during labor and delivery (Table 9). About one-third of the CMs did not assess their competency in vacuum and outlet forceps deliveries; of those who did assess their competency in vacuum and outlet forceps deliveries, less than half feel competent performing these procedures.

TABLE 9: SELF-ASSESSED COMPETENCY IN CARE DURING LABOUR AND DELIVERY

Procedure/Condition	Feel competent* (%)	Did not assess competency (%)
Latent phase of labor	100	0.0
Prep-operative procedures	100	12.2
Nutrition and fluids in labor	100	0.0
Use of partograph	99.0	0.0
Management of pain in labor	99.0	2.0
AMTSL	97.9	5.1
Conduct normal delivery	96.9	0.0
Perform episiotomy	96.8	5.1
Assisted breech delivery	86.6	1.0
Vacuum delivery	41.5	33.7
Outlet forceps delivery	39.3	42.9

*Number of responses ranges from 56 to 98.

Postnatal Care

Nearly all the CMs who assessed their own competency feel competent providing newborn care and postnatal care at six hours, six days, and six weeks following birth (Table 10). Some of the CMs did not assess their competency in postnatal care at six days and six weeks following birth, suggesting that other health workers are responsible for these services at their facility.

TABLE 10: SELF-ASSESSED COMPETENCY IN POSTNATAL CARE (PNC)

Procedure/Condition	Feel competent* (%)	Did not assess competency (%)
PNC at 6 weeks	100	26.5
6 hours PNC	100	5.1
Newborn Care	100	1.0
-6 days PNC	98.8	18.4

*Number of responses ranges from 72 to 97.

Other Services

Of the CMs who assessed their own competency, nearly all feel competent providing services related to family planning, PMTCT, and malaria and anemia in pregnancy (Table 11). About three-fourths of the respondents rated themselves as competent in ART in pregnancy, the management of HIV/AIDS/STIs, and sexual reproductive health counseling. Approximately half of the respondents feel competent managing GBV cases and providing counseling and referrals for reproductive cancers and infertility, and around one-fifth of the CMs did not assess their own competency in these three services.

TABLE 11: SELF-ASSESSED COMPETENCY IN OTHER SERVICES

Procedure/Condition	Feel competent* (%)	Did not assess competency (%)
Family Planning	93.5	6.1
Malaria in Pregnancy	92.8	1.0
Anemia in Pregnancy	92.7	2.0
PMTCT	91.8	1.0
ART in pregnancy	77.2	6.1
Management of HIV/AIDS/STIs	74.5	4.1
Sexual reproductive health counseling	69.3	10.2
GBV cases	59.2	22.5
Reproductive cancers counseling and referral	52.4	14.3
Infertility counseling and referral	48.2	17.4

*Number of responses ranges from 76 to 97.

4.1.8 Workplace Environment

The interviewed CMs were asked to express their level of agreement with various descriptions of their work life, such as team work, supervision, communication, and work environment. Tables 12-15 present the percentage of CMs who agreed with these descriptions. All 98 CMs interviewed provided responses to this section.

Team Work

Most of the CMs felt that there is a strong sense of team work at their facilities (Table 12). Half said that they have monthly briefings with their supervisor. Approximately 71% agreed that there are clear working processes at the facility.

TABLE 12: TEAM WORK

Statement	Agree with statement (%)
Work done at this facility is important to all	95.9
I feel part of a team working towards a shared goal	89.8
Team and I are willing to improve the way work is done	89.8
I assist others without instructions from authority	83.7
I am aware of the important activities going on in other departments	71.4
I have clear working processes at facility	71.4
Disagreements at this facility are openly discussed to resolve differences in opinion	64.3
We hold monthly briefings with supervisor	49.0
My colleagues place more value in individual success than team work	41.8

Supervision

Approximately two-thirds to three-fourths of the CMs had positive impressions of their supervisor and felt that their supervisor treats them well (Table 13). However, almost half of the CMs reported not receiving positive feedback from their supervisor.

TABLE 13: SUPERVISION

	Agree with statement (%)
My supervisor treats me fairly and with respect	77.6
My supervisor sets clear priorities	75.5
My supervisor is knowledgeable of what I am expected to do	73.5
My supervisor clearly communicates what is to be done	73.5
My supervisor is always accessible	71.4
My supervisor has clearly communicated my roles	70.4
I am satisfied with my supervisor	70.4
I would recommend others to work with my supervisor	70.4
My supervisor is flexible and open to change	69.4
My supervisor tells me when my work needs improvements	67.4
My supervisor leads by example	66.3
I have trust and confidence in the overall job done by my supervisor	66.3
I am satisfied with the way my supervisor treats me	65.3

	Agree with statement (%)
My supervisor asks for my input to help make decisions	62.2
My supervisor tells me when I do my work well	58.2

Communication

The CM responses suggest some communication problems at the facilities (Table 14). Less than two-thirds of the CMs felt that there is adequate communication at their facility and fewer thought that there is adequate communication within various departments.

TABLE 14: COMMUNICATION

	Agree with statement (%)
I believe in open communication	96.9
I believe in honest communication	96.9
I have access to information I need to do my work	76.5
There is adequate communication at this facility	62.2
My supervisor clearly communicates my performance results to me	58.2
I learn more about what is going at this facility through formal than informal communication	55.1
There is adequate communication within various departments	49.0
My supervisor communicates to me only when there is a problem	32.7

Work Environment

Although nearly all the CMs felt well-trained for their work, only one-third felt that they are provided with the necessary materials for their work (Table 15). Less than two-thirds said that they work within their job responsibilities and only one-third felt their workload is reasonable. About two-thirds believed that they are well-accepted at their facility.

TABLE 15: WORK ENVIRONMENT

	Agree with statement (%)
I am well trained for the work that I do	93.9
I work according to the schedule	66.3
I believe I am well accepted at this facility	64.3
My work area is safe	63.3
I work within my job responsibilities	61.2
Nothing at this facility stops me from doing my best everyday	52.0
The facility provides me with adequate safety training	45.9
My workload is reasonable	35.7
I am provided with the necessary materials for my work	35.7

4.2 Supervisors

4.2.1 Background Characteristics

A total of 110 supervisors were interviewed, most of whom (77.78%) are female. Table 16 shows the background characteristics of the surveyed supervisors. Half of the supervisors have worked at their facility for one to five years, and about one-third (35.45%) have worked at their facility for more than ten years. Most of the supervisors (76.42%) work as in charges at the facility; the respondents have worked in their current role for seven years on average. There are 2.54 CMs on average working in the supervisor's department. Half of the supervisors have been supervising their CMs for six months or less; about one-third (30.1%) have been supervising them for more than 12 months.

TABLE 16: SUPERVISOR BACKGROUND CHARACTERISTICS

Characteristic	Percent
Gender (N=108)	
Female	77.8
Experience at facility	
1-5 years	50.0
6-9 years	14.6
More than 10 years	35.5
Role at facility (N=106)	
In charge	76.4
Nursing officer	17.9
Head of Department	5.7
Average years of experience in role	7.1
Average number of CMs in department* (N=97)	2.5
Duration of CM supervision (N=103)	
< 6 months	50.5
7-12 months	19.4
>12 months	30.1
Total Sample	110

4.2.2 Supervision and Mentorship

Nearly all of the supervisors (99.1%) provide some supervision to the CMs, with most (70%) providing supervision on a daily basis (Table 17). Over 90% of the supervisors reported that the CMs receive some mentorship. Most of the supervisors (81.4%) indicated that the CMs receive mentorship from the immediate supervisor in the department, and almost half (47%) said that the CMs receive mentorship from the facility supervisor.

TABLE 17: SUPERVISION AND MENTORSHIP

	Percent
Provides supervision to CM	99.1
Frequency of supervision	
Daily	70.0
Weekly	9.1
Monthly	6.4
Occasionally	14.6
CM receives mentorship	92.7
Mentor* (N=102)	
Immediate supervisor in department	81.4
Facility supervisor	47.1
District staff	24.5
Provincial staff	5.9

*Among those who reported that CMs receive mentorship. Categories are not mutually exclusive.

4.2.3 CM Deployment and Workload

Nearly all the supervisors (91.8%) indicated that the CMs are working as a midwife; the remainder stated that the CMs are working as in-charges. About one-third of the supervisors (37.3%) reported that the CMs had worked as a crew leader.

More than half (59.1%) of the supervisors said that the CMs work in the MNCH department only. About one-third of the supervisors (30.9%) stated that the CMs also work in the medical ward and about one-fourth (23.6% and 26.4%) said that the CMs also work in the paediatric ward and the outpatient department. Of the 46 supervisors who said that the CMs work in non-MNCH wards, nearly three-fourths (71.7%) attributed this to a shortage of staff at the facility.

The supervisors reported that the CMs have 3.8 cases per shift on average. Table 18 shows the distribution of cases managed by CMs in the last one week according to the interviewed supervisors.

TABLE 18: CM CASES IN LAST 1 WEEK

Type and number of cases	Percent
Antenatal Care	
0 cases	30.9
1-5 cases	10.0
6-9 cases	6.4
10+ cases	52.7
Labour/delivery	
0 cases	13.6
1-5 cases	26.4
6-9 cases	13.6
10+ cases	46.4
Postnatal Care	
0 cases	33.6
1-5 cases	12.7
6-9 cases	5.5
10+ cases	48.2
Family Planning	
0 cases	63.6
1-5 cases	10.0
6-9 cases	2.7
10+ cases	23.6
Gyn	
0 cases	85.5
1-5 cases	12.7
6-9 cases	1.8
OPD	
0 cases	92.7
10+ cases	7.3

*Categories are not mutually exclusive.

4.2.4 CM Competency Providing Non-midwifery Services

Approximately one-third to half of supervisors did not assess CM competency in non-midwifery services, suggesting that some CMs do not provide such services (Table 19). Of the supervisors who assessed the competency of the CMs, two-thirds or less think the CMs are competent in providing the non-midwifery services presented in Table 19. Less than one-third of supervisors think the CMs are competent in the clinical management of pneumonia and the diagnosis of cases.

TABLE 19: CM COMPETENCY IN NON-MIDWIFERY SERVICES

Procedure/Condition	Think CM is competent* (%)	Did not assess competency (%)
Drug administration	68.0	27.8
Referral of cases	65.5	49.5
Clinical management malaria	59.5	32.1
Treatment of cases	59.5	32.1
Clinical management diarrhea	54.8	33.0
Investigation of cases	49.3	34.9
Pediatric emergencies	44.9	36.7
Physical examination of cases	43.3	38.5
Follow up of cases	40.0	54.1
Screening of patients	34.4	44.0
Clinical management pneumonia	29.2	33.9
Diagnosis of cases	21.0	42.6

*Number of responses ranges from 50 to 78.

4.2.5 CM Competency in Midwifery Services

The supervisors were asked to assess the competency of the CMs in performing various midwifery tasks, such as procedures related to infection control, antenatal care, management of obstetric emergencies, care during labour/delivery, postnatal care, and other services. Tables 20-25 show the percentage of respondents who think the CMs are competent performing each procedure. The tables also show the percentage of interviewed supervisors who did not assess the competency of the CMs because the procedure or condition in question is not applicable to them.

Infection Control

Nearly all of the supervisors who assessed the CMs think they are competent in most infection prevention procedures (Table 20). However, over 80% of the supervisors did not assess the competency of the CMs in boiling and steaming instruments, two-thirds did not assess CM competency in dry heat sterilization, and nearly half did not assess CM competency in autoclaving or chemical sterilization.

TABLE 20: CM COMPETENCY IN INFECTION PREVENTION

Procedure/Condition	Think CM is competent* (%)	Did not assess competency (%)
Boiling	95.2	80.7
Cleaning instruments	94.3	3.7
Steaming instruments	94.1	84.4
Hand washing for clean procedure	92.6	0.9
Decontamination	92.5	1.8
Autoclaving	90.5	42.2
Hand washing with antiseptic hand rub	90.3	33.9
Chemical disinfection	88.4	36.1
Gloving	88.0	0.9
Chemical sterilization	87.3	49.1
Waste disposal	86.7	1.9
Hand washing for sterile procedure	83.0	2.8
Dry heat sterilization	76.9	64.2

*Number of respondents ranges from 17 to 108.

Antenatal Care

Of the supervisors who rated CM competency, most find them to be competent in antenatal care (Table 21). About half of the supervisors did not assess CM competency in taking high vaginal swabs, conducting dry blood spot collection, or speculum examination. About one-third did not assess CM competency in booking ANC clients, bimanual examination, or VCT/CCT.

TABLE 21: CM COMPETENCY IN ANTENATAL CARE

Procedure/Condition	Think CM is competent* (%)	Did not assess competency (%)
Abdominal examination	93.8	11.9
History taking	93.4	16.5
Booking ANC clients	92.5	38.0
Full physical examination	89.6	11.9
Health education	89.6	11.9
Examination of genitalia	86.7	17.4
PMTCT counseling	80.4	11.8
FP counseling	78.9	17.4
Breast examination	78.0	16.5
HIV/AIDS/STIs counseling	76.8	24.8
Bimanual examination	74.7	31.2
Dry blood spot (DBS) collection	70.0	53.7
VCT/CCT	69.1	37.0
Taking high vaginal swab	68.8	56.0
Speculum examination	66.7	45.0

*Number of respondents ranges from 48 to 97.

Management of Obstetric Emergencies

Most of the supervisors who assessed CM competency find them to be competent in procedures related to the management of obstetric emergencies (Table 22). Nearly 75% of supervisors did not assess CM competency in the repair of surgical tears; of those did, only half think the CMs are competent in performing this procedure. Between one-fourth and one-third of supervisors did not assess CM competency in blood transfusion, cord prolapse, obstetric shock, puerperal sepsis, post abortion care, or manual removal of retained placenta.

TABLE 22: CM COMPETENCY IN MANAGEMENT OF OBSTETRIC EMERGENCIES

Procedure/Condition	Think CM is competent* (%)	Did not assess competency (%)
Blood transfusion	92.3	28.4
Prolonged/obstructed labor	89.1	7.3
Repair of episiotomy/tears	86.0	8.3
Newborn resuscitation	85.2	7.3
Postpartum hemorrhage (PPH)	83.8	9.2
Pre-eclampsia	81.5	15.6
Antepartum hemorrhage (APH)	81.2	7.3
Cord prolapse	80.8	28.4
Initial assessment in emergency	78.7	0.9
Patient stabilization in emergency	78.7	0.9
Eclampsia	77.3	19.3
Obstetric shock	76.3	26.6
Puerperal sepsis	73.1	27.8
Post abortion care	71.8	34.3
Manual removal of retained placenta	63.5	22.0
Repair of cervical tear	51.7	73.4

*Number of responses ranges from 29 to 108

Care during Labor and Delivery

Of the supervisors who assessed CM competency, nearly all find them to be competent in conducting normal deliveries, providing nutrition and fluids in labor, performing episiotomies, and managing the latent phase of labor (Table 23). About 88% of the supervisors thought the CMs are competent in the use of the partograph. Less than 10% of the supervisors assessed the competency of the CMs in vacuum and outlet forceps delivery, which may indicate that CMs are not expected to perform these procedures. Only one supervisor responded that the CM is competent in this procedure.

TABLE 23: CM COMPETENCY IN CARE DURING LABOUR AND DELIVERY

Procedure/Condition	Think CM is competent* (%)	Did not assess competency (%)
Conduct normal delivery	98.0	5.6
Nutrition and fluids in labor	94.1	6.4
Perform episiotomy	93.2	32.1
Latent phase of labor	93.2	5.5
Use of partograph	87.4	5.5
Management of pain in labor	80.2	7.3
Prep-operative procedures	79.5	26.4
Assisted breech delivery	64.0	31.2
Vacuum delivery	52.9	83.8
Outlet forceps delivery (3 responses)	33.3	97.3

*Number of responses ranges from 3 to 103.

Postnatal Care

Nearly all of the supervisors who rated CM competency find them to be competent in all four types of postnatal care (Table 24). However, only half of the supervisors assessed CM competency in postnatal care at six weeks and six days after birth.

TABLE 24: CM COMPETENCY IN POSTNATAL CARE

Procedure/Condition	Think CM is competent* (%)	Did not assess competency (%)
Newborn Care	98.1	0.9
PNC at 6 weeks	98.1	51.9
6 hours PNC	97.1	3.7
-6 days PNC	94.6	48.2

*Number of responses ranges from 52 to 107.

Other Services

Of the supervisors who assessed CM competency, most thought they are competent in managing anemia, malaria, and ART in pregnancy, and providing family planning and sexual reproductive health counseling (Table 25). About half of the supervisors did not assess CM competency in reproductive cancers counseling and referral, infertility counseling and referral, or GBV cases.

TABLE 25: CM COMPETENCY IN OTHER SERVICES

Procedure/Condition	Think CM is competent* (%)	Did not assess competency (%)
Anemia in Pregnancy	82.5	5.5
Family Planning	81.8	29.4
Malaria in Pregnancy	79.6	5.5
ART in pregnancy	70.1	20.2
Sexual reproductive health counseling	65.3	31.2
Management of HIV/AIDS/STIs	55.0	16.5
Reproductive cancers counseling and referral	53.3	58.7
Infertility counseling and referral	52.4	61.1
GBV cases	48.2	48.6

*Number of responses ranges from 42 to 103

4.2.6 Workplace Environment

The interviewed supervisors were asked to share their impressions about various aspects of work life as it pertains to the CMs, such as teamwork, supervision, communication, and work environment. Tables 26-29 present the percentage of supervisors who agreed with various statements describing their workplace environment.

Teamwork

Most supervisors found teamwork at the facility to be good (Table 26). For example, about 90% of supervisors thought that there is teamwork among the CMs' colleagues and that the CMs felt like they are part of a team working towards a shared goal.

TABLE 26: TEAMWORK

Statement	Agree with statement (%)
Supervisor is aware of important activities being done by CM	97.3
CM feels part of the team working towards a shared goal	92.7
Work done by CM at this facility is important to all	91.7
CM and colleagues are willing to improve the way they do work	90.8
CM has clear working processes at this facility	89.9
There is teamwork among the CM's colleagues	89.9
Disagreements are openly discussed at facility to resolve differences in opinion	85.3

Statement	Agree with statement (%)
Supervisor holds monthly briefings with CM	80.7
CM assists others without instructions from authority	74.3
CM is aware of important activities in other departments	69.7

Supervision

Nearly all supervisors agreed that they provide appropriate supervision to the CMs (Table 27). For example, 100% of supervisors agreed that they are always accessible to the CMs and recognize the good work done by the CMs.

TABLE 27: SUPERVISION

Statement	Agree with statement (%)
Supervisor is always accessible to CM	100
Supervisor recognizes good work done by CM	100
Supervisor leads by example	99.1
Supervisor clearly communicates what is to be done by CM	98.2
Supervisor treats CM fairly and with respect	96.3
CM asks for supervisor's input to make decisions	96.3
Supervisor is flexible and open to change when CM proposes good solution	96.3
Supervisor tells CM where they need to improve in terms of work	93.6
Supervisor is very knowledgeable of what CM is expected to do	91.7
Supervisor has trust and confidence in overall job done by CM	91.7
Supervisor clearly sets priorities to be achieved by CM	83.5
Supervisor clearly communicates CM's roles to her	80.7

Communication

Most of the supervisors agreed that communication at the facility and within various departments is adequate (Table 28). Nearly all of the supervisors felt that the CMs have access to the information they need to do their work.

TABLE 28: COMMUNICATION

Statement	Agree with statement (%)
Supervisor believes in open communication	100
CM has access to information needed to do work	99.1
Supervisor believes in honest communication	99.1
Adequate communication at facility	92.7
Adequate communication within various departments	91.7

Statement	Agree with statement (%)
Supervisor communicates performance results clearly to CM	89.0
Supervisor communicates with CM through formal rather than informal communication means	82.6
Supervisor communicates with CM only when there is a problem	8.3

Work Environment

Most of the supervisors believed that the CMs are well trained for their work, but only about half agreed that the CMs work within their scope of work (Table 29). Slightly more than half of the supervisors agreed that the CM workload is reasonable. About 90% of supervisors felt that CMs are very well accepted at the facility.

TABLE 29: WORK AND WORKING ENVIRONMENT

Statement	Agree with statement (%)
CMs are very well accepted at facility	89.8
CMs are well trained for their work	86.1
CM work area is safe	85.2
Nothing at facility stops CM from doing best everyday	85.2
CMs work according to schedule	81.5
CMs are provided with the necessary materials for work	77.8
Facility provides CM with adequate safety training	72.2
CM workload is reasonable	58.3
CMs work within their scope	56.5

4.2.7 Supervisor Assessment of CM Role

The interviewed supervisors were asked to describe the challenges and benefits of having a CM at their facility and to recommend improvements to the DEM program for CMs. Table 30 presents a summary of the most common responses. Most supervisors (71.2%) cited lack of competency in non-midwifery services as the main challenge that they face with the CM. When asked to provide examples of challenges faced by the midwives, almost one-third of the supervisors (29.1%) mentioned lack of equipment and 19.8% mentioned lack of competency in non-midwifery services. In spite of these challenges, nearly all supervisors (90.9%) thought the CM is relevant to his/her department/facility. About half of the supervisors (45.9%) thought CMs are relevant because they are skilled and the others find them relevant because they reduce the workload (25.7%) and improve staffing levels (22%). Almost all of the supervisors thought the CM is skilled to perform the duties in the department/facility (93.6%) and the CM is reliable with the work she does in the department/facility (92.7%).

About 95% of the supervisors would be willing to receive more CMs in their department/facility. When asked how the DEM program for CMs can be improved, about half of the supervisors (45.8%) recommended including more general nursing in the curriculum, one-fourth suggested extending the

period of training to 2.5 diploma qualification , and 15% recommended strengthening training on medical conditions in pregnancy.

TABLE 30: SUPERVISOR ASSESSMENT OF CM ROLE

	Percent
Challenges supervisor faces with CM (N=80)*	
Not competent in non-midwifery services	71.3
Difficulties in working as a team	11.3
Too much work	7.5
Challenges faced by CM (N=86)*	
Lack of equipment	29.1
Not competent in non-midwifery services	19.8
Difficulties in adjusting	17.4
Too much work	14.0
Intimidation by senior nurses	10.5
Lack of leadership skills	5.8
CM is relevant to department/facility	90.9
Reasons that CM is relevant (N=109)	
They are skilled	45.9
Reduce workload	25.7
Improved staffing levels	22.0
CM is skilled to perform duties in department/ facility (N=109)	93.6
CM is reliable with work she does in department/ facility (N=109)	92.7
Supervisor willing to receive more CMs in department/facility	94.6
Reasons that supervisor is willing to receive more CMs in department/facility (N=103)*	
They are skilled	43.7
Reduce workload	17.5
Improved staffing levels	16.5
Quick learners	13.6
How DEM program for CMs can be improved (N=107)*	
Include more general nursing in curriculum	45.8
Extend period of training to 2.5 diploma qualification	25.2
Strengthen medical conditions in pregnancy	15.0

*Responses do not add up to 100% because only most common responses are presented.

5. Summary and Discussion of Findings

Supervision is a key component in the delivery of safe and effective care and in the development of the midwifery workforce. Nearly all of the interviewed CMs reported having an immediate supervisor, and the majority indicated that they receive supervision on a daily basis. However, some CMs were supervised at varied intervals ranging from a weekly to a quarterly basis. This may hinder the ability of the CMs to adequately develop competence and training on the job and may negatively affect service quality. On the other hand, less than half of the CM respondents reported receiving mentorship, contrary to the results of the supervisors' survey where the vast majority of supervisors reported that the CMs receive some mentorship.

Clear **job descriptions** are important to guide CMs and supervisors on expected functions and help prevent duplication of tasks. The majority of CMs reported that they have a duty rota and a work schedule for staff involved in providing midwifery services, however, nearly half reported that they do not have a job description. When the job description is not available or does not exist, CMs may practice beyond their mandate and be deemed incompetent as they may be utilized beyond the scope of their training and skillset.

Indeed half of the CMs and of the surveyed supervisors reported that CMs were **working outside of their midwifery scope**. Of the CMs working outside their scope, more than half said that they screen patients, work in the general outpatient department, and dispense drugs. The deployment of CMs to areas outside their scope of work may lead to a lack of appreciation of the role of the CMs in a health facility because they are expected to perform duties that they were not trained to do. Furthermore, deploying CMs in non-midwifery departments may endanger the safety of the patients they are serving. Of the supervisors who said that the CMs work in non-MNCH wards, nearly three-fourths attributed this to a shortage of staff at the facility.

Most of the CMs and supervisors of CMs interviewed agreed that they were **competent** in providing midwifery-related care. The majority of the CMs reported that they are competent in nearly all of the **infection prevention** procedures. The supervisors reported similar levels of CM competence. Close to half of CMs and the majority of supervisors, however, did not assess competency in procedures such as boiling, steaming instruments, and conducting dry heat sterilization, or autoclaving, suggesting that many CMs did not perform these tasks at the facilities surveyed. This may be because the facilities did not possess the necessary equipment.

Nearly all the CMs feel competent performing about half of the **antenatal care procedures** assessed in this survey. Of the supervisors who rated CM competency, most find them to be competent in antenatal care. Half of the CMs did not assess their own competency in PMTCT counseling, suggesting that they did not provide this type of antenatal service.

Nearly all CMs felt competent performing most procedures related to the **management of obstetric emergencies** and most of the supervisors who assessed CM competency found them to be competent in these procedures as well. However, less than half of CMs rated themselves as competent in the repair of cervical tears, and one-fourth of respondents did not assess their competency in this procedure. Nearly three quarters of supervisors did not assess CM competency in the repair of surgical tears either, and of those did, only half think the CMs are competent in performing this procedure.

Nearly all of the CMs who rated their competency felt competent performing procedures related to care during **labor and delivery**. About one-third did not assess their competency in vacuum and outlet forceps

deliveries; of those who did, less than half feel competent performing these procedures. Similarly, only a fraction of the supervisors assessed CMs' competency in vacuum and outlet forceps delivery, suggesting lack of exposure to such procedures.

Competency providing *newborn care and postnatal care* was rated high by the CMs at six hours, six days, and six weeks following birth. Nearly all of the supervisors who rated CM competency found them to be competent in all four types of postnatal care. However, only half of the supervisors assessed CM competency in postnatal care at six weeks and six days after birth.

Of the CMs who assessed their own competency, nearly all felt competent providing services related to family planning, PMTCT, and malaria and anemia in pregnancy.

Most of the CMs agreed that there is a strong sense of *team work* at their facilities, and most supervisors found teamwork at the facility to be good. The majority of the CMs had positive impressions of their supervisor and felt that their supervisor treats them well, though close to half reported not receiving positive feedback from their supervisor. In contrast, all of the supervisors interviewed reported that they recognize the good work done by the CMs. The CM responses suggest some *communication* problems at the facilities and that there may be room for improvement. Approximately a quarter of CM respondents did not agree that supervisors clearly communicate priorities or roles. On the other hand, most of the supervisors believed that communication at the facility and within various departments is adequate. While nearly all the CMs felt they are well-trained for their work – and their supervisors agree, only one-third agreed that they are provided with the necessary materials for their work. More than a third of CMs said that they work *outside of their job responsibilities* and only one third agreed their workload is reasonable.

Supervisors demonstrated general *satisfaction* with the CMs, with the majority reporting that they would be willing to receive more CMs, favoring their skills and their ability to reduce workload in the facility. Interestingly however, the majority of supervisors cited lack of competency in non-midwifery services as the main challenge that they face with the CMs, even though CMs are not trained nor expected to work outside of midwifery care. Other examples of challenges cited include lack of equipment. When asked how the DEM program for CMs can be improved, about half of the supervisors recommended including more general nursing in the curriculum while some recommended strengthening training on medical conditions in pregnancy.

6. Recommendations

The assessment indicates that CMs have an important role to play in the provision of midwifery services. Although the DEM program has been successful in graduating the initial cohorts of CM graduates in Zambia, there are a number of challenges that need to be addressed as the program expands. The following recommendations are suggested:

- The CMs are clearly working outside of their midwifery scope even though they are not supposed to, and their supervisors have high expectations on CMs' skills in non-midwifery areas, even though they are not sufficiently trained to do so. This is also likely causing additional burden on an already large CM workload. It is therefore important that all health personnel are oriented to the appropriate role that CMs are supposed to play. Relatedly, clear job descriptions should be made available to all CMs and other health workers at the facilities to guide CMs and supervisors on expected functions and improve the quality of services at the facility.
- Relatedly, it is important for the MOH to address shortage of other staff at the facility in order to avoid CMs being diverted away from the delivery of midwifery care.
- There is a need to expand and/or improve the training of CMs to include training, possibly in-service, on clinical procedures such as repair of cervical tears, vacuum and outlet forceps deliveries and some infection prevention such as boiling, steaming instruments, and conducting dry heat sterilization. It is important to address these gaps in clinical practice to ensure that midwives are able to provide all-round midwifery care.
- The supervisor should be responsible to direct and review the CM's work and record the practice of the CM on a continuous basis to ensure that appropriate directions are given and understood and that appropriate treatment is rendered. Supervision plans and expectations need to be more clearly communicated with the CMs.
- Given variations in the frequency of CM supervision and mentorship, the MOH, through the provincial and district medical offices, needs to carry out an evaluation of the delivery of supervision and mentorship of CMs.