Republic of Rwanda
Ministry of Health

Rwanda Biomedical Centre
Healthy People, Wealthy Nation

RWANDA RAPID EMERGENCY OBSTETRIC AND NEWBORN CARE (EmONC) NEEDS ASSESSMENT 2021

UNFPA

Enabel

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Foreword

Maternal and newborn health is a top priority for the Government of Rwanda. Efforts have resulted in impressive gains in expanding maternal and newborn services towards the reduction of Maternal and Neonatal Mortality Rates. However, despite a sustained commitment and the achievement of the Sustainable Development Goals, maternal and newborn health remains a challenge for the population of the country.

To better understand why this is so, the Ministry of Health undertook a Rapid National Emergency Obstetric and Newborn Care Needs Assessment in 2021. This was the first study of this type in Rwanda. The evidence generated through the assessment was to provide a baseline for monitoring and evaluating emergency obstetric and newborn care across Rwanda and the implementation of strategic EmONC interventions across the country.

The findings in this report will guide Rwanda Biomedical Center and the Ministry of Health to review the status of the EmONC facilities and assist policy makers and program managers to design more effective plans and strategies for maternal and newborn mortality reduction in Rwanda. The findings will also support the development of a EmONC Facility network.

We would like to thank RBC/ Maternal Child and Community Health Division for leading the process, UNFPA and Enabel for providing both technical and financial support, technical support from WHO, UNICEF, USAID, USAID Ingobyi, Partners in Health who were part of the core team, data collection team and all development partners who were involved in conducting this assessment. Without your support, commitment and cooperation, the assessment would not have been accomplished.

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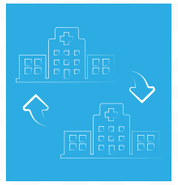

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Finally, we commend the core team members and the technical working group for their support and enthusiasm. Their coordination and facilitation efforts were crucial in achieving the outstanding level of success attained by this assessment.

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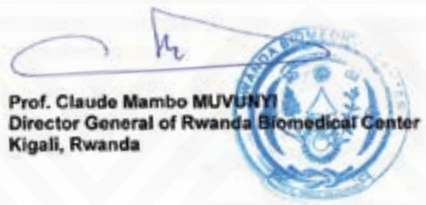

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Acronyms

AIDS	Acquired Immuno-deficiency Syndrome
AMDD	Averting Maternal Death and Disability
ANC	Antenatal Care
AVD	Assisted Vaginal Delivery
BEmONC	Basic Emergency Obstetric and Newborn Care
CEmONC	Comprehensive Emergency Obstetric and Newborn Care
CHUK	University Central Hospital of Kigali
CS	Caesarean section
CSPro	Census and Survey Processing
D&C	Dilation and Curettage
DOC	Direct Obstetric Complication
DOCFR	Direct Obstetric Case Fatality Rate
E&C	Evacuation and Curettage
EmNeC	Emergency Newborn Care
EmONC	Emergency Obstetric and Newborn Care
FANC	Focused Antenatal Care
FP	Family Planning
HIV	Human Immuno-deficiency Virus
HMIS	Health Management Information System
HR	Human Resources
IM	Intramuscular
IV	Intravenous
KMC	Kangaroo Mother Care
MDSR	Maternal Death Surveillance and Response
MMR	Maternal Mortality Ratio
MNH	Maternal Newborn Health
MVA	Manual Vacuum Aspiration
NGO	Nongovernment Organization
NICU	Neonatal Intensive Care Unit
Ob/gyn	Obstetrician or Gynaecologist
PAC	Postabortion Care
PE/E	Pre-eclampsia and Eclampsia
PPH	Postpartum Haemorrhage
PPROM	Pre-term, Premature Rupture of Membrane
RSOG	Rwandan Society of Gynaecologists
SAC	Safe Abortion Care
STI	Sexually Transmitted Infections
SVD	Spontaneous Vaginal Delivery
TWG	Technical Working Group
UN	United Nations
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Emergency Fund
USAID	United States Agency for International Development
VEND	Very Early Neonatal Death
WHO	World Health Organization

Executive Summary

Rwanda conducted a rapid, but comprehensive, Emergency Obstetric and Newborn Care (EmONC) assessment in 2021; while the first was conducted in 2004 in few districts. The primary aim of the 2021 EmONC assessment was to generate evidence on the current availability, utilization, and quality of EmONC services in the country.

The assessment provides insightful information on the availability of infrastructure, equipment, essential drugs, and supplies; the range of practices related to user fees; availability and current EmONC practices of human resources; insight into quality of clinical monitoring and management of caesarean deliveries, Comprehensive Abortion Care (CAC), and newborns with complications; geographic availability of critical services; status of routine and emergency obstetric and newborn services; availability and use of records for MNH services; and the referral system.

The assessment was a national cross-sectional census of public and private hospitals, health centers, Polyclinic centers, and clinics that had a minimum of 20 deliveries per month in the 2020 and 2019 HMIS data. Health posts that had a minimum of 15 deliveries per month were also included in the assessment.

The assessment used abridged versions of Averting Maternal Death and Disabilities (AMDD's) recent EmONC assessment tools (Modules 1 to 5) plus case review modules of cesarean delivery, CAC, and newborn morbidities (newborns with breathing difficulties, low-birth weight babies – less than 2000 grams, and young infants with infections < 60 days).

A total of 444 hospitals, health centers, Polyclinic centers, clinics, and health posts with the above-mentioned criteria of minimum births per month were visited and included in the analysis.

A team of 15 with two data collectors per team (total 30) with a minimum qualification of health background at Diploma (with 2 years of college education) level served as data collectors and supervisors. The data collectors and supervisors received a five-days training and they worked in teams of two with one of them serving as a team leader. Data collection had begun in mid-April and ended in mid-June 2021.

The data analysis for this report used frequencies, percentages, and rates. In addition, the report accommodates analysis results using graphs and maps to see the distribution of indicators in the country. Tables are found both in the body of the report and in the Appendix A for further reference of details. Mostly the analysis was done by districts, facility type, ownership of facilities, and location (urban and rural); and in some instances, by EmONC status.

Key findings from each chapter are summarized below.

1 Tools are accessible at AMDD's website: https://www.mailman.columbia.edu/research/averting-maternal-death-and-disability-amdd/toolkit#toolkit

EmONC and EmNeC Indicators

Based on the UN handbook of EmONC signal functions, a facility qualifies as Basic if it performs all the seven basic signal functions (parenteral antibiotics, anticonvulsants, and uterotonics (all injection), manual removal of placenta, removal of retained products of conception, assisted vaginal delivery-with vacuum extractor, and neonatal resuscitation with bag and mask) and it qualifies as Comprehensive if it performs all the Basic plus caesarean delivery and blood transfusion in the last 3 months prior to the survey.

Accordingly, UN recommends a minimum of 5 EmONC facilities for every 500,000 population; of which, at least one of the 5 EmONC facilities should be comprehensive.

- In 2021, Rwanda was required to have **130 EmONC facilities** (at least 30 of them should be Comprehensive) for a projected population of **12,955,768**. However, the country had only **24 (18%)** fully functioning EmONC facilities (with less rigorous criteria) leaving the country with a gap of **106 EmONC facilities** at national level. With more rigorous criteria (applying some readiness indices), the country had only **16** fully functioning EmONC facilities **(12% from the recommended 130 facilities)**.

- Coverage of EmONC facilities by district was also observed as a huge gap, **13** out of the **30 districts** had no fully functioning EmONC even in less rigorous criteria (Burera, Gasabo, Gicumbi, Kamonyi, Karongi, Kicukiro, Ngoma, Nyamagabe, Nyaruguru, Rulindo, Rusizi, Rutsiro, and Rwamagana).

- Availability of CEmONC facilities exceeded the recommended in Gisagara, Ngororero, Nyarugenge, Gakenke, Rubavu, and Ruhango. **Ten districts** qualified the recommended CEmONC facilities while **14 districts** had a gap of **1** or **2 CEmONC facilities.**

- **Availability of Basic EmONC** is non-existent in all districts except in Bugesera and Kirehe; each had one Basic EmONC facility.

- Of the total facilities visited, **47%** of them were missing only one or two basic EmONC signal functions. These facilities were distributed across all districts with the highest in Nyamagabe **(94%)** and Gasabo **(93%)** to the lowest in Burera and Rubavu **(13% each)**. Most of the districts with higher proportion of partially functioning facilities had no fully functioning EmONC at all.

- Of the total facilities, **11%** of them were fully EmNeC (performed all the seven newborn signal functions) and **15%** of them misses only one or two of the EmNeC signal functions – "Almost there". Rusizi **(53%)** had the highest proportion of "Almost there" facilities for EmNeC; followed by Rutsiro **(38%)**, Nyamagabe **(31%)**, and Ngoma **(31%)**.

- Population based institutional delivery rate was **71% in all facilities** and only **16%** in fully functioning EmONC facilities. Nyarugenge **(132%)** and Gasabo **(107%)** had the highest and Burera **(47%)** had the lowest institutional delivery rate. Since **13 of the 30 districts** did not have EmONC facilities, institutional delivery in EmONC facilities in these districts was zero. Most deliveries took place in those facilities that misses one or two of the Basic signal functions.

- Met need: **a total of 61,799 women** were expected to develop complications in the population in the assessment period. Of these, only **43%** of them were treated in all facilities and **11%** received treatment in EmONC facilities. Met need in all facilities was high in Musanze **(104%)** and low in Nyabihu **(9%)**. Met need increased from **43% to 69%** in all facilities and from **11% to 20%** in EmONC facilities with the addition of non-severe post-abortion care complications to the calculation.

- Population based caesarean rate was **16%** in all facilities and **7%** in EmONC facilities with the **highest in Nyarugenge (49%),** followed by **Gasabo (38%)**. Five out of the 30 districts had population CS rate below **10%** - **Rubavu (9%)**, **Kamonyi (8%)**, **Rutsiro (7%)**, **Nyaruguru (6%)**, and **Burera (5%)**.

- Facility-based CS rate at national level was **23%** with the highest among private-for-profit facilities **(64%)** than public/government owned **(46%)** and private, not-for-profit **(42%)**.

- DOCFR at national level was **0.6%** in all facilities, which was below the international standard (<1%). However, the DOCFR in fully functioning EmONC facilities was **1.3%**. In 17 of the 30 districts that had EmONC facilities, Nyarugenge had a higher DOCFR **(7.5%)** followed by Nyabihu **(6.1%)**. Most of the districts had less than **1%** DOCFR.

- Nationally, there were **3,983 stillbirths** with a **13.5 stillbirth** rate **per 1000 deliveries** and **764** very early **neonatal deaths with a 2.6 rate per 1000 live births** in all facilities. Huye recorded the **highest stillbirth rate (22.7 per 1000 deliveries)** while the **lowest** was observed in Bugesera **(5.5 per 1000 deliveries)**. **Very early neonatal death rate** in all facilities was revealed high in Ngorero **(13.1 per 1000 live births)** and the lowest in Gatsibo, Nyagatare, and Ngoma **(0.4 per 1000 live births each)**.

- Nationally, the percentage of institutional maternal deaths due to indirect causes was **20% in all facilities** and **9% in EmONC facilities**. In all facilities, **Nyarugenge** recorded the **highest maternal death** due to indirect causes **(47%)**, followed by **Rubavu (40%)**; while the **lowest** (zero) was recorded in 15 of the 30 districts.

2 WHO, UNFPA, UNICEF, AMDD. Monitoring emergency obstetric care: a handbook. Geneva: World Health Organization; 2009
3 EmONC availability is classified as a) Less rigorous criteria: functionality based on facility interviews: with performance of either all the seven basic or nine comprehensive EmONC signal functions based on the interviews of the healthcare providers and b) More rigorous criteria: functionality based on interviews and readiness to provide EmONC: performance signal functions, and case management of major obstetric complications, facility open 24/7, and availability of minimum drugs/equipment to perform signal functions.

Additional EmONC and EmNeC indicators, coverage and readiness to EmONC and EmNeC

- Almost all facilities performed parenteral antibiotics (99%) and parenteral uterotonics (99%) in the last 3 months prior to the assessment; while the least performed was assisted vaginal delivery using vacuum extraction (6%). CS delivery was perform ed in all hospitals and 96% had blood transfusions for those women in need.

- Of the seven newborn signal functions, antibiotics for pPROM and newborn resuscitation with bag and mask were performed in 87% and 81% of the facilities, respectively. The least administered newborn signal function was safe administration of oxygen (16%). Kangaroo Mother Care (KMC) was also one of the least performed newborn signal functions (39% at national level).

- Facility readiness to provide EmONC signal function is a composite indicator that helps to measure facility's preparedness to provide EmONC services. Readiness is defined as the availability of at least one health worker cadre on staff who can provide the signal function and the availability of a minimum package of drugs, supplies and equipment[2,4].

- Overall, only 7% of all facilities were EmONC ready. Hospitals were more likely to be EmONC ready than health centers/clinics as 50% of hospitals compared to only 1% of health centers/clinics. Facilities were better staffed than being equipped and supplied to provide all of the signal functions. This implies that, shortage of drugs, supplies and equipment was, generally, a pertinent problem in both higher and mid and lower-level facilities.

- Of the seven basic EmONC signal functions, facilities were the least ready to provide AVD and removal of retained products of conception; (8%) and (36%), respectively.

- Nationally, only 8% of the total facilities were ready for EmNeC; with 69% of hospitals and 1% of medicalized health centers though a health center is not allowed to manage newborn with higher level of care.

4 The minimum package of drugs, equipment and supplies are determined based on a country's national standards or basic packages (please see Appendix B).

Performance of Other Maternal and Newborn Health Services, Procedures, and Policy Environment

- Eighty-nine percent of the total facilities reported that they had focused antenatal care with Karongi had the least (43%) number of facilities with focused antenatal care services.
- Only 64% of the total facilities provided cervical screening services.
- Only 13% of the facilities had safe abortion care services.
- Adolescent and youth responsive services were available in 92% of the facilities.
- The median length of stay for a woman after delivery was recorded as 24 hours at national level with little variations among few districts.
- Of the total facilities, 63% of them charged fees before women receive services.
- 17% of the facilities charged women separately for bed; 14% for food for the mother; and 3% for blood transfusion.
- 29% of the facilities had a formal system waived for poor women and 16% had an informal system
- Almost all hospitals had routine maternal death case audit.
- Women were allowed to have their companion of choice during labour (96%), during delivery (92%), and during abortion (41%). However, the definition of respectful maternity care, in which a woman's companion of her choice is one, might not be clear to the providers during the interview.
- Only 46% of the facilities reported their facilities were qualified for mother-baby friendly birthing place.

Facility Infrastructure

- The ratio of Obs/Gyne beds to 1000 institutional deliveries was lower than the international standards (30-32 per 1000 deliveries) in 2021. Burera had an exceptional ratio of 59 per 1000 deliveries.
- Three other districts, namely: Nyamagabe, Karongi, and Rulindo met the standard, while the rest of districts stood below the standard.
- Teaching hospitals and Poly clinic clinics met the standard while the rest of facility types were short of the minimum number of beds per 1000 deliveries.
- Nationally, below a third (31%) of facilities were connected to the grid. Although connection to the grid was very low, 74% of the facilities had either solar-powered or generator operated electric source.
- Of those facilities connected to the grid, 24% of them had experienced power interruptions for over 2 hours in the last seven days prior to the assessment. 26% of health centers/clinics and 19% of district hospitals had experienced such interruptions.
- Nationally, only 3% of the facilities had no source of water. Of the total facilities with a water source, only 1% percent had their water source beyond 500 meters from the source.
- 28% of the total facilities with tap water source had severe shortages of water at a time in last year prior to the assessment.
- Nationally, almost all of the facilities had a functioning toilet for staff and patients with 91% of them had Flush or pour flush toilet type.
- Nationally, 93% of the facilities had HMIS in-place to collect MNH service data. However, Ruhango and Muhanga had only 62% and 69% their facilities with HMIS system in-place.

Human Resources

- A gap of 1,523 midwives/nurses was observed in all public hospitals and health centers/health posts with health centers severely affected (a gap of 4,884 midwives/nurses). Obstetricians/gynecologists and anesthesiologists fell short by 183 and 112, respectively. There was also shortage of 51 Anesthesiologists across all public health facilities. District hospitals had a gap of 166 nurse anesthetists.
- About 60% of midwives and 80% of nurses in the health centers/clinics were not trained on BEmONC.
- Across all facilities, health workers were more likely to present on-site during the day than during the night and over the weekends and holidays.

Availability of Drugs, Equipment and Supplies

- Almost all facilities had either a pharmacy or supply of medicines with 98% of them had the government as a major supplier of drugs/medicines.
- 99% of the facilities had drug inventory registers; and 98% had the inventory registers up-to-date.
- Ampicillin (injection) and amoxicillin (oral) were the most common antibiotics (98% each) available in the facilities. While clindamycin (3% of facilities) and cefixime (5%) were the least available.
- Oxytocin (100%) was widely available in the facilities; whereas combi pack was available only in 6 of the 48 hospitals and ergometrine in 3 of the 48 hospitals.
- 93% of the facilities had any of the parenteral anticonvulsants with diazepam injection (94%) and magnesium sulphate injection (50% concentration) (92%) that were widely available.
- Anesthetics were stocked in 99% of the facilities in the country.
- Vitamin K (for newborn) was the most widely available drug (97%); followed by oral rehydration solution (ORS) (95%), tetanus toxoid vaccine (86%), folic acid (81%), and nystatin (oral) for newborn (81%).
- IV fluids were available in all facilities, irrespective of type of facility.
- PMTCT (96%) and integrated management of pregnancy, childbirth, postpartum, and new-born care (96%) were the most commonly available guidelines in the facilities; while safe-abortion care was the least available one (14%).

- Electric vacuum aspiration and manual vacuum aspiration set were available only in 32% and 43% of the facilities, respectively.
- 16% of the facilities had faced stockout of contraceptives (any method), followed by gentamicin, ARVs, and magnesium sulfate (each 13%).
- Oxytocin was also stocked out in 12% of the facilities.
- Lack of ambu bag was visible in 37% of health centers, 11% of district hospitals, and even in one of the teaching hospitals.
- 52% of the total facilities with a pharmacy/supply of medicines reported stockout at central level; while 26% had inadequate transport as a common cause of delay

Case reviews

- Over half of the cesareans done were emergency (53%) and the rest were elective (41%), and those that had no information (6%). Among whose cesareans were an emergency, only 59% had partograph administered during labour.
- 89% of the cesareans performed had taken uterotonics after baby was delivered. In 98% of the cesareans, antibiotics was used before the CS procedure. About 5% and 7% of the cases had developed complications during operation and after operation, respectively.
- Among the 167 cases reviewed, 127 (76%) were referred from other facilities that was likely to delay care. While 30 (18%) received a cesarian section within 30 minutes, 16 (10%) within 2 hours, and 5 cases received a cesarian delivery after 5 hours.
- Among all cases reviewed, status upon and after admission was recorded for 47% of the PAC cases.
- Of all PAC cases (336), 62% were spontaneous abortions, while 29% of them had no information on the type of abortion. Recording of vital signs after admission was generally low.
- Lack of information was a serious problem in the case notes and patient cards of those reviewed cases of newborns with breathing difficulties, low birth-weight babies, and infants with infections - 86% of the cases had no information on duration of labour, 30% did not have information on the type of resuscitation used, and 4% had no information on newborn outcome.
- Of the 322 cases with breathing difficulties, 6% died before discharge, with 8% and 4% in hospitals and health centers/clinics, respectively.
- Of all preterm babies of low-birth-weight, 91% were born at a health facility, 4% were on the way to a health facility, and 3% were born at home
- A daily monitoring chart was found in 92% and 12% of the cases in hospitals and health centers/clinics, respectively.
- About 5% of pre-term babies had died, and the outcome was unknown or unrecorded in 9% of the cases.
- The majority of newborns (82%) reviewed were from the in-patient ward. Six percent of them were born on the way to a health facility and 2% home deliveries.

Referral system

- Of the total health centers/clinics (388) that did not have surgical capacity, over half (54%) of them were in less than 25 kms from the nearest facilities that provide obstetric surgery. Over 30% of health centers/clinics without surgical capacity were within 30 minutes radius to the nearest facility with surgical capacity.
- 22 of the 30 districts had more than half of their facilities within 25 kms distance to the nearest facilities with surgical capacity.
- 83% of the facilities had at least one functioning mode of communication system (cell phone owned by facility or staff, landline telephone, two-way radio communication). Nyagatare, Nyamagabe, Gatsibo, and Kayonza had below 55% of their facilities with at-least one mode of communication.
- Only 36% of the total facilities had at least one functioning motor-vehicle ambulance on-site. Availability of ambulances was lower than the national average in 15 of the 30 districts.
- At national level, only 3 ambulances were available for every 100,000 population in the country. Ambulance coverage was lower than the national average in 16 of the 30 districts.

CHAPTER

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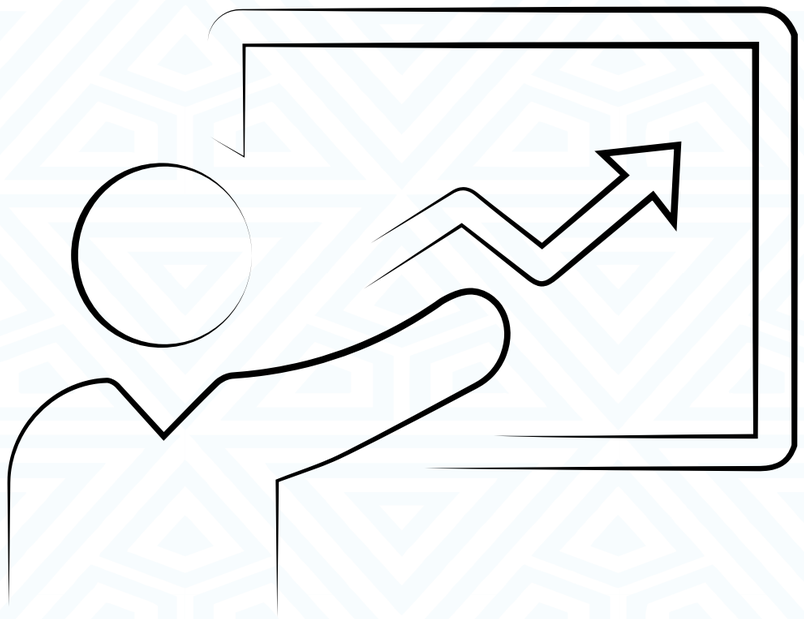


INTRODUCTION

1.1 Country Profile

1.1.1 Rwanda in brief

The country is located in Central and East Africa. It's one of the smallest countries on the African mainland. Rwanda is bordered by Uganda in the North, Burundi in the South, Democratic Republic of Congo in the West and Tanzania in the East.

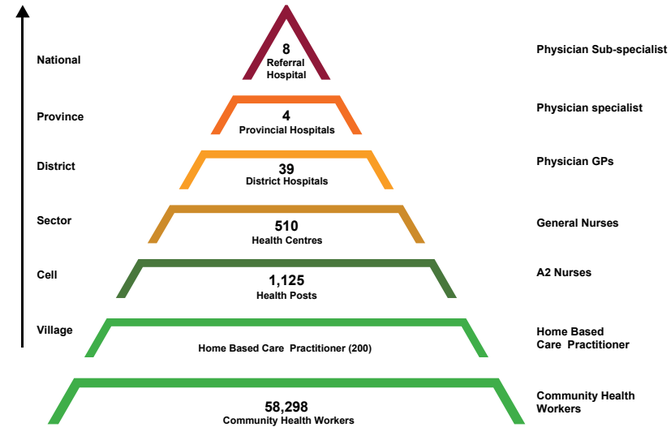
The country counts 4 provinces with City of Kigali organized into 30 districts.
Based on the latest population data, Rwanda counts a population of **12,955,768**.

The median age is **19.6 years** and only **17.5%** of the population is urban **(2,215,085 people in 2019)**.
Rwanda population counts for **0.16%** of the global world population and ranks 76th country by population.
Rwanda extends over **26,338 Km²** with a population density of **434 inhabitants** per Km².

Figure 1.1.1: Map of Rwanda showing administrative provinces and districts

1.1.2 Health Care Delivery system

Figure 1.1.2: Representation of the Health Care System of Rwanda



The country's Health Care Delivery System is set according to the administrative scheme. The package of health service is defined for each level and health posts and community health workers ensure close access to health care services for the population in their catchment areas (village). Teaching and tertiary/referral hospitals are at the top, while community health workers in the villages are at the bottom of the pyramid (Figure 1.1.2). The Rwanda health system is further guided by the principles of universal access to equitable and affordable health care services to all Rwandans with the below framework of implementation.

6 National Institute of Statistics. Population size and Population characteristics. Accessed on 24/10/2021: https://www.statistics.gov.rw/statistical-publications/subject/population-size-and-population-characteristics

7 Ministry of Health, 2018. Fourth Health Sector Strategic Plan: July 2018 – June 2024

1.1.3 Maternal and newborn health profile

The Rwandan health system has been built on the administrative scheme with provincial, district and sub district health facilities (Public and private); a total of **947 health facilities.**

Although sub-Saharan Africa remains the region with the highest global burden of maternal mortality, Rwanda registered the highest MMR annual reduction rate at 9% and is among nine countries considered to have achieved Millennium Development Goal 5: Reduction of MMR by three-quarters between 1990 and 2015 [1].

Rwanda has been consistently reducing maternal and child mortality for over two decades.

According to the 2019/2020 DHS, Rwanda reduced maternal mortality by four-fifth from 1071 per 100,000 live births in 2000 to 203 in 2019/20. Similarly, under five mortality rate was reduced from 196 per 1000 live births in 2000 to 45 in 2019/20 and infant mortality from 107 per 1000 live births in 2000 to 33 in 2019/20. Neonatal mortality rate in 2019/20 was at 19 per 1000 live births, which was reduced from 44 in 2000[8].

The 2019/20 Rwandan DHS also stipulated that Skilled Birth Attendance (SBA) raised from 27% in 2000 to 93% in 2019 and total fertility rate decreased from 6.1 per woman in 2005 to 4.1 in 2019. Unmet need for contraception was reduced from 19% in 2014 to 14% in 2019. These achievements stem from the strong commitment of the government toward improving women and children's health status. In fact, the government's focus has been on girl education as an entry point to women's empowerment.

Despite the fact that the government of Rwanda has brought tremendous changes in the maternal and child health in the country, the Rwandan health system is still experiencing some shortcomings. Between 2014 and 2019/20, DHS showed that there were slight changes or even stagnation in key reproductive health indicators. For example, maternal mortality had reduced 210 to 203 per 100000 live births between the two time periods; neonatal and infant mortality were almost remained unchanged (20 and 32 per 1,000 live births in 2014 to 19 and 33 in 2019/20; respectively).

Therefore, the government of Rwanda, as articulated in the national health sector plan and its aspiration plan of Vision 2050, has been laying the groundwork and visible strategies of implementing maternal and child health programs to curb maternal, neonatal, and child mortality in the country. In addition, in partnership with its technical and financial partners (TFPs), the government conducted an assessment of RH/MNH service delivery with focus on emergency obstetric and neonatal care (EmONC) in order to inform planning process toward improving evenly RMNH/EmONC service delivery nationwide towards achieving the 2030 related SDGs. Rwanda' SDG target on maternal mortality (SDG3.1.1) being less than 125 maternal deaths per 100,000 live births, as recommended by the Ending Preventable Maternal Mortality (EPMM) initiative[9].

8 National Institute of Statistics of Rwanda (NISR) [Rwanda], Ministry of Health (MOH) [Rwanda], and ICF. 2020. Rwanda Demographic and Health Survey 2019-20 Key Indicators Report. Kigali, Rwanda, and Rockville, Maryland, USA: NISR and ICF.
9 http://apps.who.int/iris/bitstream/handle/10665/153544/9789241508483_eng.pdf;jsessionid=B3BA4DA3E069A1C2016988F1F09C0B74?sequence=1

1.2 EmONC: Concepts and definitions

1.2.1 EmONC signal functions

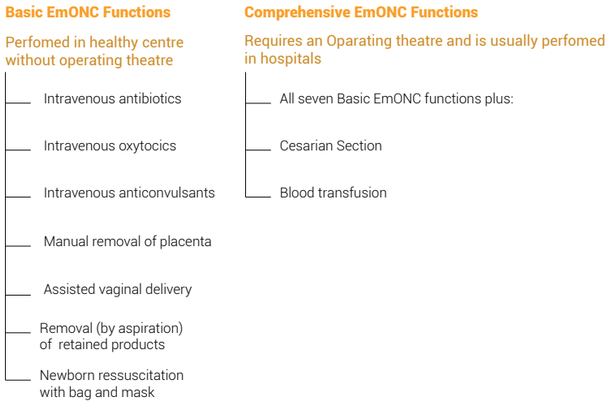
Emergency obstetric and newborn care (EmONC) refers to the care of women and newborns during pregnancy, delivery, and the time after delivery (postpartum period) if or when a woman or her newborn experiences serious complications.

Evidence suggests that up to **15 percent** of expected births are estimated to develop life-threatening complications during pregnancy, delivery or the postpartum period.

Providing emergency care is recognized as an essential and effective component of obstetric services[10]. Evidence from a WHO document on facility standards shows that having a complete and up-to-date data on women and newborns outcomes and there by periodic monitoring and evaluation of progress on availability, accessibility, utilization and quality of routine and emergency care for mothers and children are critical[11].

The EmONC handbook defines that EmONC measurement has nine signal functions that are illustrative life-saving procedures for women experiencing major direct obstetric complications. A facility is considered to be functioning as basic EmONC (BEmONC) if the seven basic signal functions (mentioned in the figure below) have been performed in the three months prior to the assessment. A facility is functioning as comprehensive EmONC (CEmONC) if caesarean delivery and blood transfusion services are provided in addition to the seven basic signal functions in the three months prior to the assessment[12].

Figure 1.2.1: Basic and Comprehensive EmONC Signal Functions



Globally, the development of Emergency Newborn (EmNeC) signal functions has been continued to date. Yet, it is not clearly defined as to which signal functions go to Basic and which ones to Comprehensive EmNeC. Newborn resuscitation appears in both EmONC and EmNeC signal functions. However, the use of the following set of newborn signal functions has become paramount in the improvement and monitoring of newborn health indicators. In line with this, few countries, including Rwanda, have adapted these new set of newborn signal functions in their EmONC assessments. Ethiopia, Sudan, Ghana, Malawi, and Rwanda were some, among others, that incorporated newborn signal functions.

10 WHO. Managing newborn problems: a guide for doctors, nurses, and midwives. Geneva: World Health Organization; 2003.
11 World Health Organization. Standards for Improving Quality of Maternal and Newborn Care in Health Facilities. Geneva, Switzerland: WHO, 2016 Figure
12 WHO, UNFPA, UNICEF, AMDD, Monitoring emergency obsteric care: a handbook. Geneva: World Health Organisation; 2009.

1.2.2. EmONC indicators

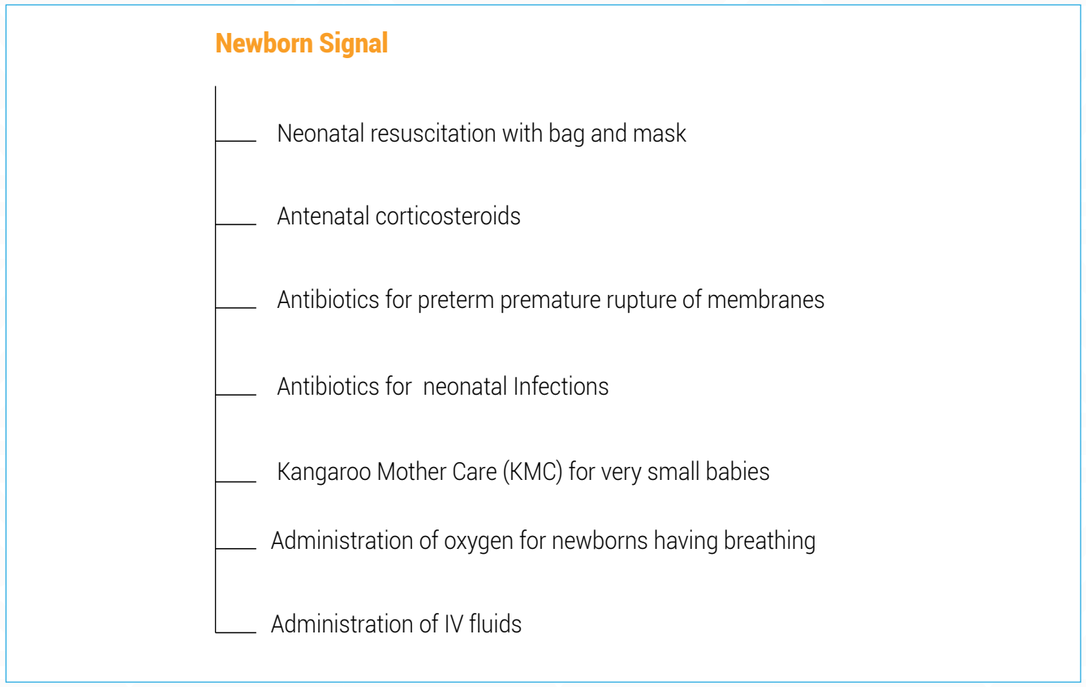


Figure 1.2.2: Emergency Newborn (EmNeC) Signal Functions

The EmONC handbook also developed the following eight indicators that are measured to monitor and evaluate the process and progress of EmONC services towards reducing maternal and neonatal mortality and morbidity.

Table 1.2.2: List of EmONC Indicators

EmONC Indicators	Acceptable Level
Availability of emergency obstetric care: basic and comprehensive care facilities	There are at least **five** emergency obstetric care facilities for every 500,000 population (including at least one comprehensive facility)
Geographical distribution of emergency obstetric care facilities	All subnational areas have at least **five** emergency obstetric care facilities (including at least one comprehensive facility) for every 500,000 population
Proportion of all births in emergency obstetric care facilities	Minimum acceptable level to be set locally and countries are advised to use their own targets
Meeting the need for emergency obstetric care: proportion of women with major direct obstetric complications who are treated in such facilities	100% of women estimated to have major direct obstetric complications are treated in emergency obstetric care facilities
Caesarean sections as a proportion of all births	The estimated proportion of births by caesarean section in the population is not less than 5% or not more than 15%c
Direct obstetric case fatality rate	The case fatality rate among women with direct obstetric complications in emergency obstetric care facilities is less than 1%
Intrapartum and very early neonatal death rate	No standard has been set
Proportion of maternal deaths due to indirect obstetric causes	No standard has been set

1.3 Objectives of the assessment

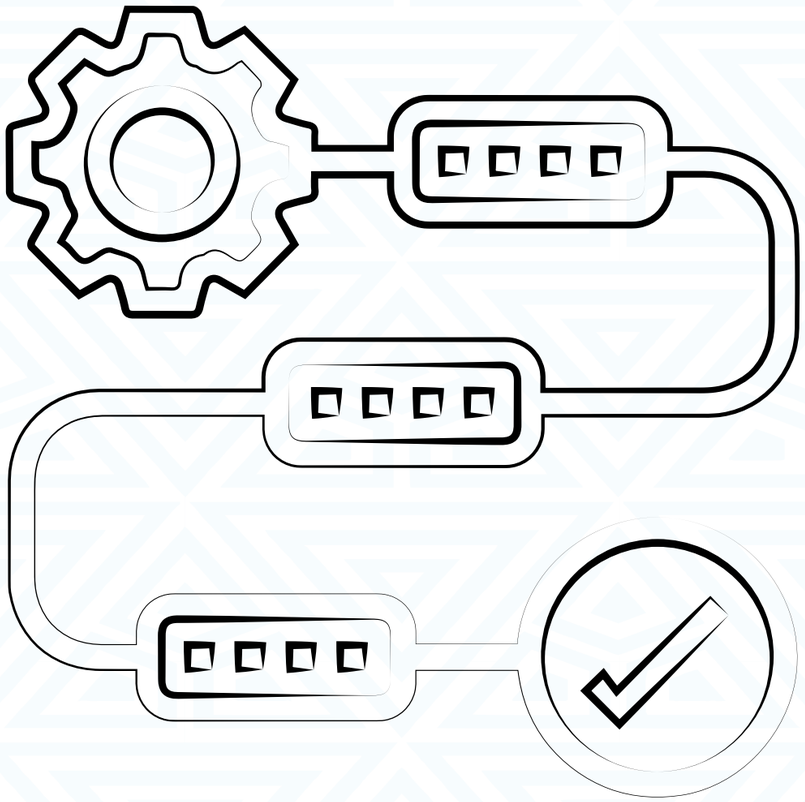
The overall objective of this EmONC assessment is to generate evidence on availability, utilization, and quality of EmONC and routine delivery services and to provide benchmarks to monitor EmONC services for improving quality of care in Rwanda

Specific objectives

- To measure the availability of infrastructure, equipment, essential drugs, and supplies in health facilities;
- To determine the availability of human resources;
- To map EmONC services as part of service availability mapping and estimate the population covered by EmONC services within 2 hours travel time;
- To determine the status of EmONC services and utilization of life-saving procedures;
- To assess the availability and use of records for EmONC services and the completeness of EmONC data
- To review cases of caesarean deliveries, women with major obstetric complications, women received post-abortion or safe-abortion care, and newborn complications;
- Measure EmONC Indicators to assess the level of availability, utilization, and quality of EmONC services; and
- Produce a baseline data to monitor progress towards the set objectives and use the findings as basis for the development of a costed plan for improving access and quality EmONC services,

CHAPTER

02



METHODOLOGY

2.1 Overview of the assessment

The Ministry of Health in Rwanda has opted for the rapid version of the EmONC Needs Assessment for assessing EmONC service provision nationwide. This choice has been motivated by the relatively low cost and the reasonable period of time required for achieving a rapid assessment (consisting of 10 data collection modules) compared to a full EmONC Assessment (consisting in 13 data collection modules). The government of Rwanda through Rwanda Biomedical Center (RBC) and its partners established a Core Team to provide inputs and guidance in the overall assessment process.

The Core Team was composed of technical representatives from RBC, MoH, UNFPA, Enabel, UNICEF, WHO, USAID, Jhpiego, consultants (IQVIA and international consultants, "former AMDD consultants"), RSOG, and RAM. The Core Team had been meeting regularly in adapting the rapid EmONC assessment protocol, tools, and overall assessment procedures. The assessment was also funded by UNFPA and Enabel. UNFPA hired international consultants to lead the process in conjunction with RBC and the local team to ensure national and international standards are met. UNFPA and RBC hired an international firm called IQVIA, contracted to collect data based on the standards set. IQVIA managed availing and training of data collectors and data collection and quality assurance activities. Details are presented below.

2.2 Study design

The 2021 Rwandan Rapid EmONC assessment was a national cross-sectional facility-based assessment. The assessment included all public and private hospitals, health centers, clinics and health posts with a restricted census, in which we had applied **a minimum of 20 deliveries** per month for all health centers, clinics, and hospitals. In addition, **a minimum of 15 deliveries** per month was applied for health posts to account for the low volume of women giving birth at health posts.

A total of 444 public and private hospitals, health centers, clinics and health posts were included in the assessment. The data collection was held from April 2021 – June 2021 in all districts of the county. Please visit the appendix for the list of facilities assessed for this rapid EmONC Assessment.

Table 2.2.1: The 2021 Rwanda Rapid EmONC assessment timeline

	2021										
	Jan	Feb	Mar	Apr	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Planning and Advocacy	■	■	■								
Adaptation of modules, finalization & pre-testing			■	■							
Develop data entry screens in CSPro				■							
Recruit data collectors and supervisors			■	■							
Data collection programming on the tablets				■							
Data collector training				■							
Data quality assurance plan				■							
Data collection and field level supervision				■	■						
Data cleaning						■	■				
Data analysis (table shells adaptation, cleaning, and analysis with first level validation)								■	■		
Report writing									■	■	
Report validation workshop											■
Finalization of report and recommendations											■
Dissemination and action planning											■

2.2.1 Facility selection

The core team selected all eligible health facilities in the country. The core team used a prior set of criteria to select both public and private health facilities. In this line, all hospitals, clinics, and health centers that had a minimum of 20 deliveries per month in the 2019 and 2020 data (an average) were selected in the assessment. Similarly, health posts with at least 15 deliveries per month were included in the assessment. The overall inclusion criteria for a health facility was that it had deliveries in the last 12 months prior to the assessment. The data collectors visited a total of 445 health facilities with one health post that did not provide delivery services in the last 12 months prior to the assessment. Hence, this facility was dropped and 444 public and private health facilities that did provide delivery and fulfilled the rest of the criteria in all the 30 districts were included in the master dataset.

Table 2.2.2 below shows the number of facilities assessed and those not included in the assessment by district.

District	Total facilities to be assessed	Facilities that did not provide delivery services	Final number of facilities visited
National	445	1	445
District			
Bugesera	17	0	17
Burera	16	0	16
Gakenke	9	0	9
Gasabo	15	0	15
Gatsibo	20	0	20
Gicumbi	16	0	16
Gisagara	16	0	16
Huye	12	0	12
Kamonyi	10	0	10
Karongi	14	0	14
Kayonza	14	0	14
Kicukiro	12	0	12
Kirehe	17	0	17
Muhanga	13	0	13
Musanze	14	0	14
Ngoma	13	0	13
Ngororero	15	0	15
Nyabihu	15	0	15
Nyagatare	20	0	20
Nyamagabe	16	0	16
Nyamasheke	18	0	18
Nyanza	13	0	13
Nyarugenge	12	1*	12
Nyaruguru	15	0	15
Rubavu	15	0	15
Ruhango	13	0	13
Rulindo	16	0	16
Rusizi	19	0	19
Rutsiro	13	0	13
Rwamagana	17	0	17

*Karama Health Post

2.2.2 Selection of cases for review

The unit of analysis for all of the modules was the health facility.

However, three modules (**cesarean delivery review, post-abortion or safe abortion care review, and newborn morbidity review**) required to take the most recent three cases for each module element. In this case, the data collectors were the ones trained on how to select such cases.

In the caesarean review, data collectors selected the last 3 women who had a caesarean but who were no longer hospitalized in the last 12 months. For the chart review for women with post-abortion or safe abortion care, charts of the last 3 cases were selected. The same methodology was applied in selecting cases for the newborn morbidities (newborns with breathing difficulties, low birth weight babies – less than 2000 grams, and newborn with sepsis).

Given the objectives of the survey, there was no attempt to make a random selection. The sample case reviews were convenience samples. For this reason, inferences based on these samples should not be applied to the larger population of facilities or cases.

2.3 Data collection tools and pre-testing

2.3.1 Data collection tools

The Core Team adapted the standardized data collection tools from Averting Maternal Death and Disability (AMDD) - EmONC NA tools[13]. The modules used for the 2021 Rwandan rapid EmONC assessment were:

- **Module 0: National Data Collection Tool:**

It was designed to collect information at the national level. This tool helped the research team gather information such as: national and district-level populations, lists of health facilities, national drug lists, scope of work for few health workers, information about policies on staffing levels, and availability of educational institutions for midwives, nurses and doctors.

- **Module 1: Identification of Facility and Infrastructure:**

This tool required taking the facility's GPS coordinates, photographing the facility, interviewing a person of authority at the facility, and recording background information on the facility - including size or capacity, overall infrastructure, summary of services provided, cost of services, policies in place at the facility, transportation and communication mechanisms, distance and time required to access the near-by facility with surgical or newborn care services and HMIS reporting.

- **Module 2: Human Resources:**

It involved interviewing one or more persons with excellent knowledge of the staffing patterns of health care workers providing obstetric and newborn care at the facility and which signal functions and essential services the staff provide. It also covered the staffing situation 24 hours a day and 7 days a week in that facility.

13 https://www.mailman.columbia.edu/research/averting-maternal-death-and-disability-amdd

- **Module 3: Essential Drugs, Equipment, and Supplies:**

It examined the availability of medications, equipment, and supplies; laboratory services; and clinical management guidelines and protocols necessary for the delivery of EmONC, EmNeC, and routine maternal and newborn services. This module was conducted primarily by interview and observation. The drugs/equipment /supplies data were collected from pharmacy, labour and delivery, maternity, operating theater, newborn care unit, laboratory and blood bank units of a facility.

- **Module 4: Facility Case Summary:**

It was used to collect the necessary data from facility registers and records to calculate the EmONC Indicators; these data included the number of deliveries by type, direct and indirect obstetric complications by cause, maternal deaths by cause, newborn outcomes including stillbirths and pre-discharge very early neonatal deaths, and referrals. The 12-month time-period covered from April 2020 – March 2021.

- **Module 5: EmONC and EmNeC Signal Functions and Other Essential Services:**

It looked at how facilities actually function and whether they offer all, some, or none of the services necessary to treat and save newborns and women with obstetric complications. It also looked at why these services were not available. Performance information was determined through interview and validation from the registers. This module used a different reference period from Module 4. Instead of the 12 months prior to the assessment, it referred to the three months prior to the day of the visit, a rolling three-month period between January, February, March and April, 2021 was captured.

- **Module 6: Caesarean Delivery Review:**

It was used to review facility registers and records to evaluate record-keeping for caesareans, indications for c-sections, fetal well-being, and maternal outcome of the procedure. Last three cases were drawn for review in each facility that had cesarean delivery in the last 12 months prior to the assessment.

- **Module 7: Case Reviews of Women who received post-abortion or safe-abortion care:**

It was designed to produce information on how women with abortion related complications were managed. Three cases of each of the women receiving post-abortion or safe abortion care were reviewed. Information was gathered through chart reviews and included client history, status on admission, treatment, vital signs on admission, pre-discharge status, and additional information.

- **Module 8 : Chart Reviews of Newborn Complications:**

It was designed to collect information on three cases each of the following morbidities: difficulties breathing at birth, preterm birth <2,000 grams, and infections among young infants (<60 days). The module asked about the status on admission and treatment. Data collectors pulled information from charts identified through the registries or from staff.

2.3.2 Contextualization and Pre-testing of the Modules

The core team along with other local teams and the international consultants made the initial revision to adapt the EmONC assessment tools to the Rwanda context. The Pre-testing and finalization of the modules had been conducted during the data collectors training – during field practice as part of the training and at the beginning of data collection for the finalization. The Core Team selected 7 health facilities (CHUK Teaching hospital, Kagugu health center, Nzove health center, Karama health post, Croix du sud hospital, Nyarugunga health center, and Masaka hospital) in Kigali for pre-testing of the tools and practical exercise for the data collectors during the training of data collectors and supervisors. However, Karama health post was not providing delivery services and the team assigned during the field practice moved to CHUK Teaching hospital.

2.4 Recruitment, training, and deployment of data collectors and supervisors

UNFPA Rwanda hired an international consulting firm (IQVIA) to manage the data collection and data quality assurance activities. However, the Core Team and international consultants were mandated to ensure the data collectors and supervisors IQVIA recruited were qualified to undertake the sought assessment. IQVIA hired individuals with mainly either a diploma in nursing, midwifery or above and other related health backgrounds to collect EmONC data. Some had prior experience as data collectors and IQVIA deployed 15 data collection teams with 30 data collectors (each team has two data collectors).

One of the two data collectors in the team served as a team leader. In addition to the data collectors, IQVIA also hired five supervisors based on the recommendations from the core team and international consultants to ensure data quality and overall data collection process (list attached in the Appendix).

UNFPA's international consultants, hired as technical leads for this assessment, led the training of the data collectors and supervisors with support from Core Team and IQVIA. IQVIA members also co-facilitated the data collectors training. The data collector training (DCT) took place in Kigali from 19 to 23rd of April 2021. However, due to some defaulters, there was a second batch of data collectors training from May 02 - 04, squeezing the training schedule.

The data collector's training consisted of instructions on interviewing techniques and field procedures, a detailed review of the questionnaire content and instructions, mock interviews between participants in the classroom, and practice with the eight modules. A day and a half was dedicated for field practice and pre-testing of tools. In addition, survey coordinators and supervisors received additional instructions on data quality control procedures and fieldwork coordination. All DC teams received a special DC kit including a DC manual, an introduction letter (only for supervisors), and a tablet with a soft copy of a blank questionnaire for data collection.

2.5 Data collection and organization of the field work

RBC issued a letter of cooperation to district health managers to facilitate facility level data collection. Contact persons at each district were informed of the EmONC assessment and thereby informed facility in-charges in their catchment areas. IQVIA, with support from RBC, UNFPA, the core team, and international consultants arranged field logistics, scheduling and completion of data collection in each district.

The five supervisors that were trained together with the data collectors had done data collection support apart from their role of supervision and quality assurance. Some core team members along with international consultants were also supporting field level spot-checking and data quality assurance activities for the first couple of weeks. IQVIA's management was routinely monitoring the overall data collection process up to the end of data collection.

The core team was also holding several meetings to monitor progress and solve outstanding problems of data collection.

2.6 Data entry, cleaning, and analysis

Since the data collection was programmed using an open-source kit called Survey CTO, data collection was undertaken using tablets. The IQVIA data team developed the data entry screens and international consultants reviewed the screens before the actual data collection in the field.

Survey CTO was tested during the data collector's training and in the beginning of data collection. The international consultants developed an internal inconsistency checklist for prior programming of the Survey CTO to minimize data entry errors. Data cleaning was further advanced at IQVIA level and the dataset was reviewed for inconsistency checks by the international consultants.

A two-weeks data cleaning and analysis workshop (in-person) was also held from 06 – 17 September 2021 to finalize cleaning data and agree on analysis strategies. The core team members and a few additional professionals from Rwandan midwifery association and university of Rwanda participated in this analysis workshop. The workshop helped the analysis team to solve major inconsistencies through contacting facilities directly. Maternal death, laparotomies for ruptured uterus, and some health post data were some of the major inconsistencies observed in hospitals, health centers, and health posts.

Data collected from CHUK hospital in Kigali was decided to be verified as part of the cleaning process. Prior to the analysis, the core team had done validation of some of the results and stratification variables for the analysis. These were facility type, operating agency, location, and recategorization of "other – specify" variables. The analysis was done using STATA version 13; exporting it from Survey CTO.

Some of the stratification variables used were:

- **District:** The core team agreed to use district as the major stratification variable. Rwanda has 30 districts.
- **Facility type:** It was collected originally in seven categories: Teaching hospitals, referral or specialized hospitals, provincial hospitals, district hospitals, health centres, Polyclinic centers/clinics, health posts, and others. The "other" group was examined closely and when appropriate a facility was recorded into one of the other seven categories, but most of the "others" were private clinics that have not tied into any health system tier level. For most of the analyses, we maintained the first seven categories, but for some tables the seven categories were collapsed into two:
  1) hospitals, and
  2) health centers/clinics.
- **Operating agency:** This stratifying variable was defined initially by four categories: public/government; private-for-profit; private - mission or faith-based, and "others". The last category encompasses, mostly, non-governmental and not-for-profit facilities that can be categorized into three as follows:
  1) public or government,
  2) private-for-profit, and
  3) private not-for-profit (including mission or faith-based).
- **Location, defined as urban or rural:** This stratifying variable was captured through interview of facility in-charges. This classification was not verified from any other sources.

2.7 Quality assurance

Quality assurance activities involve several steps in the spectrum of EmONC assessment. Quality assurance starts during the inception phase of the assessment in proper orientation of the core team and funding agencies, adaptation of tools, selection of data collectors and supervisors, training, programming of data collection screens, data collection in the field, and data processing at central level. During data collection, a supervisor was assigned to three teams. The role of the supervisor was to provide support to the data collection teams, providing logistical support where needed, reviewing the modules for completeness, and submission of completed data to the central team. Members of the core team and international consultants were involved in supportive supervision, spot-checking and validation of the data.

Quality assurance in the selection and recruitment of data collectors worked by hiring qualified and experienced data collectors with a health background. Data collectors and supervisors took pre- and post-test to assess their learning and knowledge of the assessment guidelines and standards of data collection. Each data collector and supervisor were given a hard copy of the DC manual and modules of the assessment as a reference.

Most of the data quality assurance activities after the data collection was done through calling the facilities directly. In a few instances, in-person visits to the facilities were also held to correct the data. An example was CHUK in Kigali. The data cleaning process was rigorous and it took for a long time (July to August, 2021).

2.8 Research ethics

No person's name, except that of the interviewer, was recorded on any of the modules. Permission to enter each facility, to interview the different employees, and to review registers was requested from the facility in-charge at the beginning of each visit. The response from the facility personnel was always respected. The data collectors carried with them official letters of cooperation from the RBC. Data collectors and supervisors were trained on principles of confidentiality and research ethics. Finally, the assessment was granted approval from the country's internal review board.

2.9 Limitations of the survey

In this assessment, there were a number of data acquisition problems. Lack of complete record of deliveries – particularly laparotomies for ruptured uterus, complications, maternal and neonatal deaths, kangaroo mother care (KMC), and referrals were problematic across all districts.

Incomplete record keeping often results in missing data for some facilities that impact results of some indicators. Direct and indirect obstetric complications were frequently underestimated which resulted in underestimation of met need for obstetric complications. The core team, IQVIA and the international consultants spent much time cleaning these types of inconsistencies.

Direct case fatality rate may be inflated due to under-recording of direct obstetric complications. Maternal deaths in each of the specific causes was a problem initially and the analysis team used a different source of data for corrections – maternal notification reports.

Observation of equipment, supplies, and drugs was encouraged. Given the very long list of items assessed, all drugs, equipment and supplies may not be observed.

Despite the fact that the assessment employed a restricted census, there were lower level of facilities (health centers, clinics, and health posts) with deliveries lower than 15 per month. This implies that the aggregate data at district and national level may not reflect the true nature of the data at these levels.

2.10 Organization of the report

Chapters 3 – 10 cover the results of the assessment. They are organized, to a great degree, as per the different modules administered in this assessment. Chapter 11 describes specific recommendations organized around the themes of coverage, infrastructure, human resources, drugs/ equipment/ supplies, referral, and case reviews.

Because of the large number of tables in every chapter, many tables are annexed at the end of the report in Appendix A. Tables are numbered sequentially where the first number (to the left of the decimal place) refers to the chapter number, the second number refers section number and the last number refers sequential number within the specific section. Table numbers that end with the letter 'A' mean that they are found in Appendix A. For example, Table 3.1.1A will be found in Appendix A, while Table 3.1.2 would be found in the body of the report (Chapter 3, section 1, table 2).

CHAPTER

03

EMERGENCY OBSTETRIC AND NEWBORN CARE (EMONC) INDICATORS

The 2009 Emergency Obstetric Care (EmOC) handbook guided EmONC assessments globally[14]. According to this handbook and as explained in Chapter 2 of this report, eight indicators are used to measure availability, utilization, and quality of care life-saving services for the mothers and newborns in the 2021 Rwandan EmONC assessment. The indicators are further useful in setting benchmarks and monitoring performance of EmONC services in the country.

These indicators are:

Indicator 1: Availability of EmONC services (Basic and Comprehensive EmONC facilities)
Indicator 2: Geographic distribution of EmONC facilities
Indicator 3: Proportion of all births in EmONC facilities
Indicator 4: Met need for EmONC
Indicator 5: Caesarean sections as a proportion of all expected births
Indicator 6: Direct obstetric case fatality rate (DOCFR)
Indicator 7: Intrapartum and very early neonatal death rate
Indicator 8: Proportion of maternal deaths due to indirect obstetric causes in EmONC facilities

The data used for these indicators were extracted from health facility source documents or register books from 22 April 2021 to 8 July 2021. The register books used were labour and delivery, maternity, operating theatre, discharge, referral, PMTCT, family planning, malaria, and other registers over the 12 consecutive months of April 2020 to March 2021.

The data used to determine whether a signal function was performed were based on the immediate 3 months[15] prior to the facility visit.

3.1 Indicator 1: Availability of EmONC services

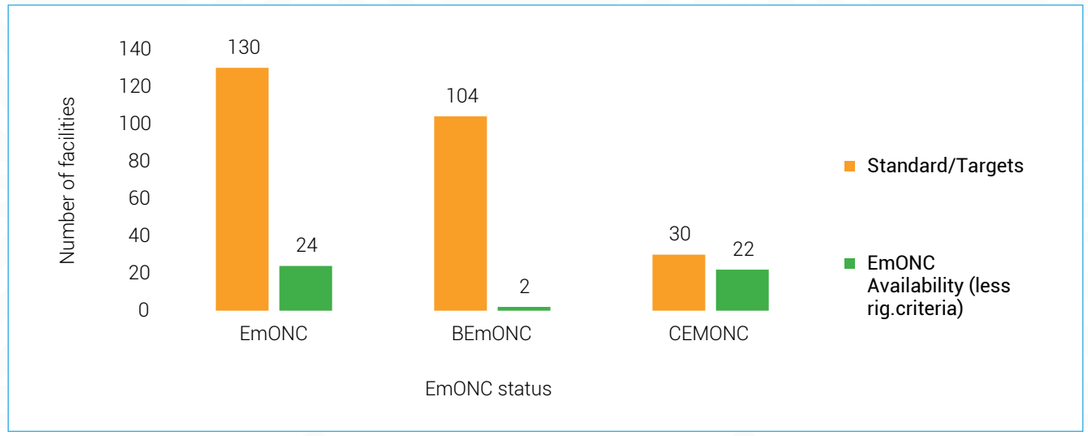
According to the EmONC handbook and as stipulated in Chapter 2 (Figure 1.2.1), a facility is classified as Basic EmONC if it performs all the seven basic signal functions and it qualifies as Comprehensive EmONC if it performs all the basic signal functions plus caesarean delivery and blood transfusion in the last 3 months prior to the assessment. Accordingly, the UN recommends a minimum of 5 EmONC facilities for every 500,000 population; of which, at least one of the 5 EmONC facilities should be comprehensive.

Cognizant to the above definition, Rwanda was required to have 130 EmONC facilities (at least 26 (19%) of them should be Comprehensive EmONC) for a projected population of 12,955,768 in 2020.

However, due to rounding of numbers, the Rwanda Core team decided to have at least 1 comprehensive EmONC facility in each district, accounting for 30 Comprehensive EmoNC facilities for the country. In terms of functionality, Rwanda had only 24 fully functioning EmONC facilities (with less rigorous criteria)[16] leaving the country with a gap of 106 EmONC facilities at national level. With regard to Comprehensive EmONC, the country was required to have 30 and it had 22 Comprehensive EmONC facilities with a performance of 73% (Figure 3.1.1 and Table 3.1.1.)

14 WHO, UNFPA, UNICEF, AMDD. Monitoring emergency obstetric care: a handbook. Geneva: World Health Organization; 2009
15 The 3-month reference period was chosen because it provides a snapshot of the functioning of a facility at the time of the visit and recall is more accurate over shorter periods.

Figure 3.1.1: Current EmONC status of facilities and standards/targets with less rigorous criteria, Rwanda EmONC, 2021



EmONC availability (with less rigorous criteria)[16] varies across districts with complete unavailability in 13 districts (Burera, Gasabo, Gicumbi, Kamonyi, Karongi, Kicukiro, Ngoma, Nyamagabe, Nyaruguru, Rulindo, Rusizi, Rutsiro, and Rwamagana) and over 50% of facilities in Gakenke, Gisagara, Ruhango, and Nyarugenge were fully functioning EmONC facilities (Table 3.1.1).

On the other hand, availability of CEmONC facilities exceeded the recommended in Gisagara, Ngororero, Nyarugenge, Gakenke, Rubavu, and Ruhango. Ten districts qualified the recommended CEmONC facilities while 14 districts had a gap of 1 or 2 CEmONC facilities (Table 3.1.1).

Availability of Basic EmONC is non-existent in all districts except in Bugesera and Kirehe; each had one Basic EmONC facility.

16 EmONC availability is classified as a) Less rigorous criteria: functionality based on facility interviews: with performance of either all the seven basic or nine comprehensive EmONC signal functions based on the interviews of the healthcare providers and b) More rigorous criteria: functionality based on interviews and readiness to provide EmONC: performance signal functions, and case management of major obstetric complications, facility open 24/7, and availability of minimum drugs/equipment to perform signal functions.

Table 3.1.1: Availability of EmONC facilities (less rigorous criteria), by district (EmONC Indicator 1), Rwanda EmoNC, 2021

	Population[1,2]	Basic and Comprehensive EmONC facilities				Comprehensive EmONC facilities			
		Recommended[2]	Actual	Actual/ recommended	Gap	Recommended[2]	Actual	Actual/ recommended	Gap [exceeds minimum]
		n	n	%	n	n	n	%	n
National	12,955,768	130	24	19%	106	30	22	73%	4
District									
Bugesera	497,930	5	2	40%	3	1	1	100%	0
Burera	414,896	4	0	0%	4	1	0	0%	1
Gakenke	400,677	4	2	50%	2	1	2	200%	-1
Gasabo	694,839	7	0	0%	7	1	0	0%	1
Gatsibo	537,689	5	1	19%	4	1	1	100%	0
Gicumbi	469,487	5	0	0%	5	1	0	0%	1
Gisagara	388,062	4	2	52%	2	1	2	200%	-1
Huye	387,913	4	1	26%	3	1	1	100%	0
Kamonyi	432,805	4	0	0%	4	1	0	0%	1
Karongi	386,202	4	0	0%	4	1	0	0%	1
Kayonza	427,042	4	1	23%	3	1	1	100%	0
Kicukiro	378,973	4	0	0%	4	1	0	0%	1
Kirehe	427,639	4	1	23%	3	1	0	0%	1
Muhanga	374,692	4	1	27%	3	1	1	100%	0
Musanze	452,551	5	1	22%	4	1	1	100%	0
Ngoma	417,395	4	0	0%	4	1	0	0%	1
Ngororero	417,295	4	2	48%	2	1	2	200%	-1
Nyabihu	348,688	3	1	29%	2	1	1	100%	0
Nyagatare	648,332	6	1	15%	5	1	1	100%	0
Nyamagabe	392,252	4	0	0%	4	1	0	0%	1
Nyamasheke	487,293	5	1	21%	4	1	1	100%	0
Nyanza	369,217	4	1	27%	3	1	1	100%	0
Nyarugenge	313,812	3	2	64%	1	1	2	200%	-1
Nyaruguru	352,407	4	0	0%	4	1	0	0%	1
Rubavu	486,478	5	2	41%	3	1	2	200%	-1
Ruhango	372,689	4	2	54%	2	1	2	200%	-1
Rulindo	366,233	4	0	0%	4	1	0	0%	1
Rusizi	508,456	5	0	0%	5	1	0	0%	1
Rutsiro	397,006	4	0	0%	4	1	0	0%	1
Rwamagana	406,816	4	0	0%	4	1	0	0%	1

1. Source of Population Estimates: [National Institute of Statistics, projected population for 2020]
2. WHO, UNFPA and UNICEF recommend as a minimum the ratio of 5 EmONC facilities per 500,000 where at least 1 is Comprehensive (Monitoring emergency obstetric care: a handbook, 2009).

Note: Regional Population is divided by 500,000 recommended (5 EmONC per 500,000 population)

Tables 3.1.2A and 3.1.3A in the appendix show the actual number and percentage distribution of hospitals and health centers/clinics by EmONC status, district, operating agency, and location.

Accordingly, of all the 48 hospitals (both public and private), 21(44%) were CEmONC and the rest were partially functioning (missing at least one Basic signal function). Similarly, of the 396 health centers/clinics, only one poly-clinic (0.3%) was qualified as CEmONC, 2 of them – both health centers (0.5%) were functioning as BEmONC, and over 99% of them were partially functioning EmONC facilities. Fourteen of the 30 districts with hospitals lack availability of either a CEmONC or BEmONC hospital. Regarding BEmONC, only Bugesera and Kirehe exhibited availability of BEmONC health centers/clinics. Rubavu district had one private clinic functioning as CEmONC.

Surprisingly, availability of CEmONC hospitals was higher in rural locations than urban. While two of the BEmONC health centers/clinics were located in urban areas (Table 3.1.2A and 3.1.3A).

EmONC availability as a new composite indicator (functionality based on readiness to provide EmONC and case management of major obstetric complications - more rigorous criteria)

EmONC availability as articulated in the implementation manual for developing a national network of maternity units (United Nations Population Fund, published in 2020) [17], is defined as a composite of a facility qualifying four inter-linked indicators:

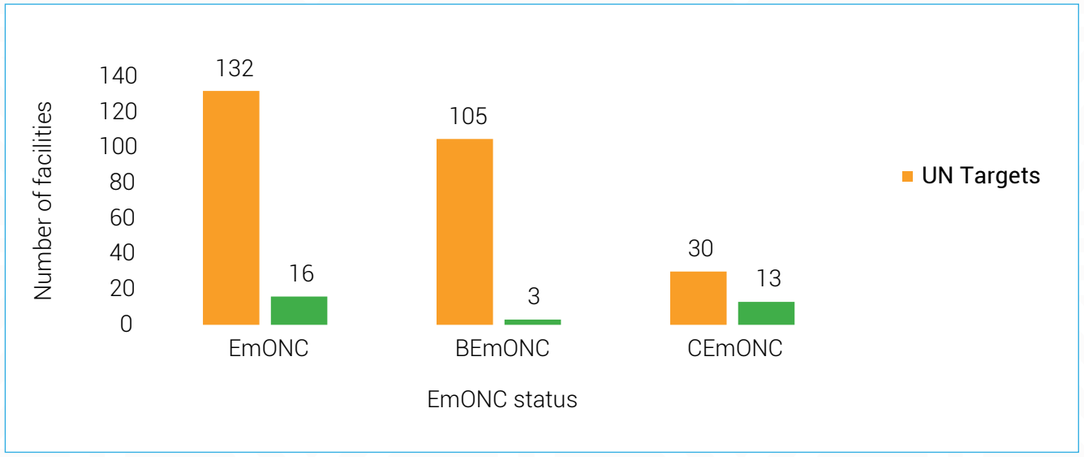
- a facility is open 24 hours a day and 7 days a week,
- availability of essential drugs/equipment/supplies [18],
- a facility has at least three midwives working in shifts and a surgical capacity for the cesarean delivery (availability of a medical doctor, an Obstetrician/ Gynecologist, general surgeon, or anesthesiologist/ anesthetist); and
- Performanceof the specific signal function in the last 3 months prior to the assessment.

Accordingly, the more rigorous criteria of EmONC availability was measured and described in **Table 3.1.2** and **Figure 3.1.2** below.

Applying the more rigorous criteria to the data, availability of EmONC facilities is obviously reduced from 24 in less criteria to 16 in more rigorous criteria while the UN targets remain unchanged.

The reason for such a reduction was due to unavailability of minimum set of drugs/equipment for the management of major obstetric complications. We had also applied another level of criteria to the more rigorous one – case management of major obstetric complications to see if the facilities were certainly functional 24/7 for saving mothers and their newborns. However, the findings were extremely low as the it was reduced from 16 to 5 at national level. The major contributor for this low functionality of EmONC was due to poor data quality – under-recording of major obstetric complications in many of the hospitals despite the maternity in-charges were affirmed they had provided the EmONC signal functions (data not shown).

Figure 3.1.2: Current EmONC status of facilities and UN targets with more rigorous criteria, Rwanda EmONC, 2021



17 Brun M, Monet JP, Moreira I, Agbigbi Y, Lysias J, Schaaf M, Ray N. Implementation manual for developing a national network of maternity units - Improving Emergency Obstetric and Newborn Care (EmONC), United Nations Population Fund (UNFPA), 2020
18 Required drugs/equipment/supplies for some of the signal functions: Parenteral antibiotics (ampicillin, metronidazole, gentamicin), Parenteral uterotonics (oxytocin), Parenteral anticonvulsants (magnesium sulphate), Removal of retained products of conception (MVA kit), Assisted vaginal delivery (vacuum extractor), Resuscitation of newborn with bag and mask, and for the rest of the signal functions, no equipment is listed.

Table 3.1.2: Availability of EmONC facilities (more rigorous criteria), by district (EmONC Indicator 1), Rwanda EmoNC, 2021

	Population[1,2]	Basic and Comprehensive EmONC facilities				Comprehensive EmONC facilities				Basic EmONC facilities
		Recom-mended[2]	Actual	Actual/ recom-mended	Gap/ [Exceeds minimum]	Recom-mended[2]	Actual	Actual/ recom mended	Gap [exceeds minimum]	Recom mended[3]
		n	n	%	n	n	n	%	n	n
National	12,955,768	130	16	12%	114	30	14	47%	16	104
District										
Bugesera	497,930	5	1	20%	4	1	1	100%	0	4
Burera	414,896	4	0	0%	4	1	0	0%	1	3
Gakenke	400,677	4	1	25%	3	1	1	100%	0	3
Gasabo	694,839	7	0	0%	7	1	0	0%	1	6
Gatsibo	537,689	5	1	19%	4	1	1	100%	0	4
Gicumbi	469,487	5	0	0%	5	1	0	0%	1	4
Gisagara	388,062	4	1	26%	3	1	1	100%	0	3
Huye	387,913	4	0	0%	4	1	0	0%	1	3
Kamonyi	432,805	4	0	0%	4	1	0	0%	1	3
Karongi	386,202	4	0	0%	4	1	0	0%	1	3
Kayonza	427,042	4	1	23%	3	1	1	100%	0	3
Kicukiro	378,973	4	0	0%	4	1	0	0%	1	3
Kirehe	427,639	4	1	23%	3	1	0	0%	1	3
Muhanga	374,692	4	1	27%	3	1	1	100%	0	3
Musanze	452,551	5	1	22%	4	1	1	100%	0	4
Ngoma	417,395	4	0	0%	4	1	0	0%	1	3
Ngororero	417,295	4	1	24%	3	1	1	100%	0	3
Nyabihu	348,688	3	0	0%	3	1	0	0%	1	3
Nyagatare	648,332	6	1	15%	5	1	1	100%	0	5
Nyamagabe	392,252	4	0	0%	4	1	0	0%	1	3
Nyamasheke	487,293	5	1	21%	4	1	1	100%	0	4
Nyanza	369,217	4	0	0%	4	1	0	0%	1	3
Nyarugenge	313,812	3	2	64%	1	1	1	159%	0	3
Nyaruguru	352,407	4	0	0%	4	1	0	0%	1	3
Rubavu	486,478	5	2	41%	3	1	2	200%	-1	4
Ruhango	372,689	4	1	27%	3	1	1	100%	0	3
Rulindo	366,233	4	0	0%	4	1	0	0%	1	3
Rusizi	508,456	5	0	0%	5	1	0	0%	1	4
Rutsiro	397,006	4	0	0%	4	1	0	0%	1	3
Rwamagana	406,816	4	0	0%	4	1	0	0%	1	3

1The population of Rwanda and its regions was extracted from the projected population:
2 UN recommended 5 EmONC facilities per 500,000 population, in which at least one of them is functioning as Comprehensive EmONC: WHO,
3 A more rigorous criteria of defining EmONC availability/functionality at national and subnational level: with a facility open 24/7, has at least three midwives, has essential drugs/equipment/supplies, and that performed the signal functions in the previous 3 months prior to the assessment

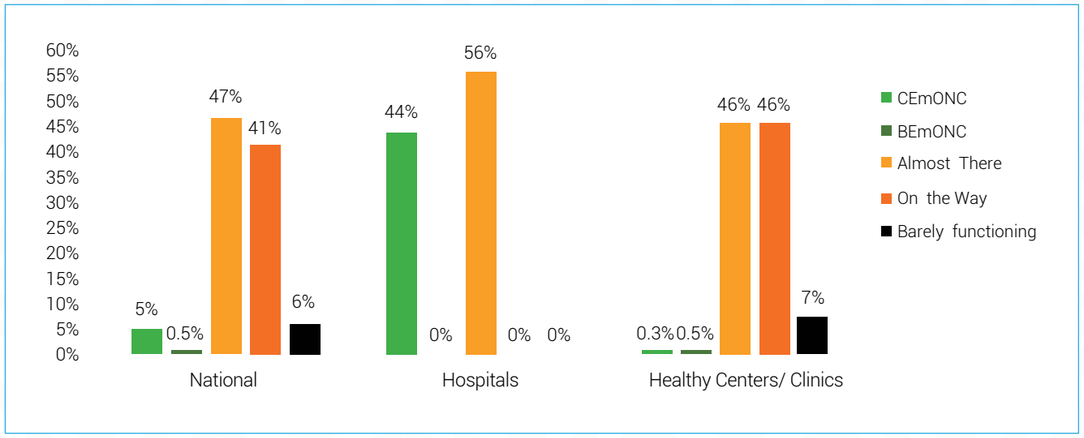
EmONC Grading

EmONC assessment provides the local level planning team detailed information as to which group of facilities are missing a set of signal functions that were not functioning as EmONC. This will be helpful to prioritize resources in the short-term, medium and longer – term phases in upgrading or improving health facilities.

Figure 3.1.3 below and Table 3.1.4A in the appendix show that classification of facilities as fully functioning CEmONC, BEmONC, and according to the number of signal functions missing in the 3 months reference period. Correspondingly, EmONC grading is defined as CEmONC – that performs all the nine signal functions, BEmONC – performs all the seven basic signal functions, "Almost there" – missing one or two of the seven basic signal functions, "On the way" – missing 3 or 4 of the seven basic signal functions, "Barely functioning" – providing only 1 or 2 signal functions, and Non-EmONC – facilities that did not provide any of the signal functions. In this definition, we do not tell which of the signal functions are missing.

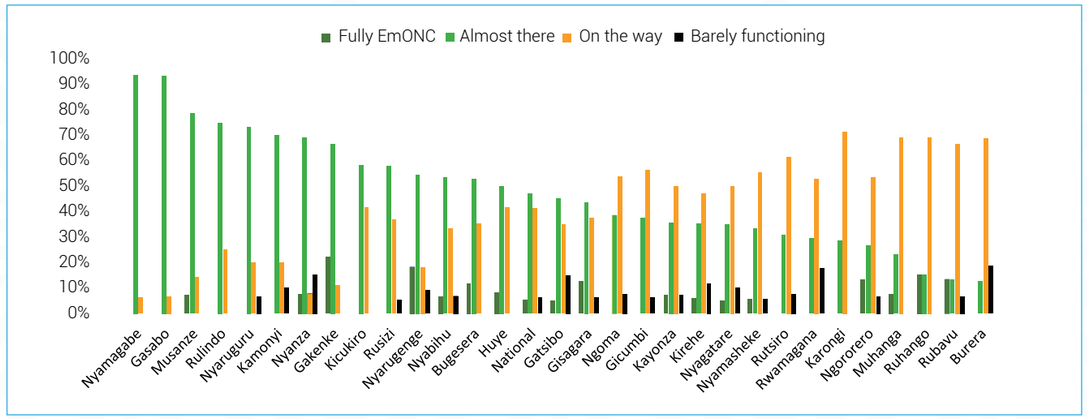
Of the total facilities assessed, only 5% were CEmONC and 0.5% were BEmONC. However, close to half of the facilities (47%) were "Almost there" and those facilities can be upgraded to function as BEmONC. A little over two-fifth of them were "On the way" which means that they were missing 3 or 4 signal functions. The remaining facilities (6%) were barely functioning as EmONC.

Figure 3.1.3: Percent of facilities based on EmONC grading by facility type, Rwanda EmONC, 2021



EmONC grading was also looked at on a district level. Accordingly, Nyamagabe had the highest "Almost there" facilities (94%) with zero fully functioning EmONC facilities; followed by Gasabo (93%), Musanze (79%), Rulindo (75%), and Nyaruguru (73%). Of those districts with no EmONC facilities, 71% of facilities in Karongi were classified as "On the way", followed by 69% in Burera, and 62% in Rutsiro (Figure 3.1.4 and Table 3.1.4A in the appendix).

Figure 3.1.4: Percent of facilities with EmONC grading by district, Rwanda EmONC, 2021



Countries often designate health facilities to be either a basic or comprehensive EmONC facility to facilitate quality of service delivery. Designation always follows certain criteria such as facility set-up (a hospital versus a health center or clinic), distance, availability of ambulances, number of caseloads (births) or population, or it follows the hierarchy of the health system whereby all health centers might be designated as BEmONC and all hospitals designated as CEmONC. The EmONC designation numbers presented below were collected through self-reporting by the health facility manager.

Figure 3.1.5 and Table 3.1.5 below show what is recommended by UN definition, what is designated by the facility managers, and actual EmONC facilities by district, facility type, operating agency, and location. Facility reported designation seems higher than the UN targets. Two hundred eighty-three facilities were designated as EmONC (either at Basic or Comprehensive level). However, only 24 facilities were fully functioning at their designated level. Similarly, 236 and 47 facilities were designated as BEmONC and CEmONC respectively; while only 2 and 22 were functioning as BEmONC and CEmONC level, emphasizing gaps to be addressed.

Despite the fact that facility managers were aware of their facilities' EmONC designation, the how and why may not be clear and that needs direct strategies to strengthen EmONC planning and networking at local levels.

Figure 3.1.5: Number of fully functioning EmONC facilities against the different planning scenarios

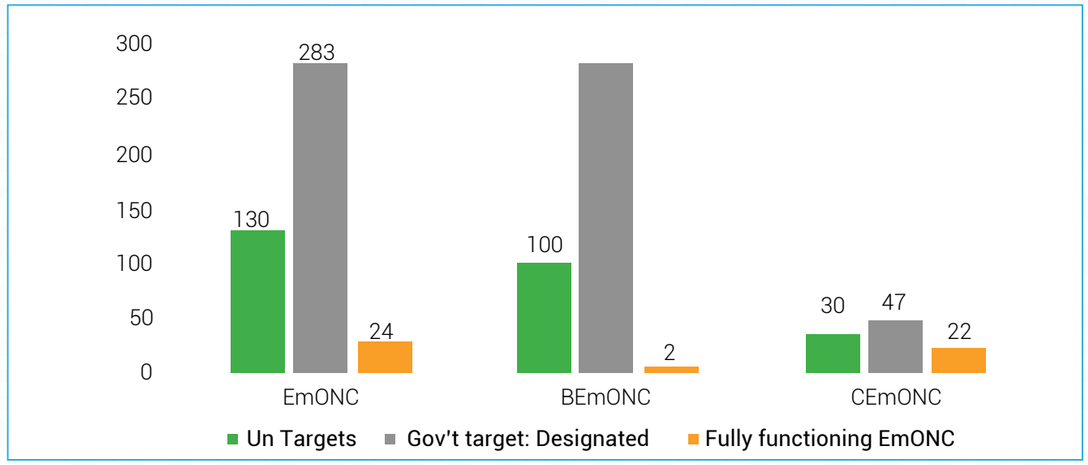


Table 3.1.5: Number and percent of facilities that attend deliveries and are designated as EmONC, CEmONC or BEmONC and percent functioning at each level, by region, managing authority, facility type, and location, Rwanda EmONC, 2021

	Designated as EmONC		Functioning as Basic or comprehensive		Designated as CEmONC		Functioning as CEmONC		Designated as BEmONC		Functioning as BEmONC		Total facilities
	n	%	n	%	n	%	n	%	n	%	n	%	n
National	283	64%	24	5%	47	11%	22	5%	236	53%	2	0.5%	444
Region													
Bugesera	16	94%	2	12%	1	6%	1	6%	15	88%	1	6%	17
Burera	10	63%	0	0%	1	6%	0	0%	9	56%	0	0%	16
Gakenke	4	44%	2	22%	2	22%	2	22%	2	22%	0	0%	9
Gasabo	13	87%	0	0%	5	33%	0	0%	8	53%	0	0%	15
Gatsibo	11	55%	1	5%	1	5%	1	5%	10	50%	0	0%	20
Gicumbi	14	88%	0	0%	1	6%	0	0%	13	81%	0	0%	16
Gisagara	9	56%	2	13%	2	13%	2	13%	7	44%	0	0%	16
Huye	5	42%	1	8%	2	17%	1	8%	3	25%	0	0%	12
Kamonyi	10	100%	0	0%	1	10%	0	0%	9	90%	0	0%	10
Karongi	2	14%	0	0%	2	14%	0	0%	0	0%	0	0%	14
Kayonza	12	86%	1	7%	2	14%	1	7%	10	71%	0	0%	14
Kicukiro	10	83%	0	0%	2	17%	0	0%	8	67%	0	0%	12
Kirehe	16	94%	1	6%	1	6%	0	0%	15	88%	1	6%	17
Muhanga	8	62%	1	8%	1	8%	1	8%	7	54%	0	0%	13
Musanze	14	100%	1	7%	1	7%	1	7%	13	93%	0	0%	14
Ngoma	12	92%	0	0%	1	8%	0	0%	11	85%	0	0%	13
Ngororero	9	60%	2	13%	2	13%	2	13%	7	47%	0	0%	15
Nyabihu	8	53%	1	7%	1	7%	1	7%	7	47%	0	0%	15
Nyagatare	10	50%	1	5%	1	5%	1	5%	9	45%	0	0%	20
Nyamagabe	7	44%	0	0%	1	6%	0	0%	6	38%	0	0%	16
Nyamasheke	4	22%	1	6%	2	11%	1	6%	2	11%	0	0%	18
Nyanza	13	100%	1	8%	1	8%	1	8%	12	92%	0	0%	13
Nyarugenge	8	73%	2	18%	3	27%	2	18%	5	45%	0	0%	11
Nyaruguru	9	60%	0	0%	1	7%	0	0%	8	53%	0	0%	15
Rubavu	12	80%	2	13%	2	13%	2	13%	10	67%	0	0%	15
Ruhango	8	62%	2	15%	2	15%	2	15%	6	46%	0	0%	13
Rulindo	8	50%	0	0%	2	13%	0	0%	6	38%	0	0%	16
Rusizi	6	32%	0	0%	2	11%	0	0%	4	21%	0	0%	19
Rutsiro	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	13
Rwamagana	15	88%	0	0%	1	6%	0	0%	14	82%	0	0%	17
Managing Authority													
Public/ Government	245	67%	20	5%	37	10%	19	5%	208	57%	1	0%	366
Private, for-profit	9	90%	1	10%	5	50%	1	10%	4	40%	0	0%	10
Private not-for-profit*	29	43%	3	4%	5	7%	2	3%	24	35%	1	1%	68
Type of Facility													
Hospitals	44	98%	21	44%	44	98%	21	44%	0	0%	0	0%	48
Health centers/ clinics	239	98%	3	1%	3	1%	1	0.3%	236	97%	2	0.5%	396
Location													
Urban	70	71%	10	10%	26	26%	9	9%	44	44%	1	1%	99
Rural	213	62%	14	4%	21	6%	13	4%	192	56%	1	0%	345

Which signal function(s) is missing cannot be determined in this table.

* Includes NGO and faith-based or mission health facilities

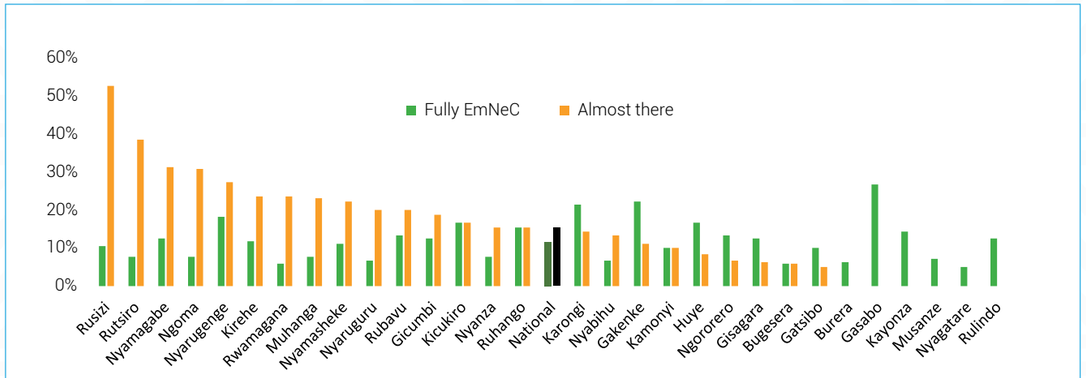
Facility's Emergency Newborn Care (EmNeC) Status

Tables 3.1.6A and 3.1.7A in the appendix show EmNeC status. Nationally, all hospitals and three health centers/clinics were found to be fully functioning EmNeC facilities that implies performance of EmNeC is attached to hospitals only. All districts have at least one hospital which is fully functioning EmNeC; while fully-functioning private clinics were found only in Gucumbi, Kirehe, and Rubavu districts.

EmNec Grading

As shown in Figure 3.1.6 below and Table 3.1.8A in the Appendix, 11% of the total facilities visited were fully EmNeC and 15% missed only one or two of the EmNeC signal functions – "Almost there". Rusizi (53%) had the highest proportion of "Almost there" facilities for EmNeC; followed by Rutsiro (38%), Nyamagabe (31%), and Ngoma (31%). Nyagatare, Burera, and Musanze had a low number of fully functioning EmNeC and Zero "Almost there" facilities; implying that these districts require at least functioning EmNeC facilities. As expected, public health centers were the ones that lacked some newborn signal functions to perform as fully EmNeC, in which the policy/facility set up did not allow them to perform all the seven newborn signal functions.

Figure 3.1.6: Percent of facilities with EmNeC grading by district

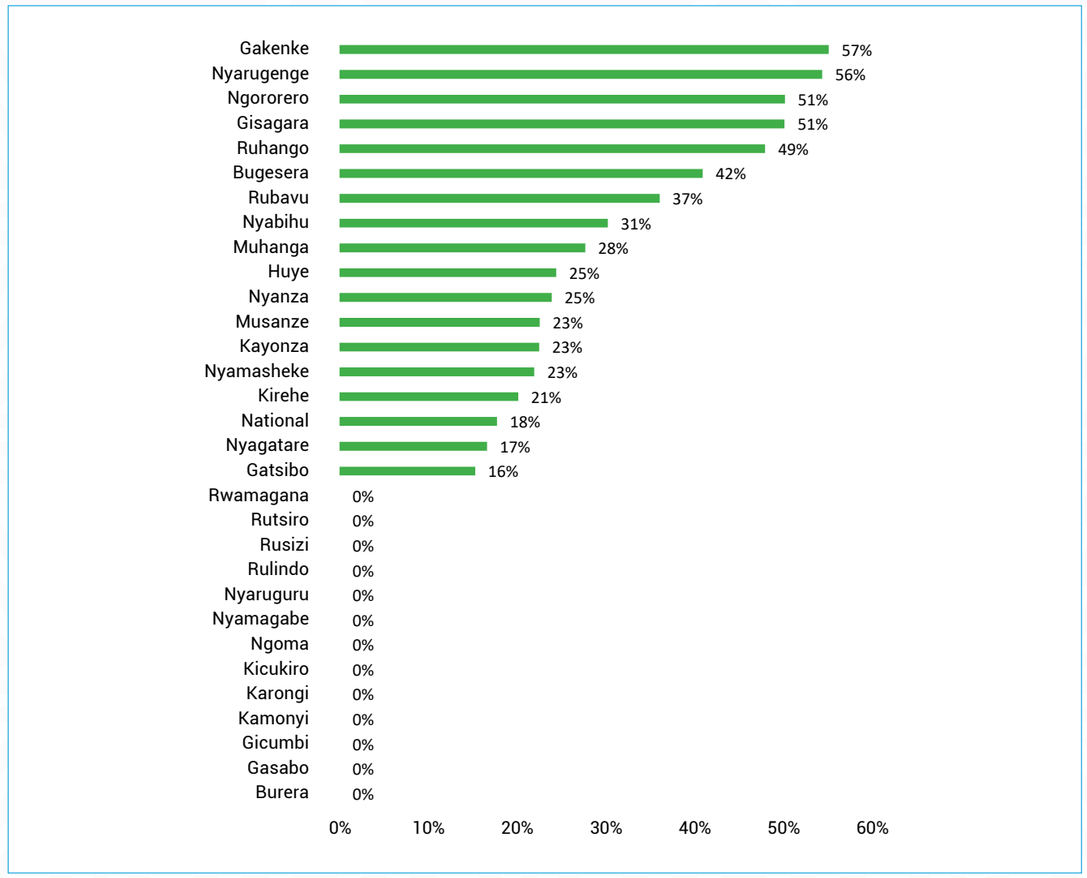


3.2 Indicator 2: Geographic distribution (national and sub-national) of EmONC facilities

This indicator is calculated together with Indicator 1 in Section 3.1 above. Showing geographic distribution of EmONC facilities at sub-national level will help both government and implementers to look at equity of EmONC services.

EmONC availability at national level shows only 18% from the UN recommended. Availability of EmONC facilities varied across districts with none in Gasabo, Gicumbi, Kamonyi, Karongi, Kicukiro, Ngoma, Nyamagabe, Nyaruguru, Rulindo, Rusizi, Rutsiro, and Rwamagana to the highest in Gakenke (57% from recommended). None of the districts met the minimum UN recommended. Six districts (Rubavu, Ruhango, Gisagara, Ngororero, Nyarugenge, and Gakenke) exceeded the minimum recommended number of Comprehensive EmONC facilities while 14 out of the 30 districts did not have CEmONC facilities at all (Table 3.1.1 in Section 3.1, Figure 3.2.1, Map 3.2.1).

Figure 3.2.1: Percent of EmONC facilities from the UN recommended by district, Rwanda EmONC, 2021



Coverage and accessibility to EmONC services

The increasing development and use of Geographic Information System (GIS) allow measuring the physical accessibility of population to maternal and newborn health services, including EmOC. In October 2021, the Ending Preventable Maternal Mortality (EPMM) adopted 2025 coverage targets for accelerating progress towards the SGDs3.1 and 3.2, including a coverage target on the proportion of the population able to access EmOC health facilities within 2 hours of travel time. This indicator is also considered to be included in the set of EmONC indicators as part of the ongoing revision process of the EmONC framework co-led by WHO, UNFPA, UNICEF, AMDD/Columbia University and the London School of Hygiene and Tropical Medicine.

This section provides the first results for Rwanda for this indicator and Rwanda is among the first countries to measure it. The physical accessibility of the population to EmOC services is measured using the WHO tool AccessMod for three groups of health facilities within 1 hour and 2 hours of travel time for the dry and the rainy seasons. Travel scenarios of pregnant women to health facilities, including mode of transportation and travel speed on different types of roads, were collected for each region from sub-national stakeholders. The methodology and data used for estimating the coverage of the population is further detailed in the appendix and it is important to highlight a major limitation of the modelization related to the use of road layers dated from 2006.

The population coverage below may therefore be underestimated.

As shown in table xx, an estimated 89% of the population in Rwanda is located within 2 hours of travel time from the nearest health facility doing at least 20 deliveries per month. This coverage reduces to 73% when considering the physical access to the closest CEmOC facility among the 49 CEmOC health facilities of the country (composed of 22 fully functioning and 27 partially functioning CEmOC health facilities). The coverage to the 24 fully functioning EmOC facilities, corresponding to the EPMM indicator, further reduces to 66%. When using readiness criteria to measure the functionality of the health facilities, an estimated 65% of the population are located within 2 hours of travel time from the closest fully functioning EmOC facility among the 16 fully functioning EmOC facilities.

While the threshold of 2 hours travel time from home to a health facility has been retained by the international community, based on the estimated average interval between onset of postpartum haemorrhage and death in the absence of appropriate medical interventions, but shorter travel time should be promoted and can lead to important programmatic implications. When taking a travel time of 1 hour, the coverage of the population to the closest of the 24 fully functioning EmOC facilities is reduced by half, reaching an estimated 36% in the dry season.

All coverage are reduced on average by 26% in the rainy season for the 2 hours travel time and by 34% for the 1 hour travel time scenario.

National statistics of the population coverage within 2h travel time

Population coverage at 2h travel time by the 444 maternities >= 20 deliveries/month		Population coverage at 2h travel time by the 49 CEmONC (22 fully functioning and 27 partially functioning)		Population coverage at 2h travel time by the 24 fully functioning EmONC (less rigorous criteria)		Population coverage at 2h travel time by the 16 fully functioning EmONC (more rigorous criteria)	
dry season	wet season	dry season	wet season	dry season	wet season	dry season	wet season
88.45%	70.15%	72.83%	55.43%	66.11%	47.45%	64.51%	45.36%

National statistics of the population coverage within 1h travel time

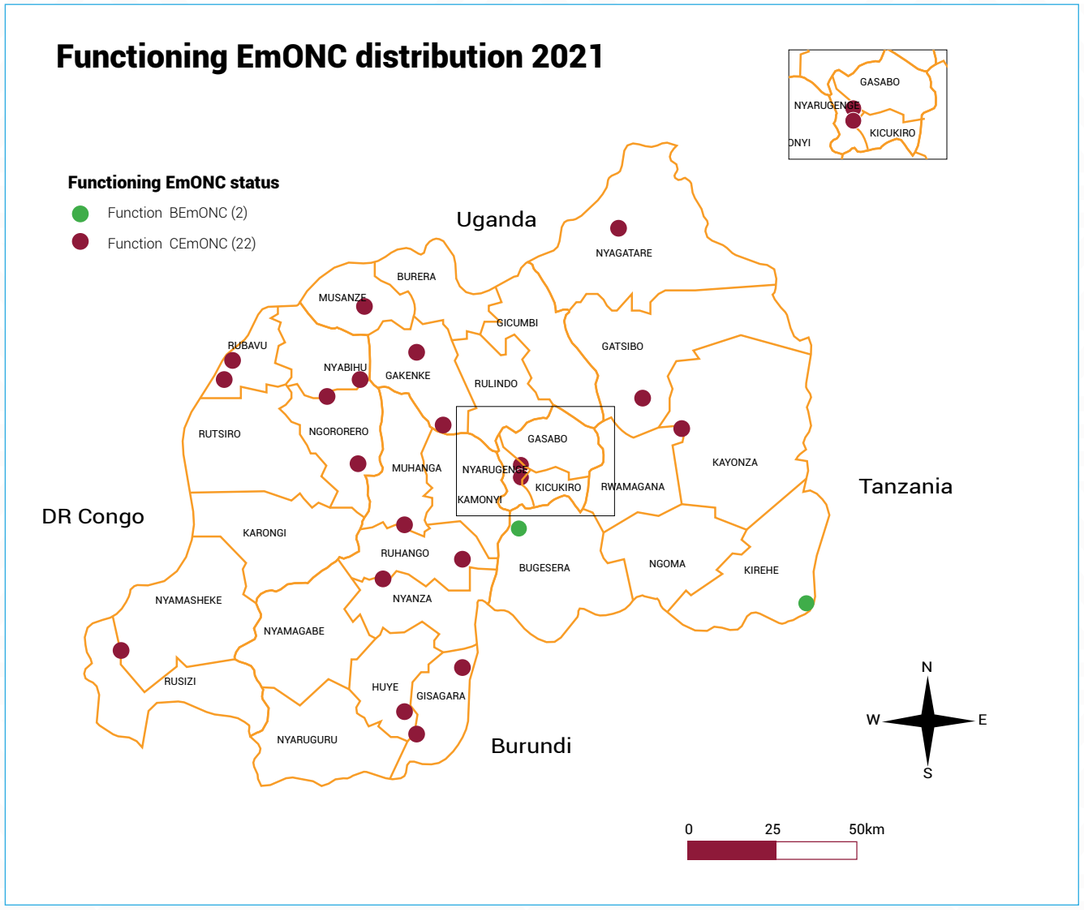
Population coverage at 1h travel time by the 444 maternities >= 20 deliveries/month		Population coverage at 1h travel time by the 49 potential CEmONC (22 fully functioning and 27 partially functioning)		Population coverage at 1h travel time by the 24 fully functioning EmONC (less rigorous criteria)		Population coverage at 1h travel time by the 16 fully functioning EmONC (more rigorous criteria)	
dry season	wet season	dry season	wet season	dry season	wet season	dry season	wet season
64.02%	46.46%	46.07%	31.03%	35.86%	22.74%	33.15%	19.92%

These coverage results are mapped below for the dry season. The maps below show the physical access of population within one hour, 2 hours, 3 hours, and 4 hours of travel time and more from home to the closest maternity among the 444 maternities doing at least 20 deliveries per month. Apart from few regions in the north eastern and western parts, the population has access in most of the country to a maternity doing more than 20 deliveries per month within 2 hours of travel time.

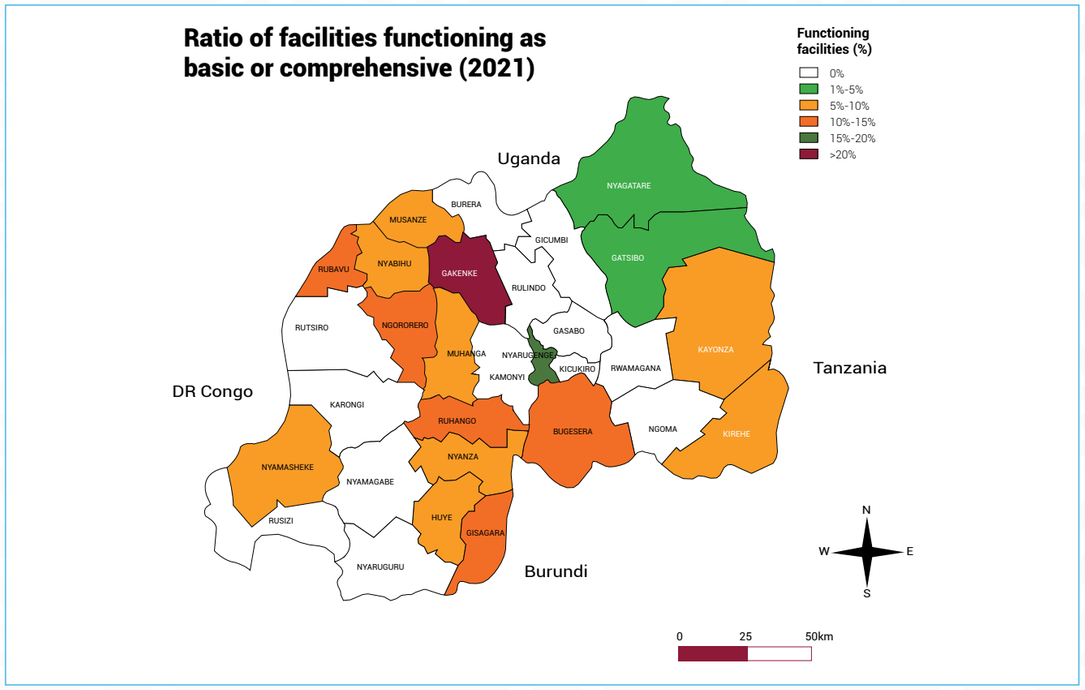
While the 49 CEmONC facilities (Map 3.2.1) still cover well the majority of the country within 2 hours of travel time, there are more important gaps in the western, northern and northeastern regions of the country.

These gaps are further increased when looking at the access to fully functioning EmONC facilities (which are mostly fully functioning CEmONC facilities) with large geographic areas with population living at more than 4 hours of travel time to the closest fully functioning EmONC facility (Map 3.2.3).

Map 3.2.1 Distribution of fully functioning EmONC facilities (less rigorous criteria) by district, Rwanda EmONC, 2021

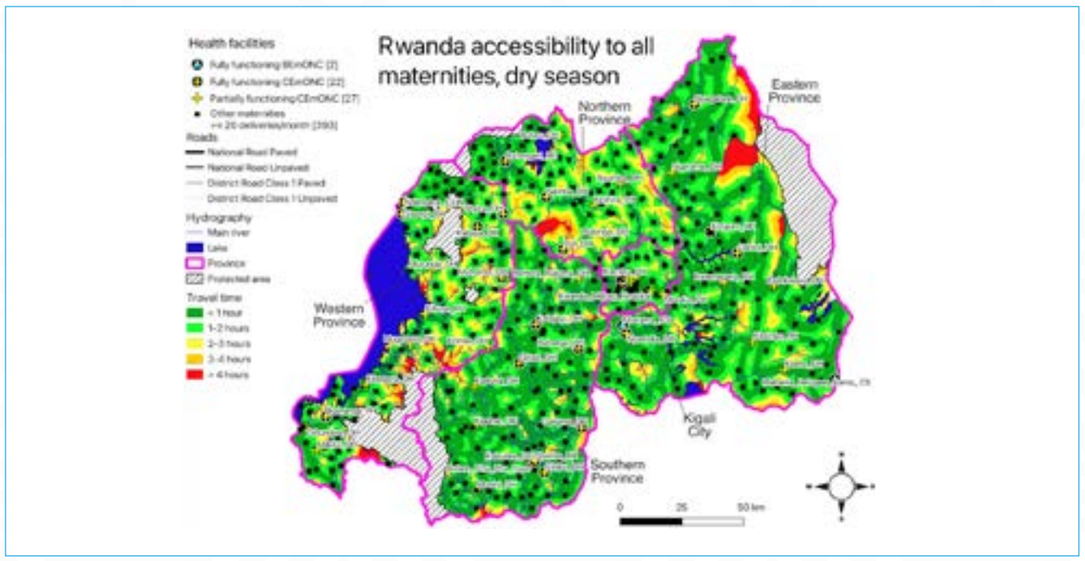


Map 3.2.2 Distribution of fully functioning EmONC facilities (less rigorous criteria) by status (Basic and Comprehensive) and district, Rwanda EmONC, 2021



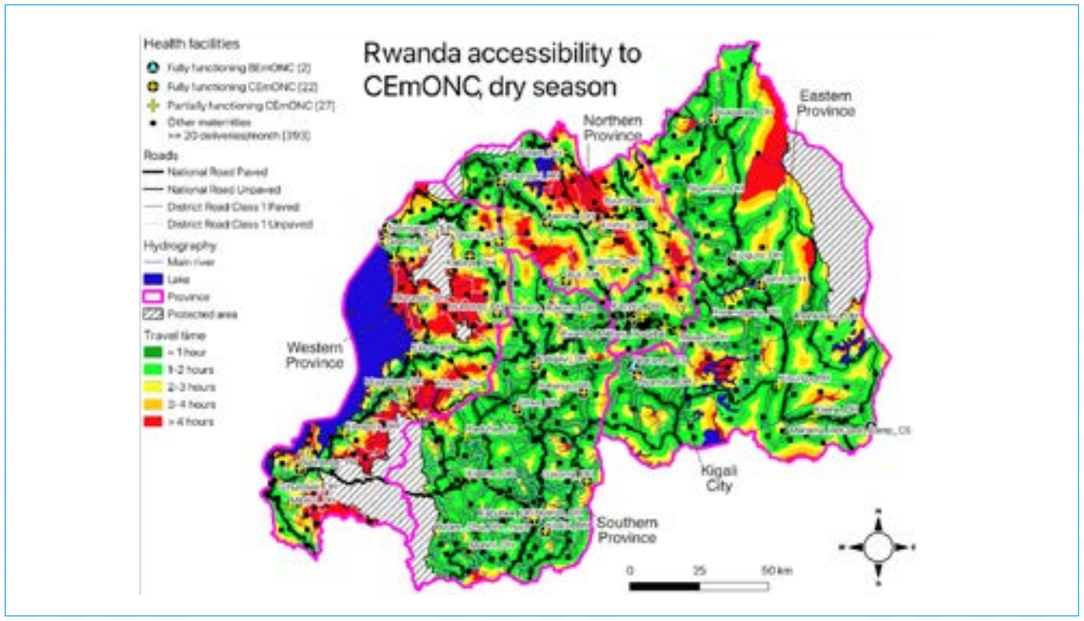
Map 3.2.3: Distribution of all maternity facilities in Rwanda within 1,2,3,4 hours accessibility range (dry weather), Rwanda EmONC, 2021

Map of accessibility at 1, 2, 3 and 4 h from all maternities (dry season)

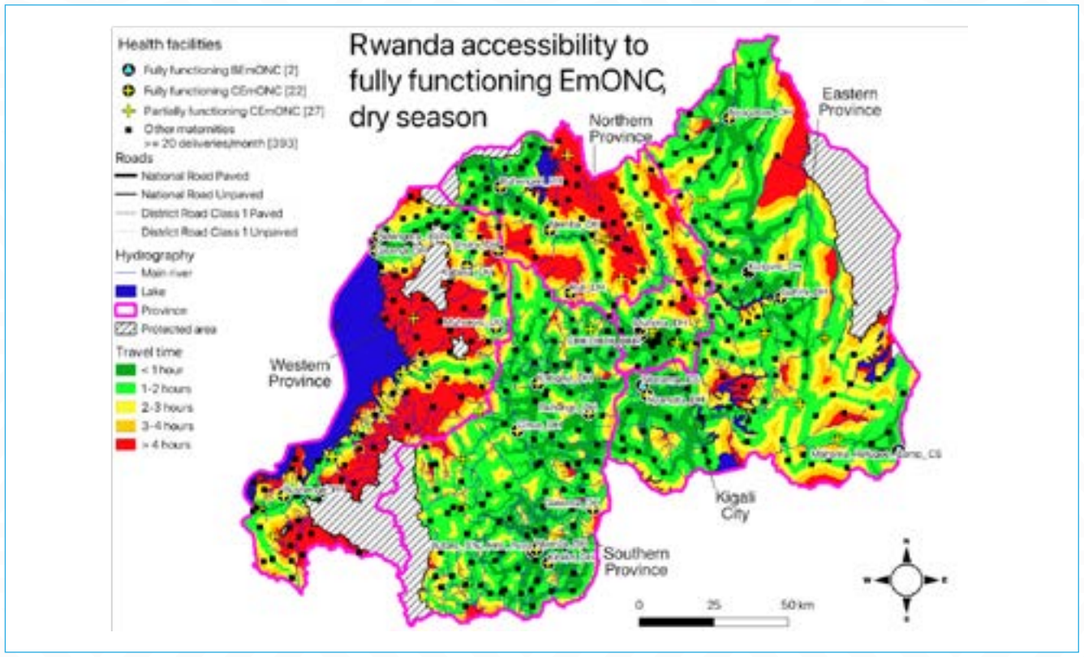


Map 3.2.4: Distribution of fully functioning CEmONC facilities in Rwanda within 1,2,3,4 hours accessibility range (dry weather), Rwanda EmONC, 2021

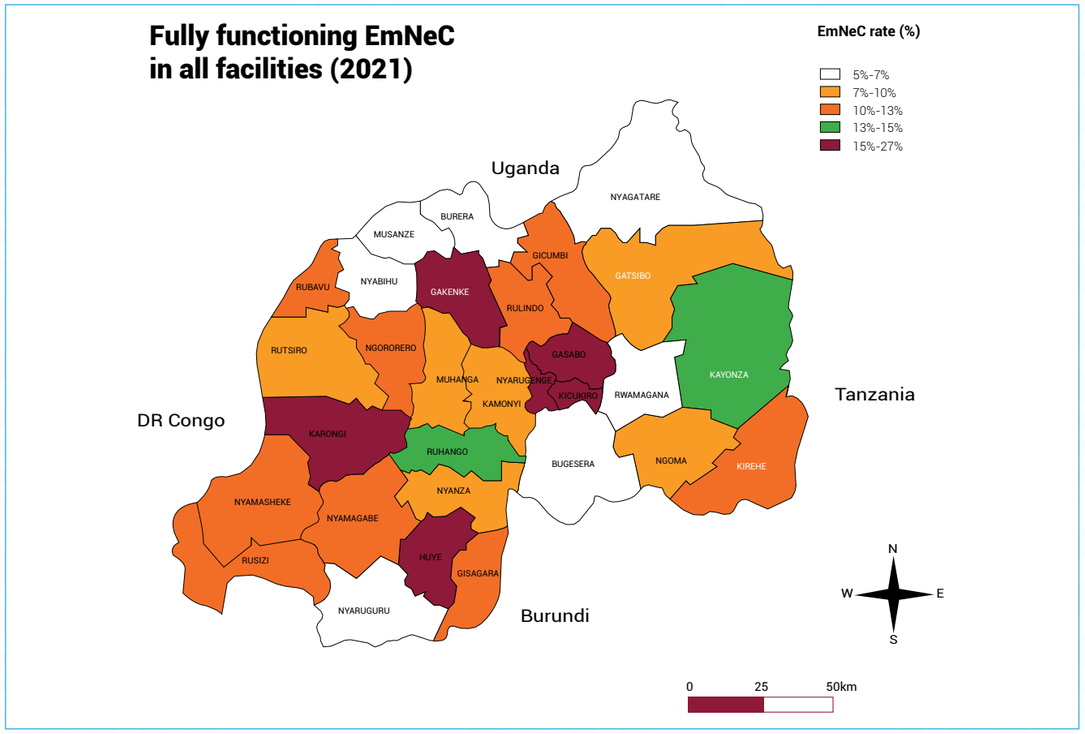
Map of accessibility at 1, 2, 3 and 4 h from fully and partially functioning CEmONC health facilities (dry season)



Map 3.2.4: Distribution of fully functioning EmONC facilities in Rwanda within 1,2,3,4 hours accessibility range (dry weather), Rwanda EmONC, 2021



Map 3.2.5: Distribution of fully functioning EmNeC facilities by district, Rwanda EmONC, 2021



3.3 Indicator 3: Proportion of all births in EmONC facilities

Institutional delivery is one of the key EmONC indicators. It gives us what proportion of the expected births from the population accessed health facilities to give birth. Increasing institutional birth is one of the strategies to reduce first and second delay (delay in health seeking behavior and delay in accessing health facilities). Ideally, all pregnant women should deliver with a skilled birth attendant – 100% institutional delivery rate.

The total number of expected births for Rwanda in 2020 was 411,993 (calculated Crude Birth Rate multiplied by population)[19]. The total births attended in all facilities with maternity services from April 2020 to March 2021 was 293,964 (Table 3.3.1). As shown in the table, the proportion of expected births attended was 71% in all facilities and only 16% in fully functioning EmONC facilities.

Population based institutional delivery rate varies greatly by district; with the highest in Nyarugenge (132%) and Gasabo (107%) to the lowest in Burera (47%). The higher institutional delivery rate in Nyarugenge and Gasabo is explained by the fact that they have referral and teaching hospitals that serve neighboring districts other than their boundaries. Since 13 of the 30 districts did not have EmONC facilities, institutional delivery in EmONC facilities in these districts is zero. The rate of institutional delivery in EmONC facilities was, however, high in Nyarugenge (85%) (Table 3.3.1).

19 National Institute of Statistics - Rwanda, 2020 data

Map 3.3.1: Distribution of Institutional Delivery Rate (IDR) in all facilities by district, Rwanda EmONC, 2021

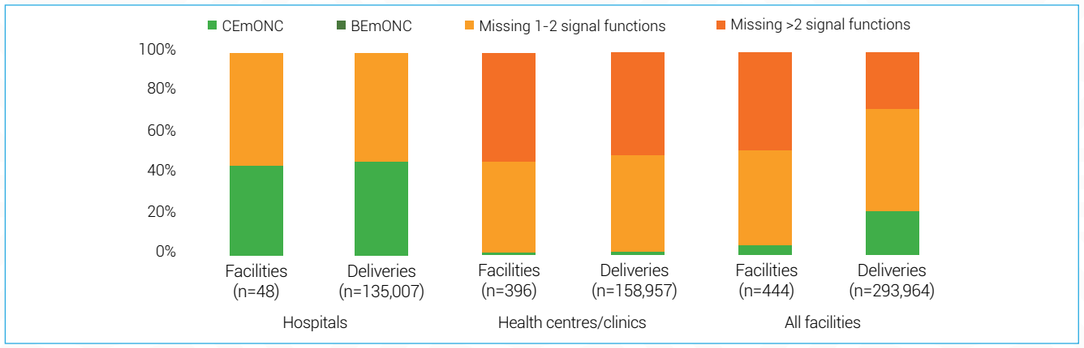


Table 3.3.1: Percentage of expected births attended in All facilities and EmONC facilities, by region (EmONC Indicator 3), Rwanda EmONC, 2021

	Population[1,2]	Number of Expected Births (CBR*pop)[3]	All facilities		EmONC facilities	
			Number of births attended in all facilities	Percent of institutional deliveries from expected births	Number of births attended in EmONC facilities	Percent of institutional deliveries from expected births
National	12,955,768	411,993	293,935	71%	64,423	16%
Region						
Bugesera	497,930	15,834	12641	80%	5,250	33%
Burera	414,896	13,194	6139	47%	-	0%
Gakenke	400,677	12,742	6226	49%	3,847	30%
Gasabo	694,839	22,096	23643	107%	-	0%
Gatsibo	537,689	17,099	13980	82%	2,984	17%
Gicumbi	469,487	14,930	9886	66%	-	0%
Gisagara	388,062	12,340	10267	83%	3,956	32%
Huye	387,913	12,336	9813	80%	2,723	22%
Kamonyi	432,805	13,763	6538	48%	-	0%
Karongi	386,202	12,281	7375	60%	-	0%
Kayonza	427,042	13,580	10728	79%	2,061	15%
Kicukiro	378,973	12,051	11302	94%	-	0%
Kirehe	427,639	13,599	11452	84%	1,054	8%
Muhanga	374,692	11,915	8183	69%	4,211	35%
Musanze	452,551	14,391	10778	75%	5,039	35%
Ngoma	417,395	13,273	8370	63%	-	0%
Ngororero	417,295	13,270	7485	56%	3,476	26%
Nyabihu	348,688	11,088	7579	68%	1,514	14%
Nyagatare	648,332	20,617	14957	73%	5,079	25%
Nyamagabe	392,252	12,474	7382	59%	-	0%
Nyamasheke	487,293	15,496	9176	59%	1,843	12%
Nyanza	369,217	11,741	7227	62%	3,799	32%
Nyarugenge	313,812	9,979	13152	132%	8,536	86%
Nyaruguru	352,407	11,207	6785	61%	-	0%
Rubavu	486,478	15,470	11154	72%	4,265	28%
Ruhango	372,689	11,852	7911	67%	4,786	40%
Rulindo	366,233	11,646	6170	53%	-	0%
Rusizi	508,456	16,169	12453	77%	-	0%
Rutsiro	397,006	12,625	6257	50%	-	0%
Rwamagana	406,816	12,937	8926	69%	-	0%

1. Source of Population Estimates: [National Institute of Statistics - Rwanda, 2020 data]
3. Crude birth rate = 31.8 per 1000 population at national level [list for other regions, and for national] Source: DHS 2019/2020

Location of institutional deliveries

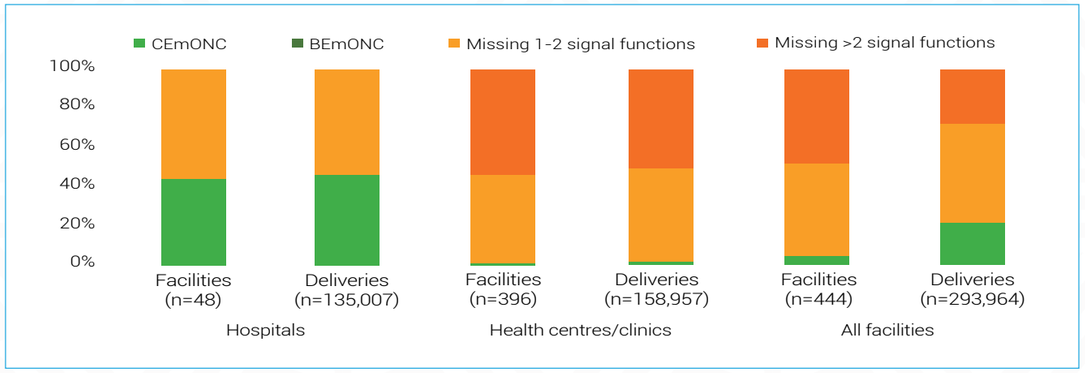
Table 3.3.2A in the appendix and Figure 3.3.1 below show percent distribution of institutional deliveries by district, facility type, operating agency and EmONC status.

Nationally, 293,964 deliveries were registered in the 12 months period from April 2020 to March 2021. Of these, a little over half of the deliveries occurred in the health centers and over a third of them in the district hospitals. The number of health centers and district hospitals assessed were higher than the rest of the facility types that might have contributed to the high deliveries in these facilities. A similar percentage distribution was observed in the location of deliveries except in Kigali City, where most deliveries occurred in district hospitals (56%) than the rest of the facilities.

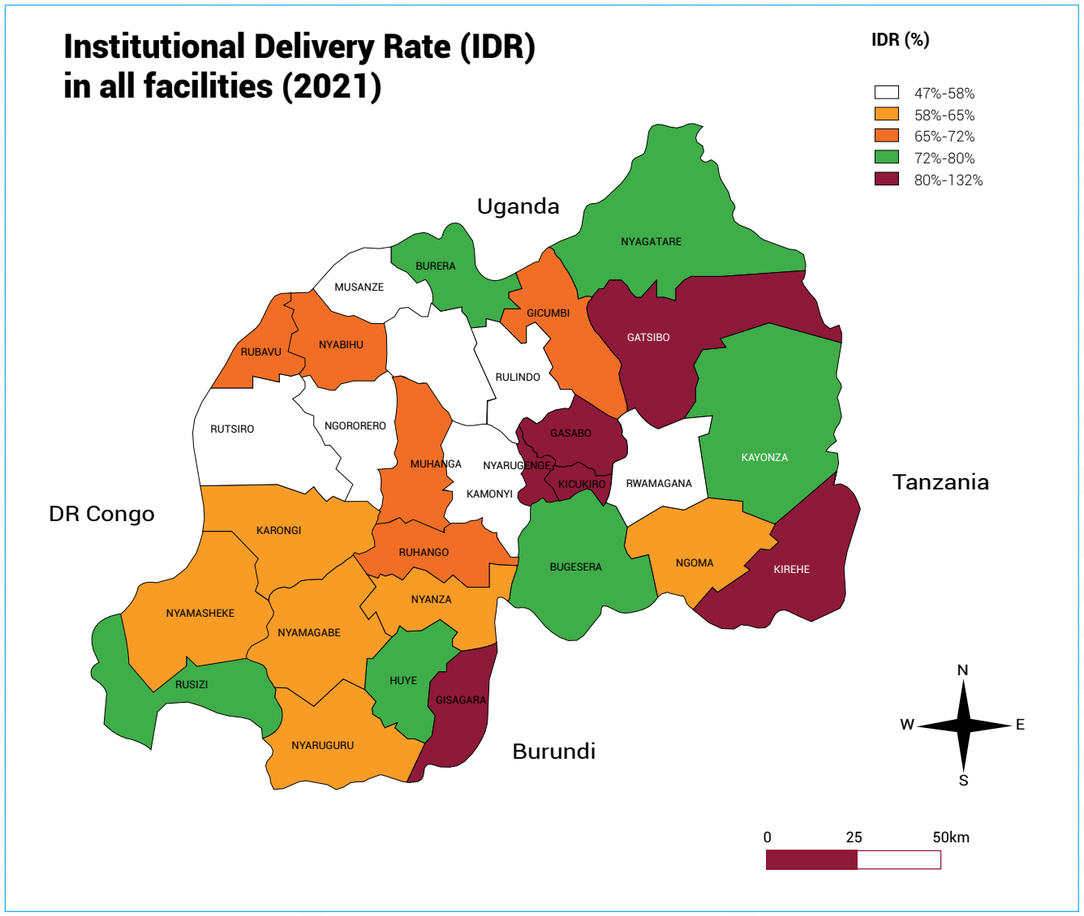
As expected, more deliveries happened in public/government facilities (83%) than private facilities. A similar percentage distribution was exhibited across regions. In terms of location, the majority of the deliveries took place in rural areas rather than urban at national level. However, Kigali City is more urban than rural and all the deliveries occurred in urban areas.

Ideally, all births are expected to happen in EmONC facilities for better treatment as most obstetric complications are not predicted to minimize delays in accessing higher levels of care; though only 22% of the total deliveries took place in EmONC facilities in the country. In hospitals, most deliveries took place in those that missed one or two of the Basic signal functions. On the other hand, health centers/ clinics, missing more than two signal functions were those that captured most deliveries in the country (Figure 3.3.1).

Figure 3.3.1: Distribution of facilities and institutional deliveries according to facility EmONC status, by facility type, Rwanda EmONC, 2021



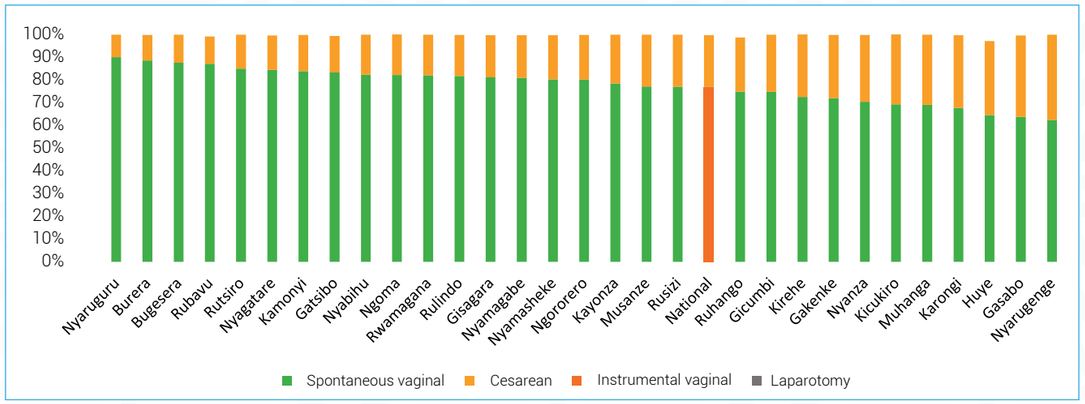
Map 3.3.1: Distribution of fully functioning EmONC facilities against the distribution of Institutional Delivery Rate (IDR) by district, Rwanda EmONC, 2021



Mode of institutional delivery

Figure 3.3.2 below and Table 3.3.3A in the appendix show distribution of mode of institutional deliveries by district, facility type, operating agency, and location. Accordingly, of the total deliveries (293,964) in the 12 months prior to the assessment, over three-quarter of them were normal spontaneous vaginal deliveries (SVDs) and 23% were through cesarean. Instrumental deliveries and laparotomies for ruptured uterus were so few (0.2% each). There were district level disparities in the mode of delivery. SVDs were high in Nyaruguru (90%) to the lowest in Nyarugenge (62%). Similarly, cesarean delivery was high in Nyarugenge (37%) and Gasabo (36%) to the lowest in Nyaruguru (10%) followed by Burera (11%), Bugesera (12%), and Rubavu (12%).

Figure 3.3.2: Percent distribution of institutional delivery by mode of delivery and district, Rwanda Rapid EmONC, 2021

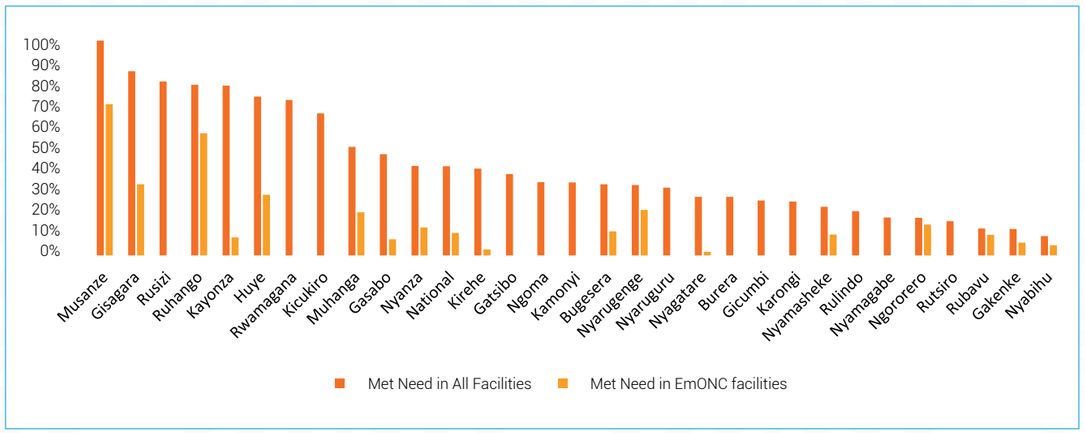


3.4 Indicator 4: Met need for EmONC services

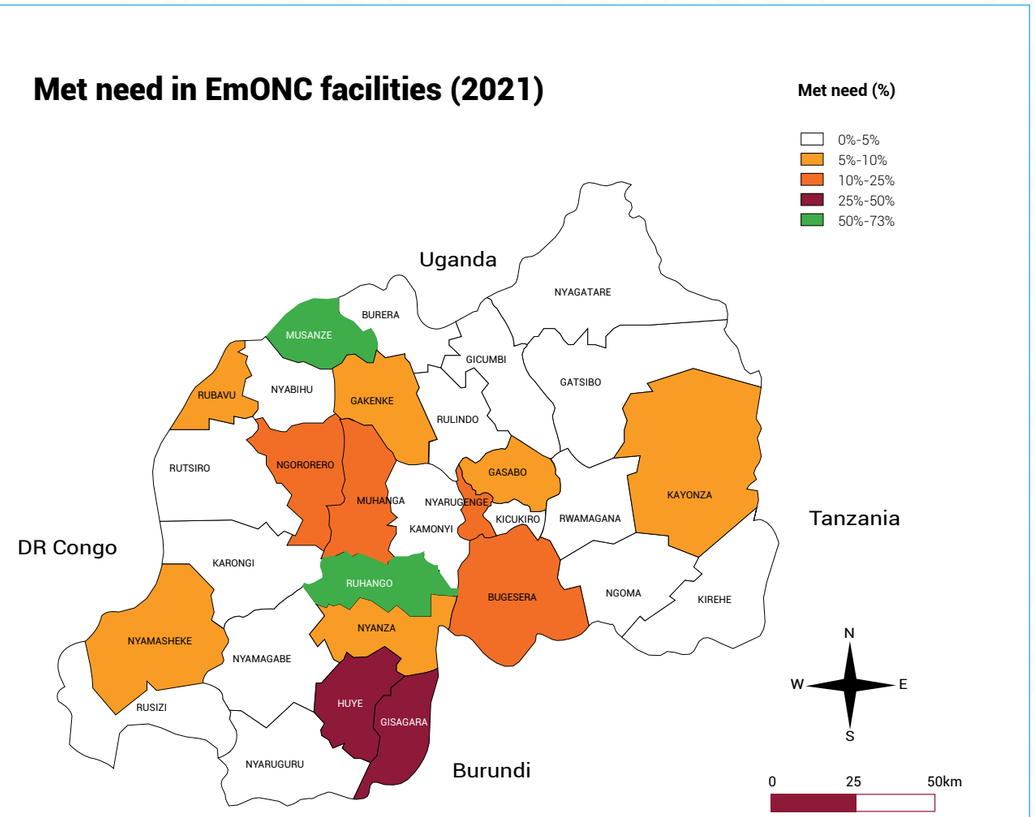
The EmONC handbook stipulated that approximately 15% of the expected births in the population are likely to develop major direct obstetric complications. Complications of antepartum and postpartum hemorrhage/retained placenta, postpartum sepsis, severe pre-eclampsia and eclampsia, prolonged or obstructed labor, ruptured uterus, complications from abortion, and ectopic pregnancy were included in the met need for EmONC calculation. Met need, therefore, is defined as the proportion of expected complications that were treated in EmONC facilities.

From April 2020 to March 2021, a total of 61,799 women were expected to develop complications in the population. Of these, only 43% of them were treated in all facilities and 11% received treatment in EmONC facilities (Figure 3.4.1 and Table 3.4.1A in the appendix). Met need in all facilities was high in Musanze (104%) and low in Nyabihu (9%). The high met need in Musanze could be explained by the easy access of surrounding women to Musanze referral hospital. Another reason could be access to referral services to the district referral hospital.

Figure 3.4.1: Percent of women expected to experience major direct obstetric complications who developed complications and delivered in EmONC facilities and all facilities (Met Need for EmONC), by district, Rwanda EmONC, 2021



Map 3.4.1: Distribution of fully functioning EmONC facilities against the distribution of Institutional Delivery Rate (IDR) by district, Rwanda EmONC, 2021



Met need with postabortion complications

Severe complications of abortion are included among the major direct obstetric complications used to calculate met need. However, experience tells us that recording of obstetric complications is often challenged by underreporting. Considering abortion complications, there might be difficulties in differentiating between severe and non-severe abortion complications. For this reason, we included an additional table with all postabortion complications (adding non-severe post-abortion complications) to the calculation of met need.

Cognizant to the above-mentioned reasons, met need increased from 43% to 69% in all facilities and from 11% to 20% in EmONC facilities. The impact of adding the non-severe postabortion cases also affected regional variations. This impact was highly visible in Nyarugenge as 83% percentage increase and only a 5% increase in Rutsiro in all facilities. The very high percentages of met need in Musanze, Nyarugenge, Huye, Kayonza, Rwamagana, Ruhango, and Gisagara might be due to accessibility of postabortion care services and referrals coming from the surrounding districts (Table 3.4.2A in the Appendix). It should also be noted that data collectors counted safe abortions as a separate category to the severe and non-severe abortion complications. Hence, safe abortions were not included in this second calculation of met need for EmONC.

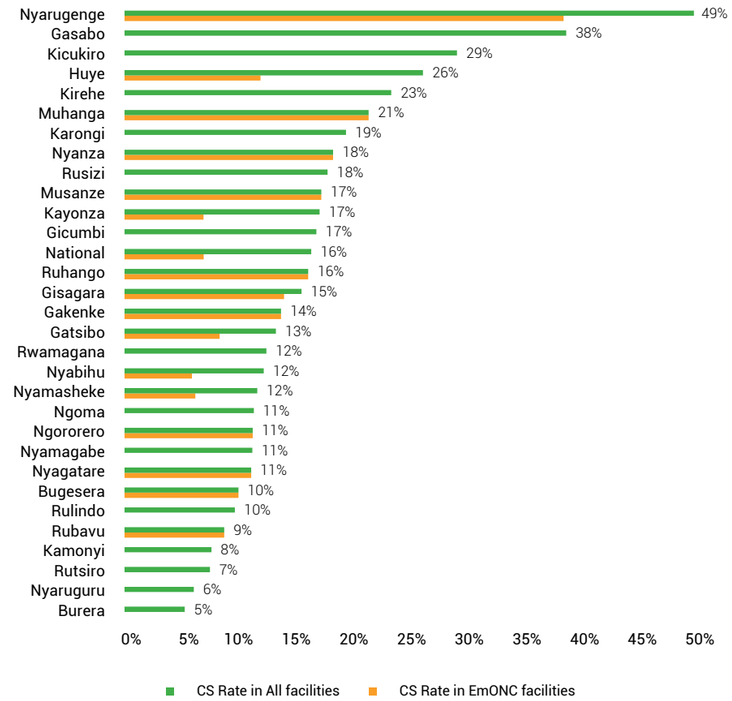
3.5 Indicator 5: Caesarean section as a proportion of all births

World Health Organization issued a consensus statement that says that population-based rates above 10 percent are not associated with reductions in maternal or newborn mortality[20]. This was an adjustment to the definition of the indicator in the EmONC handbook with a range of population based cesarean delivery rate 5 – 15%[21].

From April 2020 to March 2021, taking 411,993 expected births as a denominator and 66,716 cesarean deliveries as a numerator, the population based caesarean rate was 16% in all facilities and 7% in EmONC facilities. The caesarean rate in all facilities was above the new range (10%), while the cesarean rate in EmONC facilities was within the range (Table 3.5.1A in the Appendix and Figure 3.5.1).

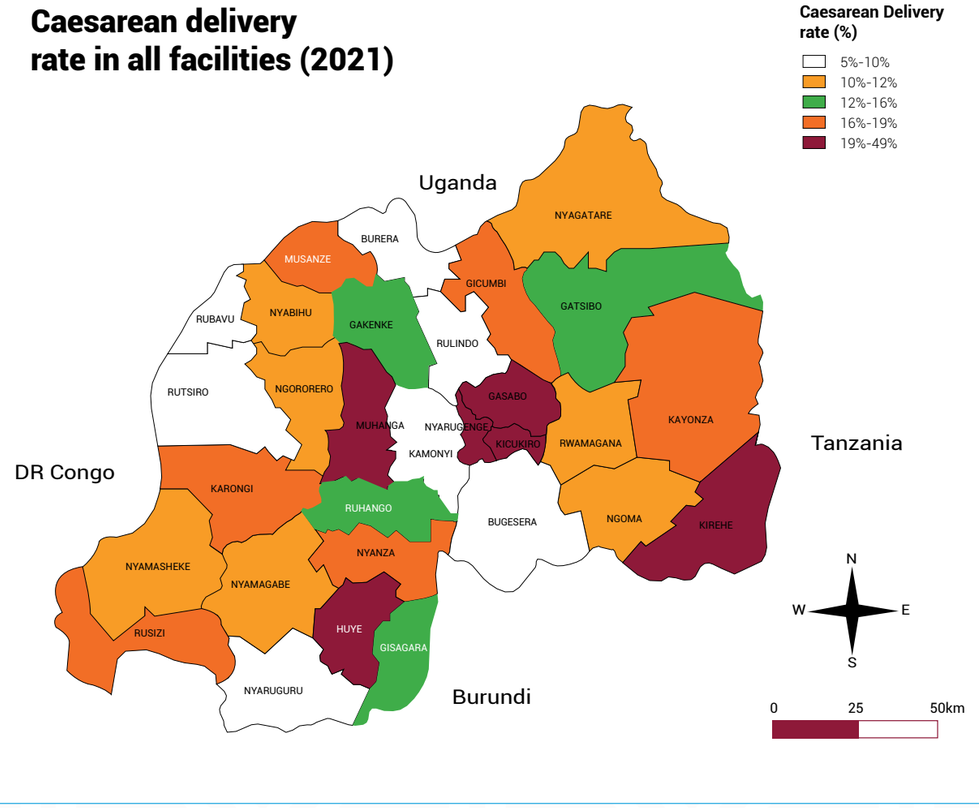
The population-based caesarean section rate in all facilities varied widely by district, with the highest in Nyarugenge (49%), followed by Gasabo (38%), and the lowest in Burera (5%), followed by Nyaruguru (6%) and Rutsiro (7%). A similar pattern was observed across districts in EmONC facilities. Considering cesarean rate in all facilities, 24 of the 30 districts had above the 10% cutoff point. It is possible that women in the surrounding areas contributed to the high caesarean delivery rates in the high performing districts, choosing to deliver in the hospitals of these districts. Otherwise, this is a concern of unnecessary caesareans that created disparities in access to what should be promoted as life-saving technology but only when medically indicated.

Figure 3.5.1: Percent of expected births delivered by caesarean section in all facilities and EmONC facilities, by district, Rwanda EmONC, 2021



20 World Health Organization Human Reproduction Programme. WHO Statement on caesarean section rates. Reprod Health Matters. 2015;23(45):149-50.
21 WHO, UNFPA, UNICEF, AMDD. Monitoring emergency obstetric care: a handbook. Geneva: World Health Organization; 2009

Map 3.5.1: Percent of expected births delivered by caesarean section in all facilities by district, Rwanda EmONC, 2021



Caesarean performance by public and private facilities

Despite the importance of having the population-based caesarean rate, programmers and implementers want to see performance of institutional rates. Yet, there is quite a marked difference in the set of the levels of hospitals and their patient mix. It is also crucial to note that some hospitals are referral and others are functioning at primary care level that has an impact on the difference in institutional cesarean rate.

Table 3.5.2A in the appendix shows that 64% of the deliveries in the private-for-profit facilities that had performed cesarean delivery were resolved by caesarean section, in comparison with 42% in the private not-for-profit and 46% in the public/government facilities. In EmONC facilities, there was no marked difference between government and private-for-profit facilities that had done cesarean deliveries. As the majority of the fully functioning EmONC facilities were located in urban areas, cesarean delivery performance was also higher in urban areas than rural.

3.6 Indicator 6: Direct obstetric case fatality rate (DOCFR)

The DOCFR is defined as the proportion of women with major direct obstetric complications in facilities who die before discharge. The main direct causes of maternal death include: hemorrhage, hypertensive diseases, abortion, sepsis or infections, prolonged or obstructed labor, ectopic pregnancy, embolism, and anesthesia-related death. The international benchmark is less than one percent.

Table 3.6.1 below shows that 165 maternal deaths due to major direct obstetric complications were recorded in the 12 months period ending March 2021 in all facilities. Dividing 165 by the total number of women with direct obstetric complications (26,785) gives a DOCFR of 0.6%, which is below the benchmark (1%). Similarly, the DOCFR in EmONC facilities was recorded as 1.3%. An accurate estimate of the DOCFR depends on the correct diagnosis, complete recording of obstetric complications, maternal deaths, and causes of death. With this limitation in mind, the DOCFR at national level in all facilities and EmONC facilities need to be below the benchmark.

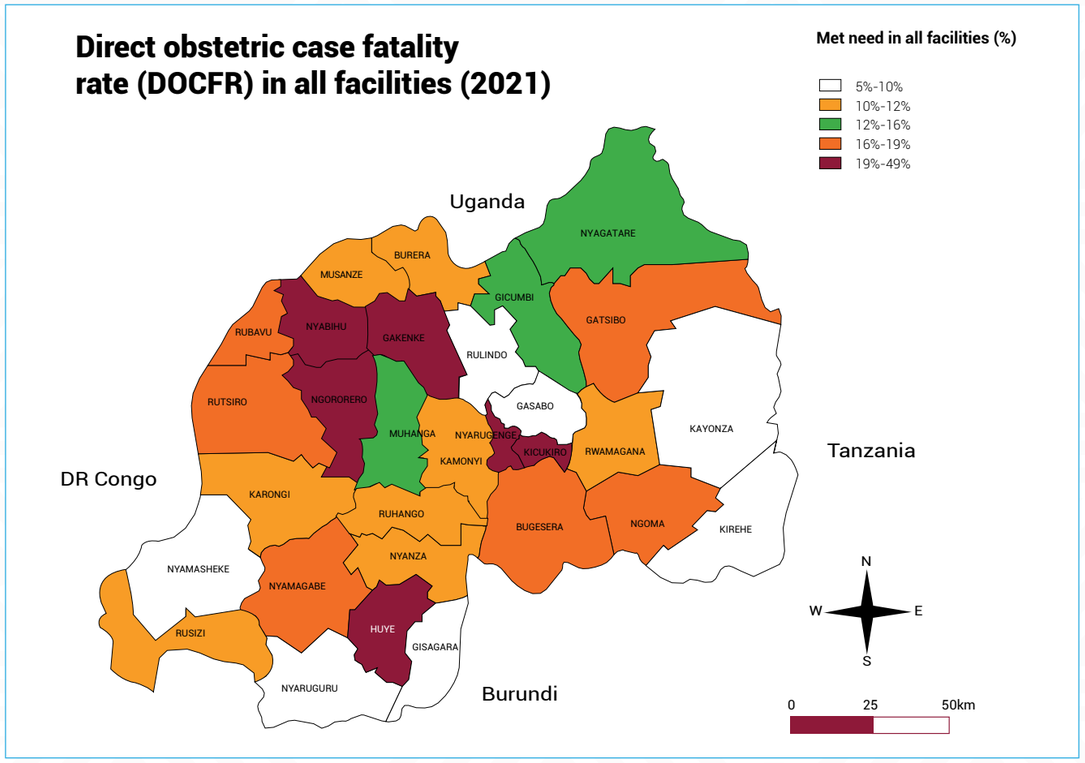
The DOCFR in all facilities was observed high in Nyarugenge (5.0%) and Nyabihu (3.9%) while the least was recorded in Nyaruguru and Rulindo (both 0%). In 17 of the 30 districts that had EmONC facilities, Nyabihu had a higher DOCFR (6.1%) followed by Nyarugenge (7.5%). However, the DOCFR in most of these districts was below one percent (Table 3.6.1). As shown in Table 3.6.2A in the appendix, the DOCFR in teaching hospitals were recorded above 3%; while the majority of district hospitals and health centers/ clinics had a DOCFR of below 1%. This could be due to the fact that lower-level facilities often refer women with major direct obstetric complications to higher level hospitals. By the time they arrive at a high level of care facility, it may be late to save their lives.

Table 3.6.1: Direct obstetric case fatality rate (DOCFR) in all facilities and EmONC facilities, by district (EmONC Indicator 6), Rwanda EmONC, 2021

	All Facilities			EmONC Facilities		
	Number of women with direct complications[1]	Number of maternal deaths by direct causes[1]	DOCFR[2]	Number of women with direct complications[1]	Number of maternal deaths by direct cause[1]	DOCFR[2]
National	26,785	165	0.6%	6,527	86	1.3%
Region						
Bugesera	816	5	0.6%	274	5	1.8%
Burera	559	2	0.4%	-	0	
Gakenke	243	4	1.6%	117	2	1.7%
Gasabo	1,620	3	0.2%	258	0	0.0%
Gatsibo	1,007	6	0.6%	-	4	
Gicumbi	593	3	0.5%	-	0	
Gisagara	1,647	3	0.2%	635	3	0.5%
Huye	1,418	20	1.4%	542	19	3.5%
Kamonyi	727	2	0.3%	-	0	
Karongi	479	2	0.4%	-	0	
Kayonza	1,670	1	0.1%	177	1	0.6%
Kicukiro	1,239	23	1.9%	-	0	
Kirehe	854	2	0.2%	58	0	0.0%
Muhanga	936	5	0.5%	373	3	0.8%
Musanze	2,239	9	0.4%	1,577	7	0.4%
Ngoma	703	5	0.7%	-	0	
Ngororero	361	7	1.9%	296	6	2.0%
Nyabihu	154	6	3.9%	82	5	6.1%
Nyagatare	876	4	0.5%	52	1	1.9%
Nyamagabe	343	2	0.6%	-	0	
Nyamasheke	545	1	0.2%	233	0	0.0%
Nyanza	760	3	0.4%	238	1	0.4%
Nyarugenge	505	25	5.0%	335	25	7.5%
Nyaruguru	549	0	0.0%	-	0	
Rubavu	301	2	0.7%	231	2	0.9%
Ruhango	1,465	4	0.3%	1,049	2	0.2%
Rulindo	372	0	0.0%	-	0	
Rusizi	2,036	8	0.4%	-	0	
Rutsiro	312	4	1.3%	-	0	
Rwamagana	1,456	4	0.3%	-	0	

1. Direct complications and direct causes of maternal death include: APH, PPH, obstructed/prolonged labor, ectopic pregnancy, severe abortion complications, retained placenta, ruptured uterus, postpartum sepsis, severe pre-eclampsia/ eclampsia. Excludes "other" direct complications or causes of death.
2. DOCFR (direct obstetric case fatality rate) = (number of maternal deaths by direct causes)/(number of women with direct complications)

Map 3.6.1: Direct obstetric case fatality rate (DOCFR) in all facilities, Rwanda EmONC, 2021



3.7 Indicator 7: Intrapartum and very early neonatal death (VEND) rate

The intrapartum and very early (pre-discharge) neonatal death rate is the proportion of births that result in an intrapartum stillbirth or a very early neonatal death (>= 2.5kgs and <24 hours)[22]. This indicator is intended to measure the quality of intrapartum and newborn care.

In this assessment, a distinction between fresh stillbirth and macerated stillbirth was made. There was no further categorization of the neonatal period beyond the very early neonatal deaths within the first 24 hours.

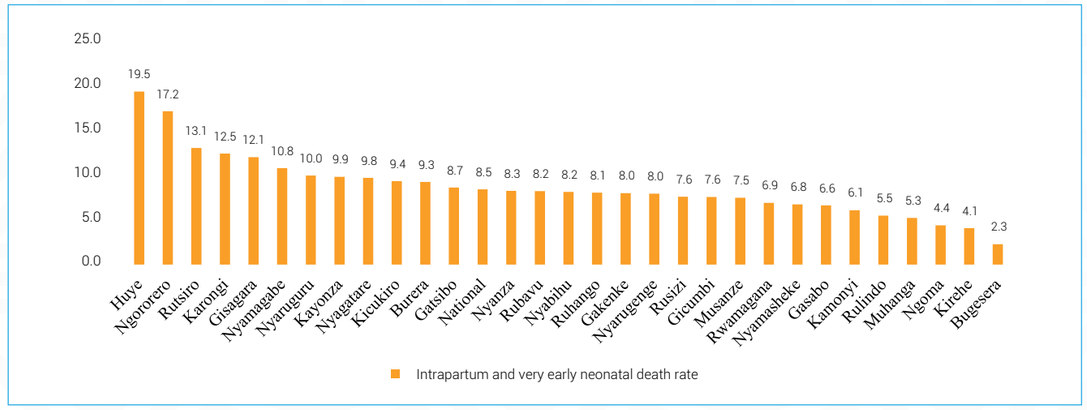
Figure 3.7.1 and Map of 3.7.1 below and Table 3.7.1A in the Appendix show institutional stillbirth rates (total) and the intrapartum (fresh stillbirth) and VEND rate among all facilities. Table 3.7.2A in the Appendix shows the same rates but among EmONC facilities only.

Nationally, there were 3,983 stillbirths. Among them, 2,057 were fresh stillbirths and 1,871 were macerated stillbirths, and the rest were unspecified stillbirths. Nationally, a 13.5 stillbirth rate per 1000 deliveries were recorded. Of the total VEND reported, 440 were very early neonatal deaths with a 2.5 kgs or more and 324 were below 2.5kgs. Overall, the intrapartum and VEND rate was 8.5 per 1000 live births in all facilities. Huye recorded the highest intrapartum and VEND rate (19.5 per 1000 live births) while the lowest was observed in Bugesera (2.3 per 1000 live births).

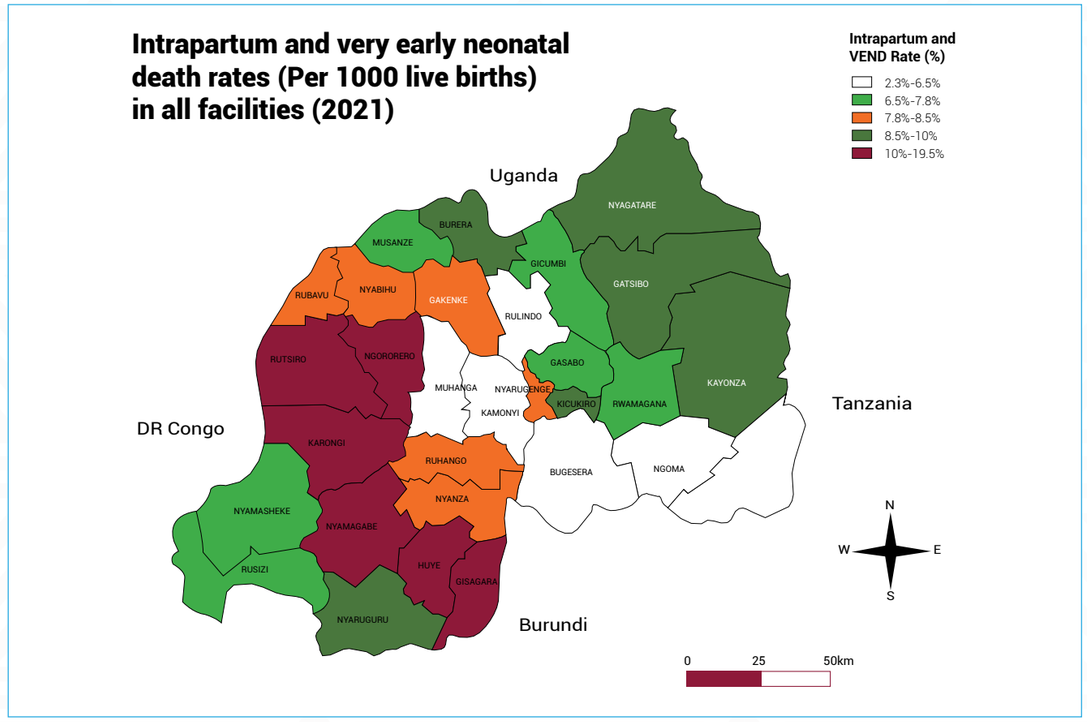
22 WHO, UNFPA, UNICEF, AMDD. Monitoring emergency obstetric care: a handbook. Geneva: World Health Organizations; 2009.

District hospitals recorded the highest intrapartum and VEND rate in all facilities (15.4) followed by provincial hospitals (15.0); while district hospitals documented the highest total stillbirth rate (26 per 1000 deliveries) in all facilities. Public and private-not-for-profit facilities exhibited the highest total stillbirth and intrapartum and very early neonatal death rates compared to private-for-profit facilities.

Figure 3.7.1: Intrapartum and very early neonatal death rates in all facilities, by district, Rwanda EmONC, 2021



Map 3.7.1: District intrapartum and very early neonatal death rates (per 1000 live births) in all facilities, Rwanda EmONC, 2021

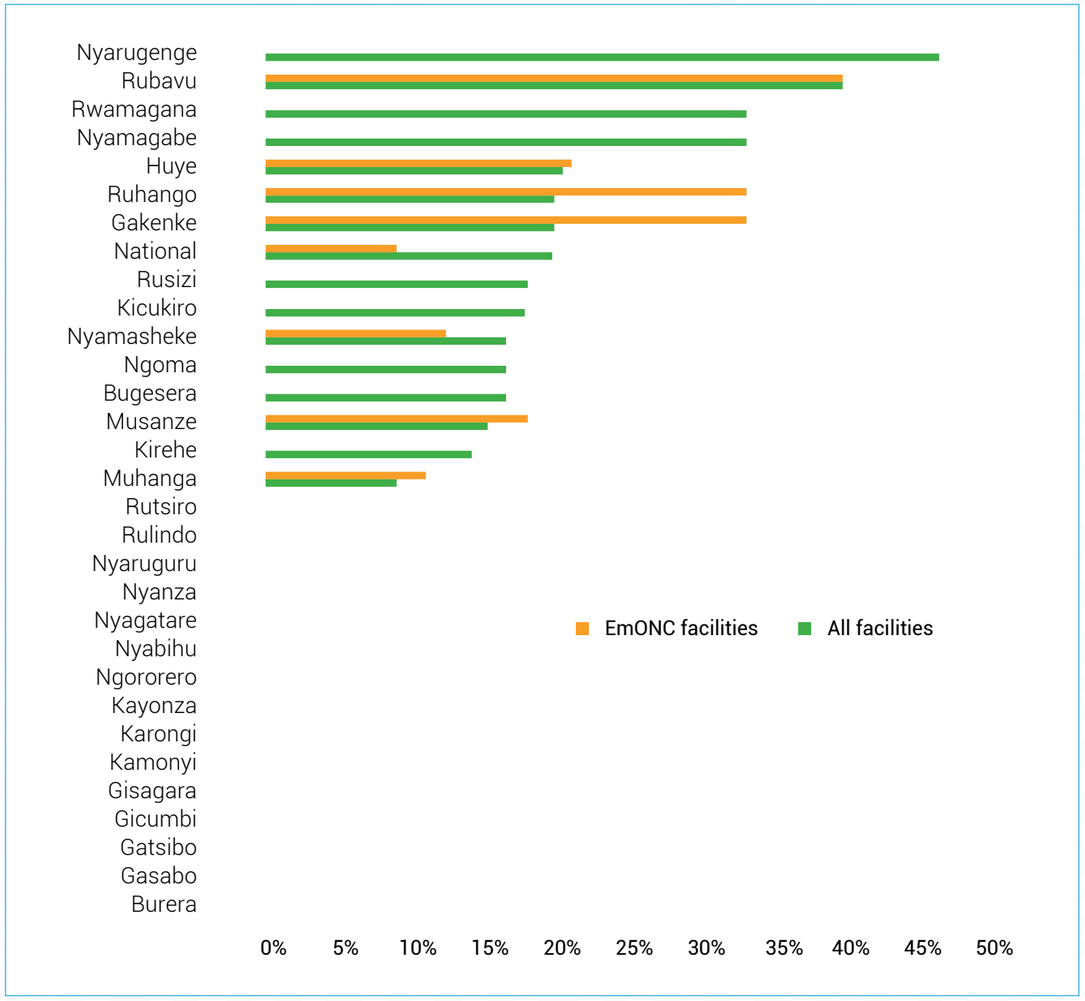


3.8 Indicator 8: Proportion of maternal deaths due to indirect causes

Indirect causes of maternal death result from previous existing disease or disease that developed during pregnancy and was not due to direct obstetric causes, but was aggravated by the physiologic effects of pregnancy. Unlike other EmONC indicators, this indicator has no international or national standards. Instead, it highlights the larger social and medical context and has implications for intervention strategies. Malaria, HIV, severe anemia, and hepatitis were the major indirect causes included in this indicator.

Table 3.8.1A in the appendix and Figure 3.8.1 below show percent of institutional maternal deaths due to indirect causes by district. Nationally, the percentage of institutional maternal deaths due to indirect causes was 20% in all facilities and 9% in EmONC facilities. In all facilities, Nyarugenge recorded the highest maternal death due to indirect causes (47%), followed by Rubavu (40%); while the lowest (zero) was recorded in 15 of the 30 districts.

Figure 3.8.1: Percentage of maternal deaths due to indirect causes in all facilities and EmONC facilities, by district (EmONC Indicator 8), Rwanda EmONC, 2021



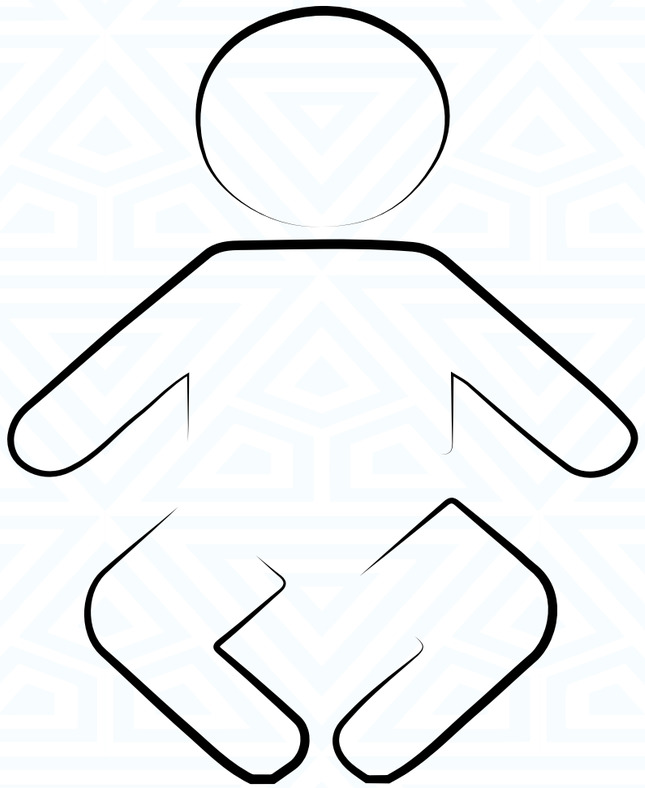
3.9 Summary of EmONC Indicators

The 2021 Rwandan rapid EmONC assessment produced all the eight EmONC indicators. The summary results of these indicators are presented in Table 3.9.1 below. As shown in Table 3.9.1, EmONC availability in more rigorous criteria seems to be lower than with lesser criteria. However, Gasabo, Kayonza, Kirehe, Muhanga, Nyagatare, Nyamasheke, Nyarugenge and Rubavu had an unchanged number of EmONC facilities in either of the criteria set.

Table 3.9.1: Summary of EmONC indicators, Rwanda EmONC, 2021

	2021		
	All facilities	EmONC facilities (LESS rigorous criteria)	EmONC facilities (MORE rigorous criteria)
Indicator 1: Availability of EmONC			
Recommended n		130	130
Functioning n (%)		24 (19%)	16 (12%)
Functioning CEmONC n (%)		22 (73%)	14 (47%)
Functioning BEmONC n (%)		2 (2%)	2 (2%)
Indicator 2: Subnational availability of EmONC (% of minimum recommended EmONC facilities)			
Bugesera		40%	20%
Burera		0%	0%
Gakenke		50%	25%
Gasabo		0%	0%
Gatsibo		25%	25%
Gicumbi		0%	0%
Gisagara		50%	25%
Huye		20%	0%
Kamonyi		0%	0%
Karongi		0%	0%
Kayonza		33%	33%
Kicukiro		0%	0%
Kirehe		25%	25%
Muhanga		25%	25%
Musanze		17%	17%
Ngoma		0%	0%
Ngororero		40%	20%
Nyabihu		33%	0%
Nyagatare		20%	20%
Nyamagabe		0%	0%
Nyamasheke		25%	25%
Nyanza		25%	0%
Nyarugenge		50%	50%
Nyaruguru		0%	0%
Rubavu		50%	50%
Ruhango		50%	25%
Rulindo		0%	0%
Rusizi		0%	0%
Rutsiro		0%	0%
Rwamagana		0%	0%
Indicator 3: Proportion of births in facilities	71%	16%	12%
Indicator 4: Met need for EmONC (% of expected complications treated)	43%	11%	8%
Indicator 5: Proportion of births delivered by caesarean	16%	7%	5%
Indicator 6: Direct obstetric case fatality rate	0.6%	1.3%	1.2%
Indicator 7: Stillbirth and newborn mortality rates			
Stillbirth rate (per 1,000 deliveries)	13.5	23.3	22.6
Very early neonatal mortality rate (1st 24 hours; per 1,000 live births)	2.6	4.0	3.7
Indicator 8: Proportion of maternal deaths due to indirect causes	20%	26%	30%

CHAPTER
04



ADDITIONAL OBSTETRIC AND NEWBORN CARE INDICATORS FOR COVERAGE, READINESS, AND QUALITY

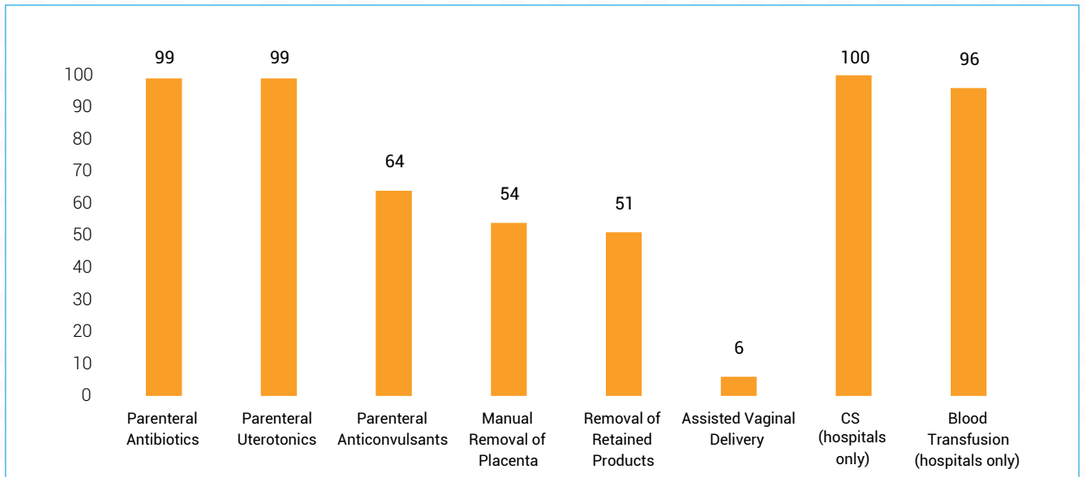
4.1 Performance of EmONC and EmNeC signal functions and reasons for non- performance

This subchapter looks at performance of EmONC and EmNeC signal functions and the reasons for non-performance.

Performance of EmONC signal functions and reasons for non-performance

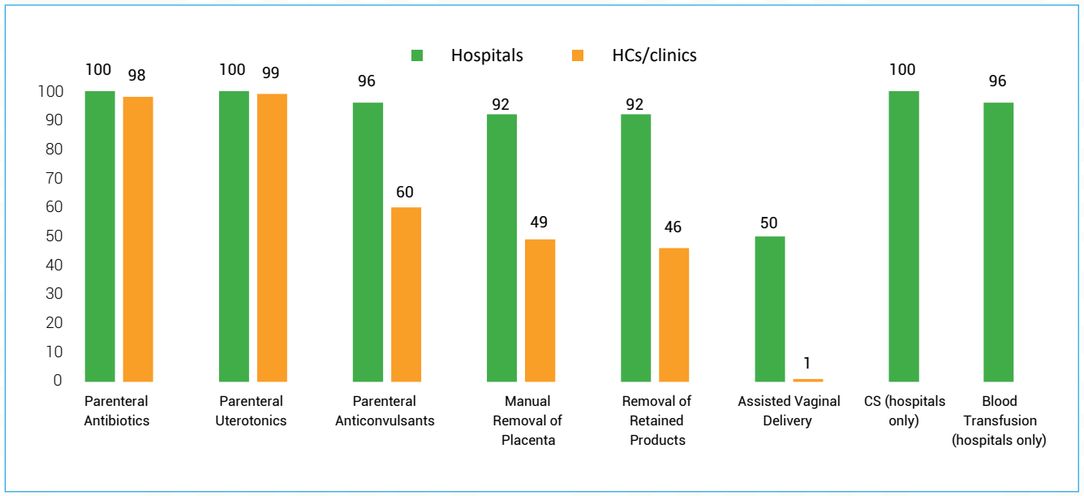
As shown in Figure 4.1.1 below, 99% of the 444 health facilities assessed performed parenteral antibiotics and parenteral uterotonics in the three months prior to the survey. The least performed EmONC signal function was assisted vaginal delivery (6%). Removal of retained products of conception, manual removal of placenta, and parenteral anticonvulsants were performed in 51 – 64% of the total facilities in the country.

Figure 4.1.1: Percent of facilities that performed each EmONC signal function in the last 3 months, Rwanda EmONC 2021



Since health centers and clinics were not expected to perform caesarean delivery and blood transfusion, the performance in health centers/clinics was only 2% each. All hospitals performed cesarean delivery while 96 of them had administered blood transfusion in the 3 months prior to the assessment. Reporting of neonatal resuscitation is under the next section of EmNeC signal functions (Figure 4.1.2)

Figure 4.1.2: Percent of facilities that performed each EmONC signal function in the last 3 months by facility type, Rwanda EmONC 2021



Parenteral antibiotics: As indicated in Table 4.1.1A in the appendix, parenteral antibiotics was performed in almost all facilities in each district. Twenty-four of the 30 districts had all their facilities performed parenteral antibiotics; while the remaining 6 had 94% of their facilities that provided parenteral antibiotics.

Parenteral uterotonics: Parenteral uterotonics was also performed in 99% of the total facilities in the country. Rutsiro was the least (only 77% of its facilities) performing district.

Parenteral anticonvulsants: Nationa-lly, only 64% of the facilities performed parenteral anticonvulsants with all facilities in Muhanga and Musanze and the lowest proportion of facilities in Burera (19%) performed the signal function in the 3 months period prior to the assessment. As expected, all the higher-level hospitals performed the signal function but only some of the whealth posts and health centers. Private-for-profit facilities were more likely to provide parenteral anticonvulsants than the rest of the group.

Manual removal of placenta: A little over half of the facilities in the country had provided this signal function with the highest performing districts – Gakenke and Nyamagabe (100% each) and the lowest in Burera (6%). Only 50% of the health centers had provided this signal function in the 3 months period prior to the assessment.

Removal of retained products of conception: Removal of retained products of conception was performed in 51% of the facilities in the country. All facilities in Nyamagabe performed the signal function; while only 15% in Nyanza provided it in the 3 months prior to the assessment.

Assisted vaginal delivery: This signal function was the least performed one in Rwanda. Eleven of the 30 districts had none of their facilities that had provided the signal function. The highest performing district was Gakenke (22%).

Performance of the EmONC signal functions were more common in private-for-profit health facilities than the rest of the groups. Urban-based facilities were also most likely to perform each of the EmONC signal functions than rural health facilities (Table 4.1.1A in the appendix).

Table 4.1.2 below shows reasons for the non-performance of the signal functions. Of the 160 health facilities that did not perform parenteral anticonvulsants, almost all of them cited "no-indication" as the reason for the non-performance.

Similarly, of the 201 of the facilities that did not perform manual removal of placenta, a large majority of them (85%) had no case; while 13% of them said that there was no supportive policy to provide this signal function. A similar percentage distribution was observed for the non-performance of removal of retained products of conception.

Table 4.1.2: Percentage of facilities that provided the signal functions in the last 3 months and reasons for not providing, by signal function, Rwanda EmONC, 2021

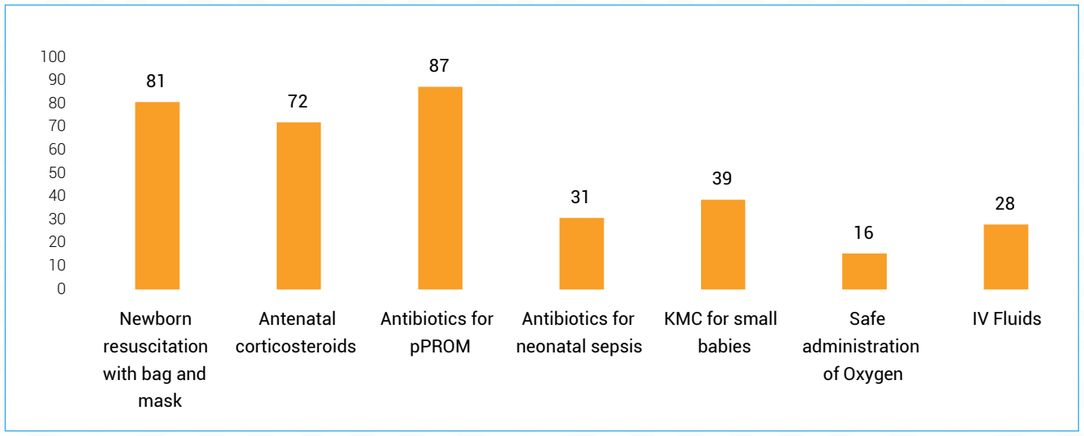
Signal Function	Percentage of facilities (n=444) that provided the procedure in the last 3 months	Number of facilities that did not perform the procedure in the last 3 months	Percentage of facilities that responded that the procedure was not provided in the last 3 months due to lack of (multiple responses allowed):					
			lack of human resources	training needed	lack of supplies/ equipment/ drugs	weak management	unsupportive or no policy	no indication
	%	n	%	%	%	%	%	%
EmONC Signal Functions								
Parenteral antibiotics	99	6	0%	0%	0%	0%	17%	83%
Parenteral uterotonics	99	5	0%	20%	0%	0%	40%	40%
Parenteral anticonvulsants	64	160	0%	1%	0%	0%	2%	97%
Manual removal of placenta	54	201	0%	1%	2%	0%	13%	85%
Removal of retained products	51	214	0%	1%	6%	0%	17%	75%
Assisted vaginal delivery	6	416	0%	1%	6%	1%	66%	26%
Cesarean section*	100	0	0%	0%	0%	0%	0%	0%
Blood transfusion*	96	2	0%	0%	0%	0%	0%	100%
EmNeC Signal Functions								
Resuscitation of newborn with bag and mask	81	85	0%	0%	0%	0%	5%	95%
Corticosteriods	72	124	0%	2%	10%	0%	9%	80%
Antibiotics for PPROM	87	56	0%	0%	0%	0%	16%	84%
Injectable antibiotics for neonatal sepsis	31	307	0%	1%	2%	0%	44%	53%
Kangaroo mother care (KMC)	39	272	0%	3%	3%	0%	58%	36%
Safe administration of Oxygen*	100	0	0%	0%	0%	0%	0%	0%
IV fluids*	100	0	0%	0%	0%	0%	0%	0%

* Only hospitals are included (n = 48)

Performance of EmNeC signal functions and reasons for non-performance

Figure 4.1.3 and Table 4.1.3A in the Appendix presented provision of EmNeC signal functions and Table 4.1.2 above present the reasons for the non-performance of EmNeC signal functions. Nationally, antibiotics for pPROM and newborn resuscitation with bag and mask were performed in 87% and 81% of the total facilities, respectively. All seven EmNeC signal functions were performed in all hospitals. On the other hand, 86% of the health centers had performed antibiotics for pPROM; followed by newborn resuscitation (81%), and antenatal corticosteroids (69%). Safe administration of oxygen and IV-fluids were provided in all hospitals and in only 4% and 19% of health centers. At least 51% of poly-clinics reported the performance of each EmNeC signal function. Performance was much lower at health centers/clinics.

Figure 4.1.3: Percent of facilities that performed each EmNeC signal function in the last 3 months, Rwanda EmONC 2021



Newborn resuscitation: Nationally, 81% of the facilities provided newborn resuscitation. All facilities in Musanze and Nyamagabe performed new born resuscitation. Huye and Rwamagana were the regions with the lowest performance (58% and 59%, respectively) (Table 4.1.3A in the appendix).

Antenatal corticosteroids: Seventy-two percent of the total facilities had performed this signal function at national level with the highest performing district – Kamonyi and Musanze (100% each) and the lowest in Nyamasheke (39%) and Nyagatare (40%).

Antibiotics for preterm premature rupture of membranes (pPROM).

This was the highest performed signal function across all facilities. The highest performing districts were Muhanga, Musanze, Ngoma, Nyaruguru, Rubavu, and Ruhango (100% each) and the lowest was Nyamasheke (56%) and Bugesera (59%).

Antibiotics for neonatal sepsis.

31% of the facilities provided antibiotics for neonatal sepsis. All hospitals did provide this signal function; while only a fifth of the health centers did so. One-third of the health posts had also provided antibiotics for neonatal sepsis. These health posts were at second generation capacity to provide Basic EmONC services.

KMC for small babies: Nationally, 39% of the facilities provided KMC for babies. There was district-level variation in the provision of KMC, with the highest in Nyanza (85%) and the lowest in Nyagatare (only 5%).

Safe administration of oxygen: Only 16% of facilities administered safe oxygen. The highest users were facilities in Nyarugenge (45%) and the lowest in Nyagatare (5%). All hospitals and poly-clinics administered safe oxygen; while only 4% of the health centers did so, that were medicalized health cneters.

IV fluids.

Nationally, 28% of facilities provided IV fluids to newborns. All hospitals and 50% of poly-clinics had administered IV-fluids to newborns while only 19% of health centres did so.

Table 4.1.4A in the Appendix indicates the percentage of facilities that did not perform EmNeC signal functions by type of reasons. Accordingly, the most common reason for non-performance for every EmNeC signal function was no indication or no-case followed by unsupportive policy to perform the specified signal function.

However, of the 272 facilities that did not perform KMC in the 3 months period prior to the assessment, over half of them explained that there was unsupportive policy to perform this signal function. It is believed that KMC is one of the basic newborn signal functions that every facility that do provide delivery services was expected to perform it. Similarly, over two-fifth of the 307 facilities that did not provide injectable antibiotics for neonatal sepsis reasoned out "no-policy/unsupportive environment" for the non-performance.

4.2 Readiness to provide EmONC and EmNeC Signal Functions

Readiness to EmONC

Health facilities that have the capacity (both in terms of human resources and availability of drugs, equipment and supplies) are challenged by non-performance of few signal functions like assisted vaginal delivery due to no-indication or no case.

To fill this gap, many countries are interested to know and plan based on facility's readiness to provide EmONC signal functions. Facility readiness is defined as the availability of at least one health worker cadre on staff who can provide the signal function and the availability of a minimum package of drugs, supplies and equipment. The minimum package of drugs, equipment and supplies are determined based on a country's national standards or basic packages. The minimum package of drugs, equipment and supplies (attached in Appendix B) was also adapted and calculated with this understanding.

Figure 4.2.1 below and Table 4.2.1A in the appendix show percent of facilities that were ready to provide and currently providing each signal function by facility type. First the description was made in all facilities and then by hospitals and health centers/clinics.

Parenteral antibiotics: Readiness was much lower than actual performance. In all facilities, readiness to provide parenteral antibiotics was 79% while actual performance of the signal function in the last 3 months prior to the assessment was 99%. The low proportion of readiness was due to lack of the required drugs. The low readiness and the high performance of parenteral antibiotics implies that either an inappropriate cadre had been providing parenteral antibiotics or staff used antibiotics that were not recommended in the national standards.

Parenteral uterotonics: Both Readiness and actual performance were similarly high. Facility readiness (99%) and actual performance (100%) of this signal function was higher across all facilities with little variations among hospitals and health centers/clinics.

Parenteral anticonvulsants: Facility readiness (89%) to provide this signal function was much higher than actual performance (64%). This variation appears in health centers/clinics, with the actual performance was higher among hospitals than the rest of the facilities.

Manual removal of placenta: Facility readiness (81%) to provide this signal function was much higher than actual performance (54%). The variation was similarly wider in health centers/clinics than hospitals, with the actual performance much higher among hospitals (92%) than health centers/clinics (49%).

Removal of retained products of conception: Both readiness (36%) and performance of the signal function in the last 3 months (51%) were very low. Nationally, only a little over a third (36%) of the facilities were ready to provide this signal function; with actual performance stood at 51%. The low readiness of facilities was due to lack of equipment as only 48% of health centers/clinics were equipped with vacuum aspiration sets.

Assisted vaginal delivery (AVD): Both readiness and performance were extremely low with readiness a bit lower than performance. Nationally, only 8% of the facilities were ready to provide AVD, while only 6% of the facilities were actually providing it. Hospitals were better in both readiness (63%) and actual performance (50%) than health centers/clinics.

Neonatal resuscitation with bag and mask: Readiness was much lower than performance. Nationally, only a little lower than half of the facilities were ready to provide neonatal resuscitation, while 81% of the facilities were actually providing it. Readiness and performance of newborn resuscitation was better across all hospitals than health centers/clinics.

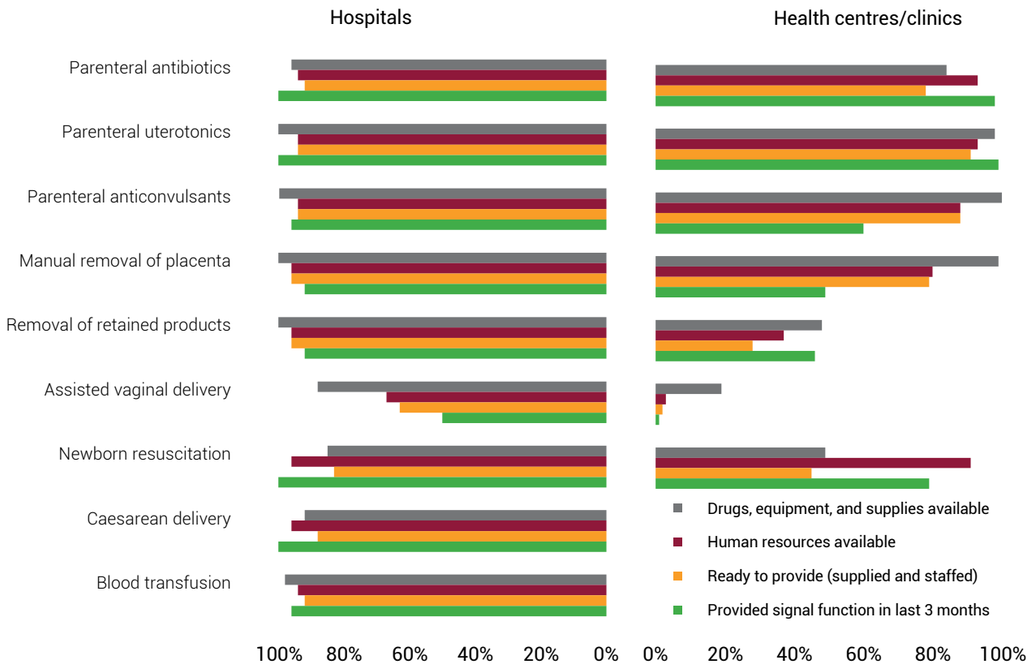
Caesarean delivery: Readiness was lower than performance. Nationally, 88% of the hospitals were ready to provide caesarean delivery, while 100% performed it. Ninety-six percent of hospitals had at least one health worker cadre to provide CS; and 92% of them had the required drugs, equipment and supplies for surgery. This indicates that about 8% of hospitals might be providing the service with sub-optimal conditions.

Blood transfusion: Readiness was a little lower than performance. Ninety-two percent of the hospitals were ready to provide blood transfusion, while 96% performed it. The contrast of low readiness was in terms of unavailability of staff in some hospitals to provide blood transfusion is an issue.

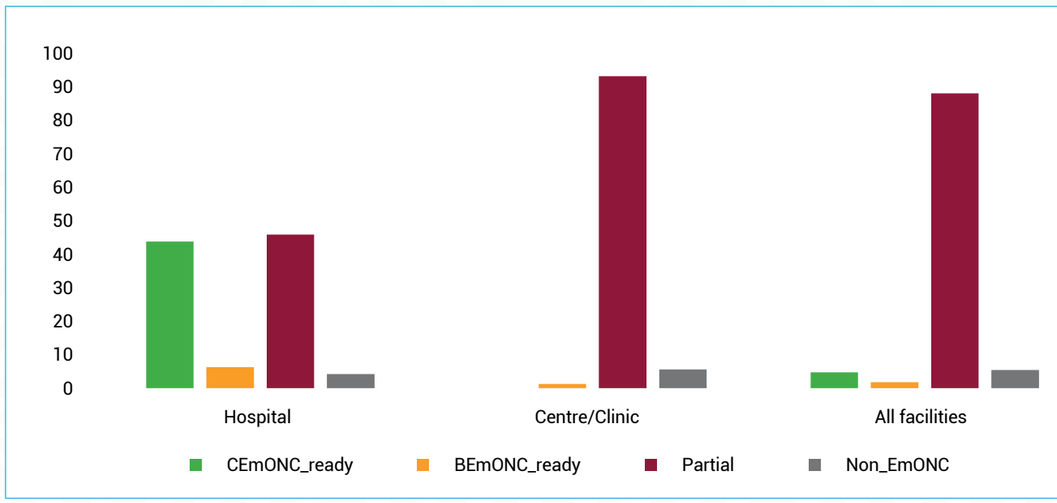
In general, facilities were better staffed than being equipped and supplied to provide all of the signal functions. This implies that shortage of drugs, supplies and equipment was, generally, a pertinent problem in both higher, mid and lower-level facilities.

Nationally, of the seven basic signal functions, facilities were the least ready to provide AVD and removal of retained products of conception; (8%) and (36%), respectively.

Figure 4.2.1: Percent of facilities that are ready to provide and currently providing each EmONC signal function, by facility type, Rwanda EmONC, 2021



Overall, only 7% of all facilities were EmONC ready. Hospitals were more likely to be EmONC ready than health centers/clinics as 50% of hospitals compared to only 1% of health centers/clinics. Obviously, EmONC readiness figures (7% from total facilities) were much lower than EmONC availability (19% from recommended) (Figure 4.2.2).

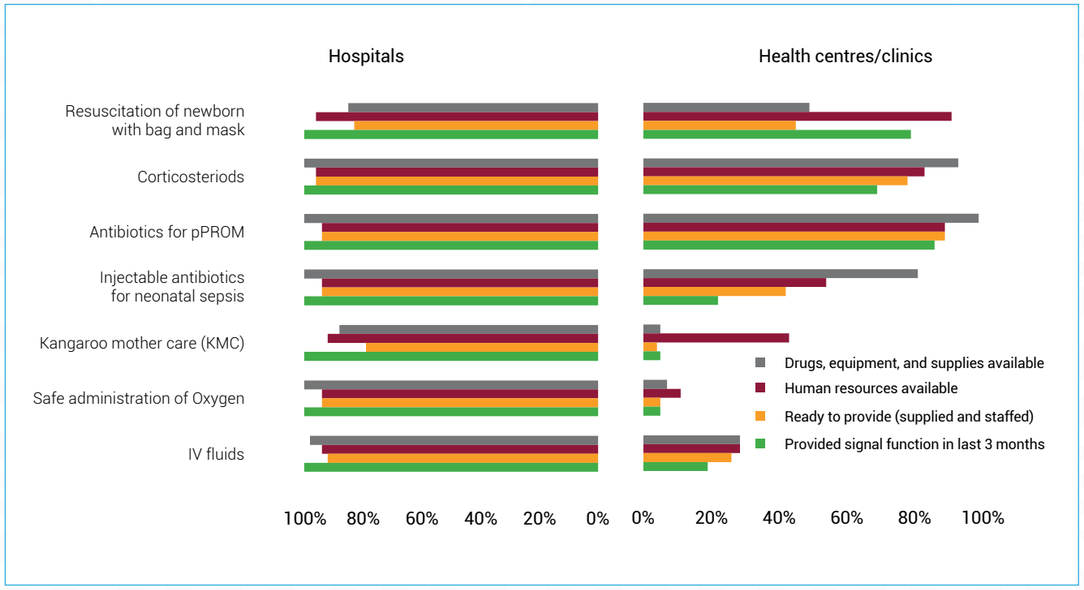


Readiness to EmNeC

Like we did above, readiness to EmNeC signal functions was also computed for all facilities. The criteria were also the same as EmONC readiness; except performance of each EmNeC signal function. Availability of at least one cadre that can provide each EmNeC signal function and availability of a minimum package of drugs/equipment/supplies required for each EmNeC signal function (see Appendix B) were the key elements in the criteria. Figure 4.2.2 below and Table 4.2.2A in the appendix, show the percentage of facilities that were ready to provide EmNeC signal functions and that were performing the signal functions in the last three months prior to the assessment. Resuscitation of the newborn with a bag and mask appears in both EmONC and EmNeC readiness calculations.

In hospitals, all of the newborn signal functions were highly performed and readiness to provide each of the EmNeC signal functions was also high. However, performance was higher than readiness, indicating that provision of EmNeC signal functions was undertaken with sub-optimal conditions. Unlike hospitals, readiness was much higher than performance in providing antibiotics for newborn sepsis and a little higher readiness than performance for provision of antenatal corticosteroids and provision of antibiotics for pPROM in health centers/clinics. Kangaroo mother care (KMC) and safe administration of oxygen were the least performed as well as least ready in health centers/clinics. Readiness to provide KMC was also lowest, compared to other EmNeC signal functions among hospitals. The low readiness of KMC in both health centers/clinics and hospitals was largely attributable to either lack of KMC guidelines or lack of beds for KMC.

Figure 4.2.2: Percent of facilities that are ready to provide and currently provide each EmNeC signal function, by facility type, Rwanda EmONC, 2021



4.3 Choices regarding drugs and equipment for performing the signal functions

Countries develop a recommended list of drugs based on their national or international standards. So, there are choices whereby providers make decisions to administer each drug based on such standards or influenced by their preferences. Below, we presented such choices of drugs and procedures in some of the EmONC signal functions.

Provision of uterotonic drugs

Table 4.3.1 presents choice of uterotonic drugs in augmenting labour. Oxytocin is the drug of choice for augmentation of labour. All facilities assessed administered oxytocin. A similar pattern was observed among facilities in all districts

Table 4.3.1: Percentage of facilities that administered parenteral uterotonics in the last 3 months and type of oxytocic used, by district, type of facility, managing authority, and location, Rwanda EmONC, 2021

	Total number of facilities that performed deliveries	Total number of facilities that administered uterotonics in last 3 months	Among facilities that administered parenteral uterotonics in the last 3 months, percent that used:		
			Oxytocin only	Ergometrine only	Misoprostol
National	444	439	100.0	0	0.0
Region					
Bugesera	17	17	100	0	0
Burera	16	16	100	0	0
Gakenke	9	9	100	0	0
Gasabo	15	15	100	0	0
Gatsibo	20	20	100	0	0
Gicumbi	16	16	100	0	0
Gisagara	16	16	100	6	0
Huye	12	12	100	0	0
Kamonyi	10	10	100	0	0
Karongi	14	13	100	0	0
Kayonza	14	14	100	0	0
Kicukiro	12	12	100	0	0
Kirehe	17	17	100	6	0
Muhanga	13	13	100	0	0
Musanze	14	14	100	0	0
Ngoma	13	13	100	0	0
Ngororero	15	15	100	0	0
Nyabihu	15	15	100	0	0
Nyagatare	20	19	100	0	0
Nyamagabe	16	16	100	0	0
Nyamasheke	18	18	100	0	0
Nyanza	13	13	100	0	0
Nyarugenge	11	11	100	9	0
Nyaruguru	15	15	100	0	0
Rubavu	15	15	100	0	0
Ruhango	13	13	100	0	0
Rulindo	16	16	100	0	6
Rusizi	19	19	100	5	0
Rutsiro	13	10	100	0	0
Rwamagana	17	17	100	0	0
Type of facility					
Teaching hospital	4	4	100	0	0
Referral hospital	3	3	100	0	0
Provincial hospital	4	4	100	0	0
District Hospital	37	37	100	5	3
Health Centre	381	376	100	0	0
Poly clinic/Clinic	6	6	100	17	0
Health posts	9	9	100	0	0
Managing Authority					
Public/Government	366	363	100	1	0.3
Private, for-profit	10	10	100	10	0
Private not-for-profit*	68	66	100	2	0
Location					
Urban	99	99	100	2	0
Rural	345	340	100	1	0.3

* Includes NGO, faith-based or mission health facilities

Provision of parenteral anticonvulsants

Table 4.3.2 presents a choice of parenteral anticonvulsants that are used to treat women with severe pre-eclampsia/eclampsia. Magnesium sulphate injection is a first line drug recommended by WHO. Accordingly, nearly four-fifth of the total facilities at national level used magnesium sulphate only in the three months preceding the assessment. Less than a fifth of them administered both magnesium sulphate and diazepam and only 4% used diazepam only that is no longer be a recommended first line drug for the treatment of pre-eclampsia/eclampsia. All facilities in Gicumbi, Gisagara, Muhanga, Musanze, Nyagatare, Nyamagabe, Nyanza, and Muhango administered magnesium sulphate only. A similar pattern was observed among teaching, referral, and provincial hospitals; while over 75% of district hospitals, health centers/clinics, and Poly clinic clinics used magnesium sulphate only; compared to diazepam. Private not-for-profit were more likely to administer magnesium sulphate than public and private-for-profit facilities.

Table 4.3.2: Percentage of facilities that administered parenteral anticonvulsants in the last 3 months, and type of medication, by district, type of facility, managing authority, and location, Rwanda EmONC, 2021

	Total number of facilities that performed deliveries	Total number of facilities that administered Anticonvulsants in last 3 months	Among facilities that administered parenteral Anticonvulsants in the last 3 months, percent that used:		
			Magnesium Sulphate only	Diazepam only	Both
National	444	284	79	4	17
Region					
Bugesera	17	15	33	13	53
Burera	16	3	33	0	33
Gakenke	9	5	40	60	0
Gasabo	15	13	62	0	38
Gatsibo	20	11	82	0	18
Gicumbi	16	11	100	0	0
Gisagara	16	11	100	0	0
Huye	12	9	78	0	22
Kamonyi	10	8	75	0	25
Karongi	14	5	80	0	20
Kayonza	14	9	78	0	22
Kicukiro	12	9	89	0	11
Kirehe	17	5	60	0	40
Muhanga	13	13	100	0	0
Musanze	14	14	100	0	0
Ngoma	13	9	89	0	11
Ngororero	15	8	50	25	25
Nyabihu	15	8	63	25	13
Nyagatare	20	6	100	0	0
Nyamagabe	16	14	100	0	0
Nyamasheke	18	6	33	0	67
Nyanza	13	11	100	0	0
Nyarugenge	11	8	63	0	38
Nyaruguru	15	12	92	0	8
Rubavu	15	7	71	14	14
Ruhango	13	12	100	0	0
Rulindo	16	13	77	0	23
Rusizi	19	15	93	7	0
Rutsiro	13	4	50	0	50
Rwamagana	17	10	60	0	40
Type of facility					
Teaching hospital	4	4	100	0	0
Referral hospital	3	3	100	0	0
Provincial hospital	4	4	100	0	0
District Hospital	37	35	77	3	20
Health Centre	381	230	79	3	17
Poly clinic/Clinic	6	4	75	0	25
Health posts	9	4	25	75	0
Managing Authority					
Public/Government	366	237	78	4	18
Private, for-profit	10	7	71	0	29
Private not-for-profit*	68	40	88	3	10
Location					
Urban	99	77	75	0	25
Rural	345	207	80	5	14

* Includes NGO, faith-based or mission health facilities

Removal of retained products of conception

Table 4.3.3 shows choice of procedures that are used to remove retained products of conception (multiple responses were expected). Nationally, over a quarter of the facilities used vacuum aspiration, followed by misoprostol (23%). Use of medical abortion, D&C (22 facilities) or D&E were performed in about 5 - 6% of the facilities only. Hospitals seem to be using more of those procedures than health centers/clinics and specialty maternity clinics. There was also district level variation in using any of the procedures in removing retained products of conception.

Table 4.3.3: Percentage of facilities that removed retained products in the last 3 months, and method used, by district, type of facility, managing authority, and location, Rwanda EmONC, 2021

	Total number of facilities that performed deliveries	Total number of facilities that removed retained products in last 3 months	Among those that removed retained products in last 3 months, percent that used (multiple responses allowed):				
			Vacuum aspiration	D&C	D&E	Misoprostol	Medical abortion (Mifepristone + Miso/ combipack)
National	444	226	27	5	5	23	6
Region							
Bugesera	17	6	33	0	0	50	17
Burera	16	9	11	0	0	11	0
Gakenke	9	6	33	0	0	33	0
Gasabo	15	11	27	9	9	36	9
Gatsibo	20	13	23	8	0	15	8
Gicumbi	16	6	83	0	0	33	17
Gisagara	16	6	67	0	0	33	0
Huye	12	9	11	11	0	22	11
Kamonyi	10	1	100	0	100	100	0
Karongi	14	10	20	10	10	30	0
Kayonza	14	5	60	0	0	20	0
Kicukiro	12	6	17	17	17	17	17
Kirehe	17	13	23	0	8	8	8
Muhanga	13	3	33	0	0	0	0
Musanze	14	8	38	13	0	13	13
Ngoma	13	5	20	0	0	20	0
Ngororero	15	6	17	0	17	33	17
Nyabihu	15	7	9	9	9	18	0
Nyagatare	20	17	24	0	0	0	6
Nyamagabe	16	16	13	13	0	38	0
Nyamasheke	18	10	20	0	0	20	0
Nyanza	13	2	100	0	0	50	50
Nyarugenge	11	7	71	0	29	43	0
Nyaruguru	15	5	20	0	0	20	0
Rubavu	15	6	17	17	17	33	0
Ruhango	13	6	17	17	17	17	17
Rulindo	16	4	100	0	0	50	25
Rusizi	19	9	33	11	0	11	0
Rutsiro	13	9	0	0	0	22	0
Rwamagana	17	5	0	0	0	0	0

Type of facility							
Teaching hospital	4	3	67	33	33	100	33
Referral hospital	3	3	100	33	0	67	33
Provincial hospital	4	3	100	33	33	100	33
District Hospital	37	35	80	11	14	86	26
Health Centre	381	176	13	2	1	6	1
Poly clinic/Clinic	6	6	83	33	50	50	0
Health posts	9	0	0	0	0	0	0
Managing Authority							
Public/Government	366	175	26	4	4	22	7
Private, for-profit	10	8	63	25	38	50	0
Private not-for-profit*	68	43	26	7	2	19	0
Location							
Urban	99	67	36	9	7	34	13
Rural	345	159	24	4	4	18	2

* Includes NGO, faith-based or mission health facilities

Assisted vaginal delivery

In Rwanda, only vacuum extraction was used for assisted vaginal delivery. There was no use of forceps at all in assisted deivery in line with the national policy (Table 4.3.4). However, assisted delivery was not performed in the last three months prior to the assessment in Burera, Gicumbi, Kamonyi, Karongi, Kicukiro, Ngoma, Nyaruguru, Rulindo, Rusizi, Rutsiro, and Rwamagana districts (Table 4.3.4).

Table 4.3.4: Percentage of facilities that performed assisted vaginal delivery in the last 3 months, and instrument used, by district, type of facility, managing authority, and location, Rwanda EmONC, 2021

	Total number of facilities that performed deliveries	Total number of facilities that performed assisted vaginal delivery in last 3 months	Among facilities that performed assisted vaginal delivery in last 3 months, percent that used:
			Vacuum extractor only
National	444	28	100
Region			
Bugesera	17	2	100
Burera	16	0	0
Gakenke	9	2	100
Gasabo	15	2	100
Gatsibo	20	1	100
Gicumbi	16	0	0
Gisagara	16	2	100
Huye	12	1	100
Kamonyi	10	0	0
Karongi	14	0	0
Kayonza	14	2	100
Kicukiro	12	0	0
Kirehe	17	1	100
Muhanga	13	1	100
Musanze	14	1	100
Ngoma	13	0	0
Ngororero	15	2	100
Nyabihu	15	1	100
Nyagatare	20	1	100
Nyamagabe	16	1	100
Nyamasheke	18	1	100
Nyanza	13	1	100
Nyarugenge	11	2	100
Nyaruguru	15	0	0
Rubavu	15	2	100
Ruhango	13	2	100
Rulindo	16	0	0
Rusizi	19	0	0
Rutsiro	13	0	0
Rwamagana	17	0	0
Type of facility			
Teaching hospital	4	2	100
Referral hospital	3	1	100
Provincial hospital	4	2	100
District Hospital	37	19	100
Health Centre	381	2	100
Poly clinic/Clinic	6	2	100
Health posts	9	0	0
Managing Authority			
Public/Government	366	22	100
Private, for-profit	10	3	100
Private not-for-profit*	68	3	100
Location			
Urban	99	12	100
Rural	345	16	100

* Includes NGO, faith-based or mission health facilities

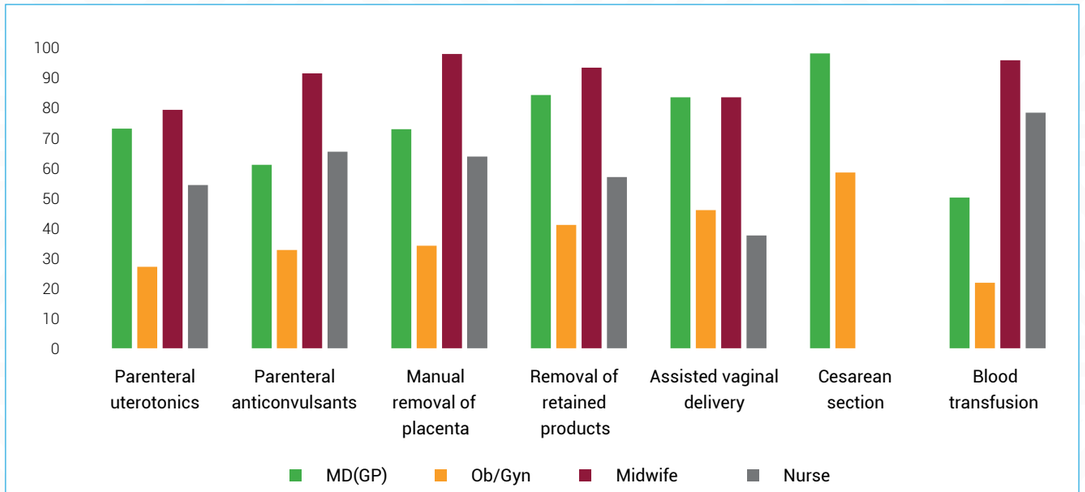
4.4 Human resources who reportedly performed the signal functions in the last three months

Data was collected on who had performed each of the EmONC signal functions following the question whether the facility provided the signal function in the three months prior to the assessment. Figure 4.4.1 below and Table 4.4.1A in the appendix present who had performed the signal functions in hospitals; while Table 4.4.2A in the appendix shows the same information for health centers/clinics. Of all the hospitals that provided parenteral uterotonics, close to three-fourth of them had administered uterotonics by midwives, followed by medical doctors.

Similarly, all of the EmONC signal functions were highly likely provided by midwives than the rest of the cadres, except cesarean delivery, in which medical doctors (General Practitioners) and Obs/Gyne were the ones that administered the procedure more than the rest of the cadres.

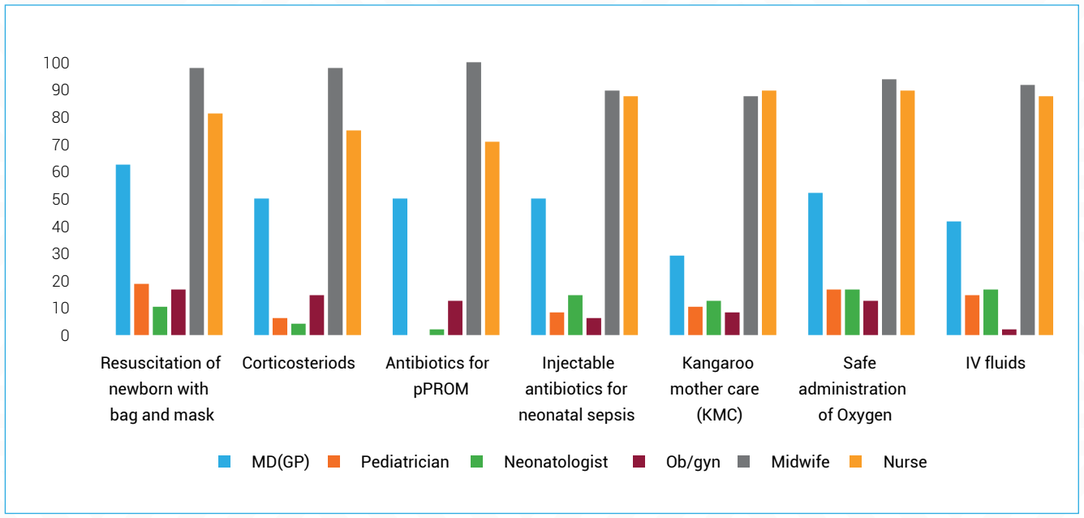
This implies that most hospitals heavily rely on midwives than the rest of the cadres for the performance of basic EmONC signal functions while CS delivery was more likely to happen by medical doctors than the rest of the cadres.

Figure 4.4.1: Percent of hospitals where different health worker cadres performed selected EmONC signal functions, in hospitals in the last 3 months, Rwanda EmONC, 2021



Similar to the EmONC signal functions, we asked the same set of questions as who had performed the EmNeC signal functions in the last three months. Figure 4.4.2 presents this information. Accordingly, midwives and nurses were the most common cadres that had performed EmNeC signal functions. Medical doctors (general practitioners) were also the third common health workers who had performed EmNeC signal functions in the three months period prior to the assessment.

Figure 4.4.2: Percent of hospitals where different health worker cadres performed EmNeC signal functions, in hospitals that performed the signal function in the last 3 months, Rwanda EmONC, 2021



4.5 Frequency of major obstetric complications and maternal deaths

Table 4.5.1 below shows number and percent distribution of direct and indirect obstetric complications and maternal deaths by cause. Of the total number of women with complications (70,123), 88% were direct complications and 12% were indirect complications. From the direct obstetric complications, prolonged/obstructed labour accounted for the highest (18%); followed by PPH/retained placenta (6%), severe pre-eclampsia/eclampsia (4%), and complications of abortion (4%). The most frequent category of complications was "other direct" attributing 49% to the direct obstetric complications. Other direct included pPROM, multiple gestation, post-term labour, cord prolapse, breech presentation, and other possible direct obstetric complications.

Generally, a little higher than one-tenth of the total complications were indirect obstetric causes. From these, HIV/AIDS contributed the highest (5%) in the group, followed by malaria (2%). Other indirect obstetric complications accounted for almost 4%.

Looking at the maternal deaths, three quarters of the total maternal deaths were due to direct obstetric causes; 20% due to indirect obstetric causes, and 5% due to unknown causes. From the direct obstetric causes, PPH/retained placenta was the most leading cause of death that accounted for 27%, followed by severe pre-eclampsia/eclampsia (9%), and ruptured uterus (8%). Despite the fact that prolonged/obstructed labour accounted 18% of the total DOC, its contribution to the total maternal deaths was only 1%.

Table 4.5.1: Number and percent distribution of direct and indirect complications and maternal deaths, Rwanda EmONC, 2021

	Women with complications		Maternal deaths	
	n	%	n	%
DIRECT complications/causes	61,389	88%	223	75%
APH	2,080	3.0%	4	1.3%
PPH/Retained placenta	3,959	5.6%	81	27.3%
Obstructed/ prolonged labor	12,737	18.2%	3	1.0%
Ruptured uterus	316	0.5%	23	7.7%
Postpartum sepsis	1210	1.7%	16	5.4%
Severe pre-eclampsia / eclampsia	2,922	4.2%	27	9.1%
Complications of abortion	2,880	4.1%	10	3.4%
Ectopic pregnancy	681	1.0%	1	0.3%
Other direct complications*	34604	49.3%	58	19.5%
INDIRECT complications/causes	8,734	12%	59	20%
Malaria	1,426	2.0%	5	1.7%
HIV/AIDS - related	3,742	5.3%	2	0.7%
Severe Anemia	842	1.2%	1	0.3%
Hepatitis	99	0.1%	4	1.3%
Other indirect causes	2,625	3.7%	47	15.8%
Unknown/unspecified causes			**15**	**5%**
TOTAL	70,123	100	297	100%

* Examples of other direct complications include: premature rupture of membranes, preterm labor, post-term labor, previous cesarean, cord prolapse, and multiple gestations.

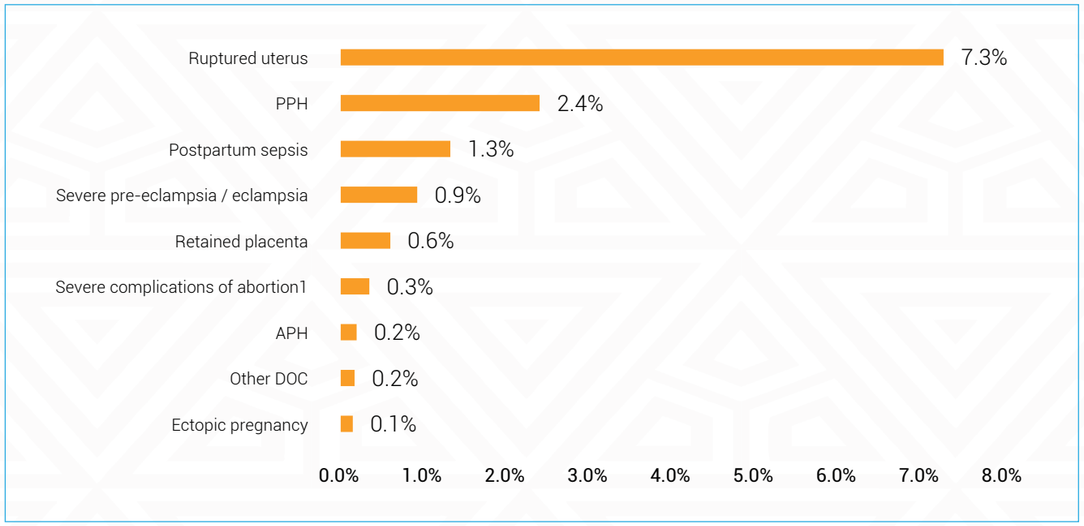
Causes of maternal death: Patterns by type of facility and managing authority

Table 4.5.2A in the Appendix presents distribution of maternal deaths by cause, facility type and managing authority. Accordingly, the majority of maternal deaths occurred in hospitals than health centers/clinics. All of the deaths in Poly clinic/clinics were due to direct obstetric causes. Health centers, district and referral hospitals had also recorded over 80% of maternal deaths due to direct obstetric causes. Provincial hospitals, however, had 29% of the maternal deaths due to unknown causes, which was the highest, compared to other facilities. Similarly, private-for-profit facilities had a third of the total maternal deaths occurred in this group with causes unknown.

4.6 Cause-specific case fatality rates

Table 4.5.1 in the Appendix and Figure 4.6.1 below show cause specific case fatality rates; with the highest due to ruptured uterus (7.3%), followed by PPH (2.4%), postpartum sepsis (1.3%), and severe pre-eclampsia/eclampsia (0.9%).

Figure 4.6.1: Cause-specific direct obstetric case fatality rates, Rwanda EmONC, 2021



4.7 Abortion related indicators

Of the total 20,704 abortions recorded in the facilities, only 9% were safe abortions or voluntary terminated pregnancies. Marked variations were observed across districts in the safe abortions; with the highest in Nyanza (84%) and zero in 10 of the 30 districts. District, provincial and referral hospitals recorded between 10 – 15% safe abortions while the majority were post-abortion care (PAC) cases. Public/ government facilities had only 10% safe abortions; while private facilities had all PAC cases (Table 4.7.1).

Of the total PAC cases (18,873), 14% were severe complications of abortions. Variations observed across districts with the highest severe cases in Rwamagana (45%) and lowest (zero) in Burera, Kamonyi, Ngorero, Nyabihu, Nyanza, and Rubavu (Table 4.7.1).

Table 4.7.1: Distribution of abortions and percent classified as safe and PAC cases, by district, facility type, managing authority, and location, Rwanda EmONC, 2021

	Total number of abortions	Safe abortions		All PAC cases		PAC cases with severe complications	
	n	n	%	n	%	n	%
National	20,801	1,832	9	18,969	91	2,880	14
Region							
Bugesera	1,319	30	2	1,289	98	141	11
Burera	391	0	0	391	100	0	0
Gakenke	302	0	0	302	100	21	7
Gasabo	2,392	290	12	2,102	88	388	16
Gatsibo	469	12	3	457	97	88	19
Gicumbi	390	29	7	361	93	47	12
Gisagara	542	75	14	467	86	102	19
Huye	924	1	0	923	100	58	6
Kamonyi	645	12	2	633	98	0	0
Karongi	657	73	11	584	89	11	2
Kayonza	979	14	1	965	99	174	18
Kicukiro	798	116	15	682	85	118	15
Kirehe	697	0	0	697	100	47	7
Muhanga	180	0	0	180	100	45	25
Musanze	1,175	58	5	1,117	95	316	27
Ngoma	320	84	26	236	74	44	14
Ngororero	427	18	4	409	96	0	0
Nyabihu	202	12	6	190	94	0	0
Nyagatare	856	32	4	824	96	50	6
Nyamagabe	160	30	19	130	81	17	11
Nyamasheke	420	0	0	420	100	3	1
Nyanza	729	611	84	118	16	0	0
Nyarugenge	1,264	6	0	1,258	100	18	1
Nyaruguru	263	0	0	263	100	89	34
Rubavu	675	15	2	660	98	0	0
Ruhango	685	80	12	605	88	108	16
Rulindo	583	37	6	546	94	10	2
Rusizi	378	0	0	378	100	140	37
Rutsiro	102	0	0	102	100	2	2
Rwamagana	1,877	197	10	1,680	90	843	45
Facility type							
Teaching hospital	289	3	1	286	99	16	6
Referral Hospital	1,410	210	15	1,200	85	15	1
Provincial hospital	2,525	276	11	2,249	89	862	34
District Hospital	12,079	1,234	10	10,845	90	753	6
Health Centre	3,974	108	3	3,866	97	1,234	31
Poly clinic/Clinic	513	-	0	513	100	-	0
Health posts	10	-	0	10	100	-	0
Managing Authority							
Public/government	17,406	1,796	10	15,610	90	2,545	15
Private-for-profit	535	-	0	535	100	4	1
Private-not-for-profit*	2,859	35	1	2,824	99	331	12
Location							
Urban	13,126	1,521	12	11,605	88	1,758	13
Rural	7,674	310	4	7,364	96	1,122	15

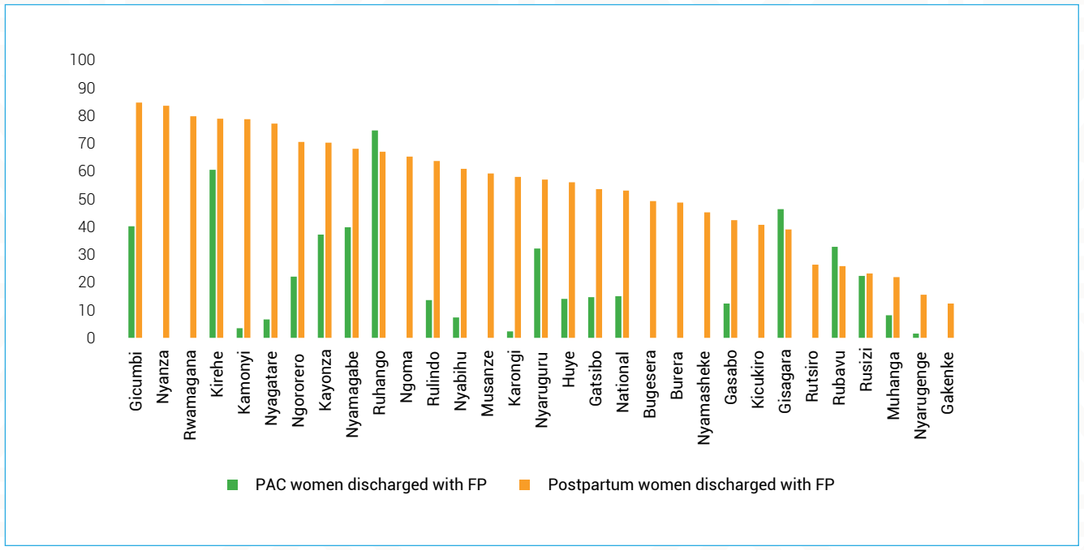
* Inlcudes NGO and faith-based or mission health facilities

Women in PAC or postpartum, discharged with family planning methods

Table 4.7.2A in the Appendix and Figure 4.7.1 below show that percentage of women in post-abortion and post-partum who were discharged with contraceptive methods. Nationally, of the total 18,873 PAC cases, only 13% received contraceptive methods. District variations were wide with the highest in Ruhango (61%), followed by Kirehe (56%) and the lowest (zero) in 10 of the 30 districts.

Postpartum women discharged with contraceptive methods was higher (53%) than that of women with PAC (13%). The distribution of postpartum women discharged with contraceptives ranges from lowest (12%) in Gakenke to the highest (80%) in Rwamagana.

Figure 4.7.1: Percent of postpartum and postabortion cases discharged with family planning method, by district, Rwanda EmONC, 2021



CHAPTER

05

PERFORMANCE OF OTHER MNH SERVICES, PROCEDURES, AND POLICY ENVIRONMENT

5.1 Availability of routine services and performance of other MNH services

This sub-chapter looks at availability of focused antenatal care, postnatal care, cervical screening, contraceptive counseling, diagnosis and treatment of sexually transmitted infections, adolescent/youth responsive services, rapid HIV testing, local anesthesia, blood typing services, post-abortion care (PAC), safe abortion care (SAC), 1st trimester (<12 weeks) services, 1st and 2nd trimester (>13 weeks) services, manual/electric vacuum aspiration, D&E, D&C, medical abortion, and misoprostol use (Table 5.1.1A in the Appendix). At national level, 99% had provided rapid HIV testing services; 97% had diagnosis and treatment of STI services; 96% had postnatal care services. Local anesthesia, adolescent/youth responsive services, focused antenatal care, and contraceptive counseling services were also available in more than 87% of the facilities. The least available service was safe abortion care (13%). Teaching, referrals, and provincial hospitals were highly likely to have some of the services listed above than the rest of the facility types.

Focused antenatal care[23]

At national level, 89% of the total facilities reported that they had this service available. Bugesera, Gatsibo, Kirehe, Nyabihu, Nyaruguru, Rubavu, and Ruhango had all their facilities providing focused antenatal care services. On the other hand, Karongi had the least (43%) number of facilities with focused antenatal care services.

Cervical screening

Nationally, only 64% of the facilities cited that this service is available. All facilities in Gasabo, Gicumbi, Kamonyi, Kayonza, Muhanga, Musanze, Nyagatare, and Muhango districts mentioned that cervical screening services were available. Hospitals were more likely to provide cervical screening than other categories of facilities. Private-for-profit facilities were highly likely to provide cervical screening than the rest of the facilities.

Safe abortion care

More than 85% of hospitals and 10% of health centers/poly-clinics had safe abortion care services, which was least performed. However, Nyarugenge had the highest proportion of facilities that had safe abortion care than the rest of the districts; with the lowest availability reported in Kamonyi, Kirehe, Muhanga, and Rutsiro.

Adolescent and youth responsive services

This service was available in 92% of the facilities at national level. Gicumbi, Kamonyi, Muhanga, Musanze, Ngoma, Nyagatare, Nyaruguru, Ruhango, and Rutsiro districts had all their facilities provided the service.

5.2 Length of stay for women after normal deliveries

Table 5.2.1 shows the median length of stay in hours after normal delivery. At national level the median length of stay was 24 hours. All facilities in all districts had 24 hours as a median length of stay for women after normal deliveries; except those facilities in Gicumbi and Musanze, in which women stayed 48 hours after normal deliveries. Teaching hospitals recorded 36 hours than other types of facilities with 24 hours as a median length of stay.

23 Focused ANC is a recommendation of at least 4 ANC visits in the resource-constrained setting. FANC interventions include: identification and management of obstetric complications such as preeclampsia, tetanus toxoid immunisation, intermittent preventive treatment for malaria during pregnancy (IPTp), and identification and management of infections including HIV, syphilis and other sexually transmitted infections (STIs);
World Health Organization. WHO antenatal care randomized trial: manual for the implementation of the new model, WHO document WHO/RHR/01.30. Geneva: WHO; 2002.

Table 5.2.1: Percent distribution of length of stay after normal delivery by district, facility type, managing authority, and location, Rwanda EmONC, 2021

	Total number of facilities	Normal Delivery		
		Within 24 hours	24-72 hours	Median length of stay (hrs)
National	444	79	21	24
Region				
Bugesera	17	88	12	24
Burera	16	94	6	24
Gakenke	9	78	22	24
Gasabo	15	80	20	24
Gatsibo	20	90	10	24
Gicumbi	16	38	63	48
Gisagara	16	75	25	24
Huye	12	58	42	24
Kamonyi	10	80	20	24
Karongi	14	50	50	36
Kayonza	14	79	21	24
Kicukiro	12	83	17	24
Kirehe	17	88	12	24
Muhanga	13	77	23	24
Musanze	14	29	71	48
Ngoma	13	85	15	24
Ngororero	15	87	13	24
Nyabihu	15	100	0	24
Nyagatare	20	75	25	24
Nyamagabe	16	88	13	24
Nyamasheke	18	78	22	24
Nyanza	13	62	38	24
Nyarugenge	11	100	0	24
Nyaruguru	15	93	7	24
Rubavu	15	100	0	24
Ruhango	13	77	23	24
Rulindo	16	100	0	24
Rusizi	19	95	5	24
Rutsiro	13	54	46	24
Rwamagana	17	82	18	24
Facility Type				
Teaching hospital	4	50	50	36
Referral hospital	3	67	33	24
Provincial hospital	4	75	25	24
District Hospital	37	89	11	24
Health Centre	381	78	22	24
Poly clinic/Clinic	6	100	0	24
Health posts	9	100	0	24
Managing Authority				
Government/Public	366	80	20	24
Private, For Profit	10	80	20	24
Private-For -Not-Profit*	68	75	25	24
Location				
Urban	99	82	18	24
Rural	345	79	21	24

* Includes NGO and faith-based or mission health facilities

5.3 Policy environment and user fees

User fees affect clients whether to access health facilities smoothly or discourage them to seek services in the health facilities. To solve such issues, countries use different methodologies like: waiving poor women to access health facilities.

Formal service fees

Table 5.3.1 describes information on payment system and requirements to payments for selected services. Unlike the general direction of free of maternal service charges, 63% of the facilities explained that payment was required before receiving services. Comparably, payments were required for purchase of supplies/medicines for delivery (49%), treatment of Ob/gyn emergency (12%), and medicines and supplies for Ob/Gyn emergency (10%).

Table 5.3.1: Percentage of facilities that charge formal fees and that expect women to pay for supplies, by district and facility type, managing authority, and location, Rwanda EmONC, 2021

	Number of facilities	% facilities that charged formal payment				
		Payment required before receiving service	Purchase supplies/ medicines for delivery	Payment required before treatment of Ob/Gyn emergency	Medicines or supplies for Ob/ Gyn emergency	Fee in a visible and public place
National	444	63	49	12	10	38
Region						
Bugesera	17	59	65	6	12	59
Burera	16	19	25	38	25	0
Gakenke	9	100	100	11	0	11
Gasabo	15	47	47	20	20	20
Gatsibo	20	30	15	5	5	60
Gicumbi	16	81	81	19	19	6
Gisagara	16	56	6	0	0	50
Huye	12	92	50	0	8	75
Kamonyi	10	70	10	10	10	40
Karongi	14	21	21	0	0	57
Kayonza	14	29	14	0	0	57
Kicukiro	12	92	75	33	25	58
Kirehe	17	71	29	12	0	59
Muhanga	13	38	15	0	0	15
Musanze	14	100	86	7	0	7
Ngoma	13	69	54	15	0	69
Ngororero	15	93	93	27	27	20
Nyabihu	15	100	100	53	47	20
Nyagatare	20	75	35	5	0	70
Nyamagabe	16	94	88	0	0	6
Nyamasheke	18	44	39	28	28	44
Nyanza	13	15	0	0	0	15
Nyarugenge	11	73	82	45	45	45
Nyaruguru	15	100	47	0	0	33
Rubavu	15	93	93	20	20	33
Ruhango	13	38	23	0	0	23
Rulindo	16	94	81	0	0	0
Rusizi	19	37	21	5	0	16
Rutsiro	13	8	8	0	0	85
Rwamagana	17	65	82	12	12	71
Facility Type						
Teaching hospital	4	100	25	25	50	0
Referral hospital	3	67	100	33	0	33
Provincial hospital	4	50	75	25	25	25
District Hospital	37	68	65	11	16	30
Health Centre	381	61	46	10	7	39
Poly clinic/Clinic	6	83	100	83	67	50
Health posts	9	67	67	33	33	22
Managing Authority						
Government/Public	366	66	52	12	10	38
Private, For Profit	10	70	70	50	50	30
Private-For -Not-Profit*	68	46	29	6	3	38
Location						
Urban	99	64	59	16	14	38
Rural	345	62	46	11	9	38

* Includes faith-based or mission health facilities

Fee waivers

At national level, 17% of the facilities charged women separately for bed; 14% for food for the mother; and 3% for blood transfusion. Overall, 29% of the facilities had a formal system waived for poor women and 16% had an informal system. Ngorero had 87% of facilities with formal system of waiving poor women; followed by Nyabihu (80%), and Rubavu (80%). Fifty-four percent of district hospitals and two of the 4 teaching hospitals had such formal system for waiving poor women (Table 5.3.2A in the Appendix).

Costs and payment policies

The EmONC assessment asked facilities the average cost of some basic health services like admission, normal delivery, CS delivery, surgical abortion, medical abortion, gloves, IV fluids, etc (Table 5.3.3A in the Appendix). However, the answer to this question was insufficient and with a wide range of costs. Hence, interpretation of this data requires cautious considerations of this information gap.

Nationally, the mean cost of admission was 454.50 Rwandan Francs. On the average, normal delivery costs 624; CS delivery 3,098; 372 for gloves; 597 for IV fluids; 2579 for surgical abortion (1st trimester); and 730 for medical abortion (1st trimester). As expected, service costs were much higher in the private-for-profit facilities thanpublic and private, not-for-profit. District variations were high for such costs. For example, the cost of admission fee was as high as 5,000 in Nyagatare and as low as 188 in Nyamasheke. As expected, admission fee was high in the private-for-profit facilities than the rest of facility types. A similar pattern of costs was observed among the different services by managing authorities.

Policy for the review of maternal and newborn deaths

In Rwanda, the maternal death audit is undertaken at district level, mostly in hospitals. With this understanding, almost all hospitals had done routine maternal death audits. Looking at the reported practice in all facilities, only 38% of the total facilities had routine maternal death case audit. Such system was widely practiced in all facilities in Kamonyi and least practiced in facilities of districts Burera, Nyamagabe, and Nyamasheke (6% each). Registering maternal death by cause was performed in only 30% of the facilities. Seventy-seven percent of the facilities had been practicing audits or case reviews of newborn deaths/stillbirth routinely. Higher level facilities were more likely to routinely perform these services than the lower-level facilities (Table 5.3.4).

Table 5.3.4: Percent of facility reviewing maternal and newborn cases, by region, facility type, managing authority, and location, Rwanda EmONC , 2021

	Number of facilities	Routine Maternal death case audit	Register Maternal death by cause	Audits or case reviews of Newborn death/still birth routinely
	n	%	%	%
National	444	38	30	77
Region				
Bugesera	17	59	29	82
Burera	16	6	19	69
Gakenke	9	56	78	100
Gasabo	15	73	60	93
Gatsibo	20	70	10	80
Gicumbi	16	19	19	81
Gisagara	16	44	25	94
Huye	12	25	42	75
Kamonyi	10	100	60	100
Karongi	14	29	64	64
Kayonza	14	57	29	79
Kicukiro	12	50	42	67
Kirehe	17	29	6	65
Muhanga	13	46	54	69
Musanze	14	21	21	43
Ngoma	13	46	8	92
Ngororero	15	27	27	80
Nyabihu	15	20	20	73
Nyagatare	20	60	25	85
Nyamagabe	16	6	13	63
Nyamasheke	18	6	11	56
Nyanza	13	38	77	100
Nyarugenge	11	45	55	64
Nyaruguru	15	13	7	87
Rubavu	15	13	13	73
Ruhango	13	69	38	85
Rulindo	16	50	31	100
Rusizi	19	37	26	63
Rutsiro	13	8	38	46
Rwamagana	17	29	12	82
Facility Type				
Teaching hospital	4	100	100	100
Referral hospital	3	100	100	100
Provincial hospital	4	75	75	100
District Hospital	37	95	92	97
Health Centre	381	31	22	74
Poly clinic/Clinic	6	50	33	83
Health posts	9	22	0	67
Managing Authority				
Government/Public	366	36	29	77
Private, For Profit	10	60	40	70
Private-For -Not-Profit*	68	41	29	74
Location				
Urban	99	52	44	77
Rural	345	34	25	77

* Includes faith-based or mission health facilities

5.4 Respectful maternity care

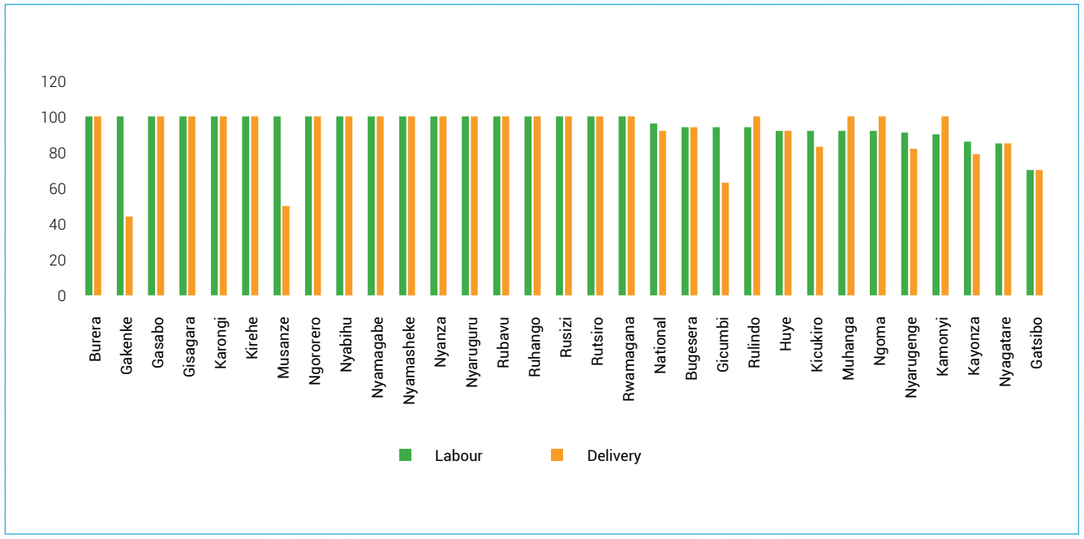
Various factors are critical to foster respectful maternity care. The World Health Organization Intrapartum Care Guidelines highlight RMC as a key recommendation, for ensuring the rights and safety of women during labour and childbirth. RMC is free from physical abuse, non-Consented care, non-Confidential care, non-Dignified care (including verbal abuse), discrimination based on a specific attribute, abandonment or denial of care, and detention in facility. The assessment has not collected data on all aspects of RMC but captured indications of status of RMC through questions related to policy, infrastructure and accompanying companionship during labour and delivery.

At policy level, the government encourages facilities to provide quality maternal and newborn health services and there by register them as mother-baby friendly birthing facility. However, only 46% of the facilities reported their facilities were qualified for mother-baby friendly birthing place. This is a self-reported information and the data was not validated by the respective agency to certify facilities for this service. A wide variation was observed in the mother-baby friendly birthing place, with the highest in Burera (100%) and lowest in Nyamagabe (zero) (Table 5.4.1A in the Appendix).

On infrastructure, Curtains or means of providing patient privacy exists in 85% of facilities. Waiting area for visitors and families exist in 82% of facilities (Table 6.3.3).

Table 5.4.1A in the Appendix presents respectful maternity care and other policies related to maternal and newborn health services. Over 70% of the facilities, at national level, reported frequent staff rotation was implemented for maternal and newborn care services. Bugesera, Gicumbi, Kamonyi, Ruhango, and Rutsiro districts had all their facilities implementing staff rotation for maternal care services.
Facilities also reported that women are allowed to have their companion of choice during labor (96%), during delivery (92%), and during abortion (41%). Many of the districts had all their facilities allowed women to have their companion of choice during labor, delivery and abortion (Figure 5.3.1 below and Table 5.4.1A in the Appendix).

Figure 5.4.1: Percentage of facilities that allowed a woman to have a companion of her choice during labour and delivery by district, Rwanda EmONC, 2021



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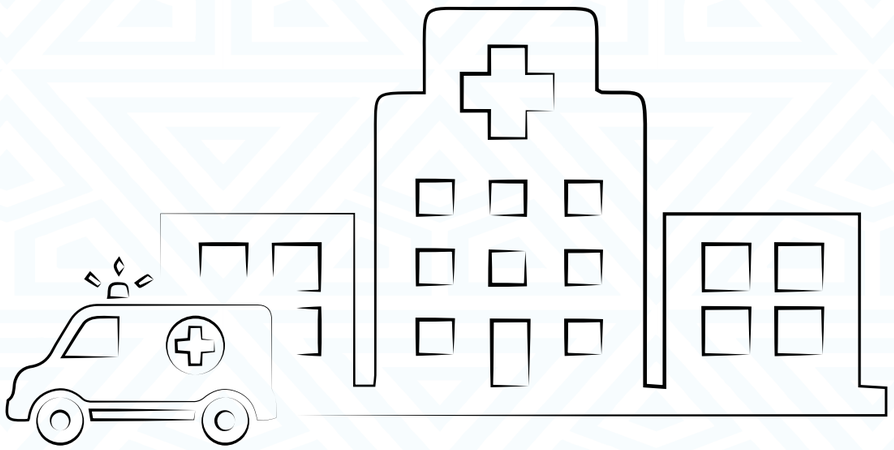


FACILITY INFRASTRUCTURE

Facility infrastructure is a pillar of the health system building blocks to provide quality health services. Sufficient number of facilities with the required facility set-up and adequate availability of drugs, equipment, supplies, and human resources are important in saving the lives of mothers and newborns.

This chapter presents ratio of beds to deliveries, availability of separate rooms for maternal and newborn health services, availability of electricity, water, modes of communication, and other infrastructure related elements of the health system.

6.1 Ratio of facilities to population

Rwanda's health system structure shows indicative average catchment population for public health facilities[24]. This is:

- Teaching/Referral hospitals: ~1 per 1,500,000 population
- Provincial hospitals: 1 per 1,000,000 population (taken as an average population coverage of referral and district hospitals)
- District hospitals: 1 per 255,000 population
- Health centres: ~1 per 23,000 population

Despite the fact that these standards were designed for all medical areas and not just maternal and newborn services, we applied these standards to the facilities covered in the EmONC assessment. According to Table 6.1.1A in the Appendix, there were two teaching/referral hospitals as a gap; shortage of 9 provincial hospitals; 14 district hospitals and 182 health centers in the country. Overall, there were shortages of public health facilities to fully serve the country's population though the calculation was done only for the public health facilities. In addition, interpretation of coverage of teaching, referral, and provincial hospitals per district is a bit shallow as these facilities are serving more than a district population. Shortage of health centers was high in Gasabo (20), followed by Gakenke (10) and Kamonyi (10), and low in Nyaruguru (one).

6.2 Number and ratio of beds to deliveries

The number and ratio of beds to deliveries are often used for criteria to determine the levels of care in the health facilities. According to the international standards[25] , it is recommended that there should be at least 30-32 beds for every 1,000 deliveries at the first level referral facilities – this seems district hospitals. Figure 6.2.1 below and Table 6.2.1A in the Appendix show such information.

Nationally, the ratio of Obs/Gyne beds to 1000 institutional deliveries was lower than the international standards (30-32 per 1000 deliveries).

Burera had an exceptional ratio of 59 per 1000 deliveries than the rest of the districts.
Three other districts, namely: Nyamagabe, Karongi, and Rulindo met the standard, while the rest of districts stood below the standard. Nyarugenge and Gakenke (each 29 per 1000 deliveries) were a little lower than the standard (Table 6.2.1A).

Teaching hospitals and Poly clinic clinics met the standard more than the rest of the facility types. Private-for-profit facilities were also highly likely to meet the standard than the rest of the group.

24 Ministry of Health (MOH), Fourth Health Sector Strategic Plan, July 2018 – June 2024, Kigali Rwanda.
25 WHO. Essential elements of obstetric care at first referral level. Geneva: 1991.

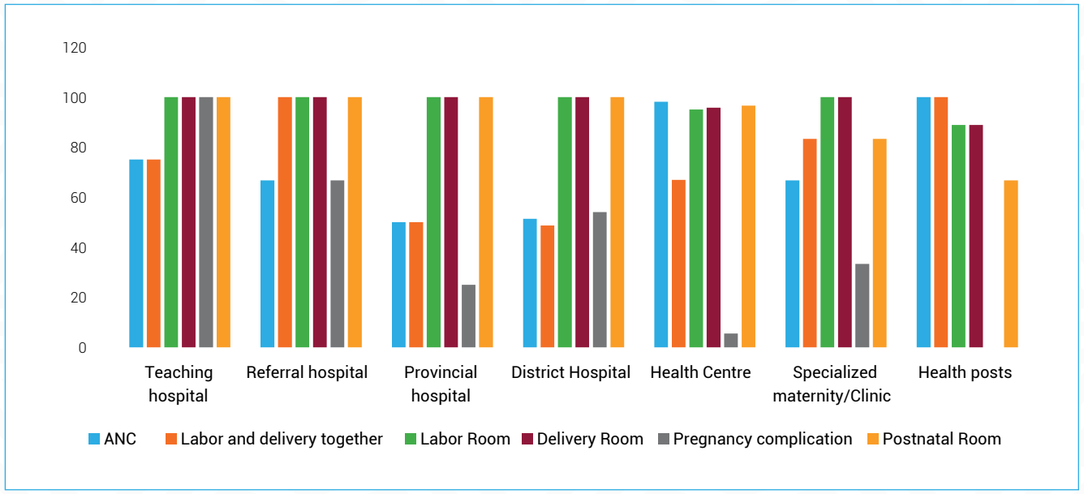
6.3 Availability of separate rooms or designate spaces for maternal and newborn health services

Availability of separate rooms or physical spaces for maternal and newborn health services

This sub-chapter shows percent of facilities with separate rooms or spaces for maternal and newborn care services. At national level, 93% of the facilities had separate rooms for antenatal care; 96% had a postnatal room; 96% had a separate labour room; 97% had a separate laboratory. Although 96% had a separate delivery room, only 66% had separate labour and delivery together. All of the facilities in all districts had separate spaces for either labour, delivery, or labour and delivery together (Table 6.3.1A and 6.3.2A in the Appendix).

Teaching and referral hospitals were more likely to have separate spaces/rooms for maternal services than the rest of the facilities. Similarly, almost all hospitals had separate rooms for general operating theatre. Ob/gyn operating theatre was available in 94% of the hospitals. Sixteen of the 30 districts had Neonatal Intensive Care Unit (NICU) in all their hospitals (Figure 6.3.1 and Table 6.3.1A and 6.3.2A).

Figure 6.3.1: Percent of facilities with separate room or space for selected maternal and newborn services by type of facility, Rwanda EmONC, 2021



Other infrastructure in labour and delivery

Some set of infrastructure questions were asked in the facilities to capture respectful maternity care services in the labour and delivery area. For example, if there is no sufficient light during the day and at night, it is difficult to provide quality EmONC services. Table 6.3.3 below explains availability of such infrastructure elements. Almost all facilities confirmed that they had sufficient light both during the day and at night. Eighty-seven percent had a functional toilet for patient use and over three-quarters of the facilities had a functioning sanitary toilet for visitors and family use in their facilities. However, availability of functioning air condition and means of ventilation were scarce as only 19% and 44% of the facilities had these important infrastructure elements. Over four-fifths of the facilities had a waiting area for visitors and family at national level. All hospitals and Poly clinic centers had this area. Private-for-profit facilities were more likely to have these infrastructure elements than the rest of facilities.

Table 6.3.3: Percentage of facilities that have the indicated infrastructure in the maternity area1, by type of facility, Rwanda EmONC, 2021

	Total number of facilities	Sufficient light source to perform tasks during the day	Sufficient light source to perform tasks at night	Means of ventilation	Functioning and sanitary toilet for patient use	Heating/ heating arrangements	Functional fan/air conditioning	Curtains/ means of providing patient privacy	Waiting area for visitors and family	Functioning and sanitary toilet for visitors' and family use
		%	%	%	%	%	%	%	%	%
National	444	99%	97%	44%	87%	48%	19%	85%	82%	78%
Districts										
Bugesera	17	94%	100%	76%	94%	71%	18%	94%	88%	100%
Burera	16	100%	94%	100%	100%	0%	6%	94%	94%	94%
Gakenke	9	100%	100%	33%	89%	67%	44%	89%	89%	78%
Gasabo	15	100%	100%	47%	100%	40%	40%	73%	93%	93%
Gatsibo	20	100%	100%	75%	100%	60%	25%	95%	100%	100%
Gicumbi	16	100%	100%	69%	88%	19%	13%	75%	88%	50%
Gisagara	16	100%	100%	38%	88%	63%	6%	63%	63%	81%
Huye	12	100%	100%	58%	83%	83%	25%	92%	92%	58%
Kamonyi	10	100%	100%	70%	80%	20%	10%	90%	100%	100%
Karongi	14	100%	93%	21%	100%	21%	7%	86%	93%	86%
Kayonza	14	100%	100%	79%	100%	79%	29%	100%	93%	79%
Kicukiro	12	100%	100%	67%	83%	58%	25%	100%	75%	67%
Kirehe	17	100%	94%	41%	94%	88%	18%	94%	82%	82%
Muhanga	13	100%	100%	0%	77%	8%	8%	69%	77%	54%
Musanze	14	100%	100%	86%	100%	0%	21%	93%	86%	0%
Ngoma	13	100%	100%	38%	100%	100%	8%	92%	85%	85%
Ngororero	15	87%	80%	13%	67%	40%	27%	87%	93%	87%
Nyabihu	15	100%	87%	7%	60%	40%	40%	87%	93%	87%
Nyagatare	20	95%	95%	70%	95%	75%	25%	85%	90%	95%
Nyamagabe	16	100%	100%	31%	75%	19%	6%	88%	31%	88%
Nyamasheke	18	100%	100%	28%	83%	33%	17%	83%	94%	72%
Nyanza	13	100%	100%	15%	85%	15%	15%	54%	54%	100%
Nyarugenge	11	91%	91%	55%	100%	82%	36%	91%	91%	73%
Nyaruguru	15	100%	100%	13%	93%	60%	7%	80%	67%	80%
Rubavu	15	100%	100%	53%	93%	53%	40%	87%	93%	93%
Ruhango	13	100%	92%	8%	77%	8%	8%	85%	62%	54%
Rulindo	16	100%	100%	31%	63%	88%	19%	63%	94%	63%
Rusizi	19	100%	95%	16%	95%	42%	21%	95%	63%	74%
Rutsiro	13	100%	100%	23%	69%	38%	0%	69%	69%	69%
Rwamagana	17	100%	94%	53%	82%	65%	18%	94%	82%	76%
Facility Type										
Teaching hospital	4	100%	100%	75%	100%	75%	75%	100%	100%	100%
Referral hospital	3	100%	100%	33%	100%	33%	33%	100%	100%	33%
Provincial hospital	4	100%	100%	75%	100%	50%	75%	100%	100%	75%
District Hospital	37	100%	100%	65%	95%	62%	54%	92%	81%	76%
Health Centre	381	99%	97%	42%	87%	46%	14%	84%	82%	78%
Poly clinic/Clinic	6	100%	100%	83%	100%	83%	83%	100%	100%	100%
Health posts	9	89%	67%	22%	56%	33%	11%	67%	89%	78%
Managing Authority										
Government/Public	366	99%	97%	46%	87%	49%	17%	84%	83%	78%
Private, For Profit	10	100%	100%	70%	100%	70%	70%	100%	100%	100%
Private-For -Not-Profit*	68	100%	96%	34%	85%	43%	21%	88%	79%	75%
Location										
Urban	99	99%	99%	54%	95%	52%	27%	88%	86%	75%
Rural	345	99%	97%	42%	85%	47%	17%	84%	81	79

* Includes NGO and faith-based or mission health facilities

1. For hospitals, the maternity area is likely to be a specific room and these questions are related to the infrastructure available in that specific room. Health centers may not have a specific room devoted for a maternity and these questions are therefore related to whether the facility, in general, has the infrastructure available.

6.4 Availability of electricity

Sources of electricity

Electricity and water are key utilities for the daily operation of health facilities to help medical equipment work, facilitate quality service delivery and infection prevention. Table 6.4.1 below shows availability of electricity and whether there were interruptions or not by district, facility type, operating agency and location. All the facilities in Rwanda had a source of electricity. Nationally, almost all facilities (98%) were connected to the grid. Although connection to the grid was very high, only 67% of the facilities had back-up generator/solar (electric source). Connection to the grid plus back-up generator/solar was high in Gakenke and Kicukiro (both 100%) and low in Burera (25%) and Musanze (29%%).

Interruptions in electricity

Of those facilities connected to the grid, close to a quarter of them had experienced power interruptions for over 2 hours in the last seven days prior to the assessment. The interruption was worse as most facilities (85%) in Rutsiro had such an incidence and low as none of the facilities in Rulindo and Muhanga, which were connected to the grid did not experience power interruptions. Higher level of care facilities (teaching, referral, provincial, and Poly clinic clinics) did not experience power interruptions; while district hospitals, health centers, and health posts that are more likely reside in rural parts of the country had experienced power shortages.

Map 6.4.1: Percentage of facilities that had a source of electricity by district, Rwanda EmONC, 2021

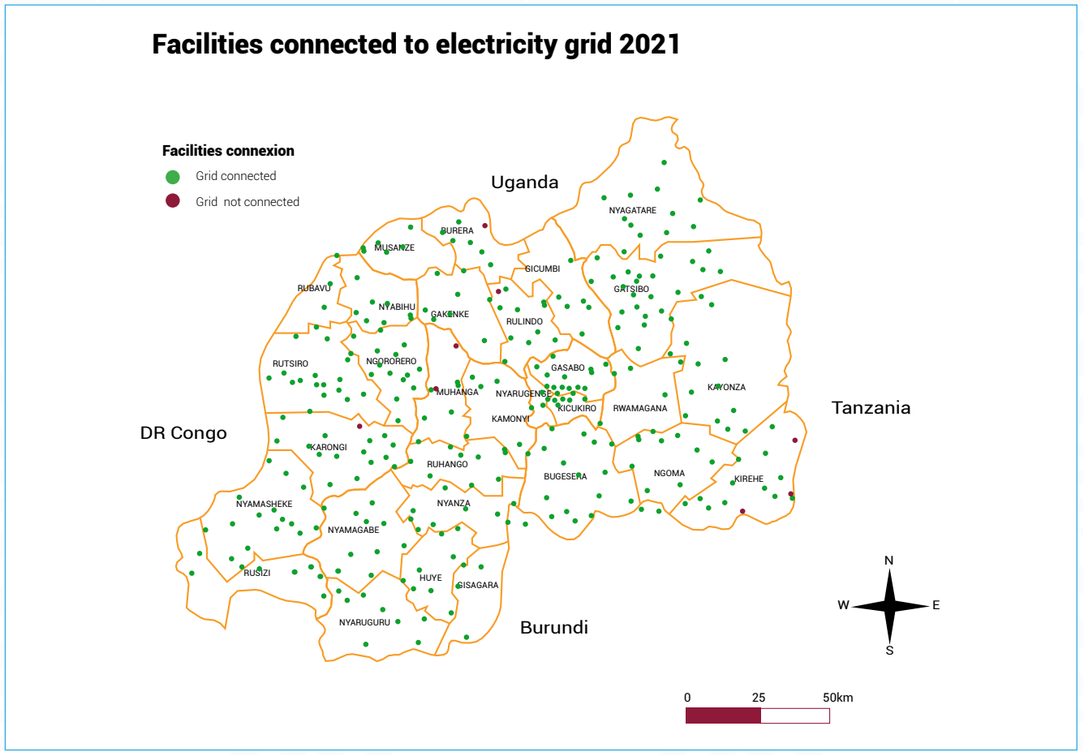


Table 6.4.1: Percent of facilities according to primary source of electricity, by district, facility type and managing authority, Rwanda EmONC, 2021

	Total number of facilities	Has no source of electricity [1]	Electric grid (central source)	Electrical grid and backup (generator or solar)	Generator (fuel or battery)	Solar power	Other source	Among facilities with power from grid, interruption for over 2 hours in last 7 days > 2hours at a time
		%	%	%	%	%	%	%
National	444	0%	98%	67%	61%	13%	1%	24%
Districts								
Bugesera	17	0%	100%	88%	82%	18%	0%	47%
Burera	16	0%	94%	25%	19%	13%	0%	13%
Gakenke	9	0%	100%	100%	100%	0%	0%	0%
Gasabo	15	0%	100%	93%	93%	13%	0%	13%
Gatsibo	20	0%	100%	60%	55%	10%	5%	20%
Gicumbi	16	0%	100%	75%	69%	6%	0%	19%
Gisagara	16	0%	100%	69%	69%	6%	0%	19%
Huye	12	0%	100%	75%	58%	17%	0%	25%
Kamonyi	10	0%	100%	60%	60%	0%	0%	30%
Karongi	14	0%	86%	64%	64%	36%	7%	25%
Kayonza	14	0%	100%	64%	57%	14%	0%	14%
Kicukiro	12	0%	100%	100%	100%	8%	0%	8%
Kirehe	17	0%	82%	47%	59%	35%	0%	29%
Muhanga	13	0%	85%	62%	46%	31%	0%	0%
Musanze	14	0%	100%	29%	29%	7%	0%	36%
Ngoma	13	0%	100%	85%	77%	15%	0%	8%
Ngororero	15	0%	100%	67%	60%	13%	0%	27%
Nyabihu	15	0%	100%	60%	47%	13%	0%	47%
Nyagatare	20	0%	100%	75%	60%	40%	0%	40%
Nyamagabe	16	0%	100%	63%	50%	13%	0%	44%
Nyamasheke	18	0%	100%	50%	44%	6%	0%	17%
Nyanza	13	0%	100%	92%	92%	0%	0%	31%
Nyarugenge	11	0%	100%	73%	73%	0%	0%	18%
Nyaruguru	15	0%	100%	60%	53%	7%	0%	7%
Rubavu	15	0%	100%	73%	73%	0%	0%	20%
Ruhango	13	0%	100%	54%	54%	0%	0%	23%
Rulindo	16	0%	94%	75%	75%	6%	0%	0%
Rusizi	19	0%	100%	58%	58%	5%	0%	21%
Rutsiro	13	0%	100%	46%	23%	23%	0%	85%
Rwamagana	17	0%	100%	76%	71%	24%	6%	24%
Facility Type								
Teaching hospital	4	0%	100%	100%	100%	25%	0%	0%
Referral hospital	3	0%	100%	100%	100%	0%	0%	0%
Provincial hospital	4	0%	100%	100%	100%	0%	0%	0%
District Hospital	37	0%	100%	97%	97%	5%	0%	19%
Health Centre	381	0%	98%	64%	58%	15%	1%	26%
Poly clinic/Clinic	6	0%	100%	100%	100%	0%	0%	0%
Health posts	9	0%	100%	0%	0%	0%	0%	22%
Managing Authority								
Government/Public	366	0%	98%	67%	62%	13%	1%	24%
Private, For Profit	10	0%	100%	100%	100%	0%	0%	0%
Private-For -Not-Profit*	68	0%	96%	59%	51%	16%	1%	26%
Location								
Urban	99	0%	100%	83%	80%	10%	0%	19%
Rural	345	0%	97%	62%	56%	14%	1%	26%

* Includes NGO and faith-based or mission health facilities

1 No electricity = no grid and no other source of electricity

Functioning electricity in separate physical spaces in the maternity and newborn service areas

As shown in Table 6.4.2A in the Appendix the presence of functioning electricity in service delivery areas was universally common as 98% or above cited availability. This meant that there was no variation among facility types, ownership, and district.

All facilities in all districts that had the specified rooms reported that they had functioning electricity in their newborn corner/neonatal care unit, neonatal special care unit, Neonatal Intensive Care Unit (NICU), and pediatric ward. Similarly, 98% of the total facilities at national level conveyed that their facilities with newborn corner/neonatal care unit attached to delivery/postpartum ward had a functioning electricity on the day of the visit (Table 6.4.3A in the Appendix).

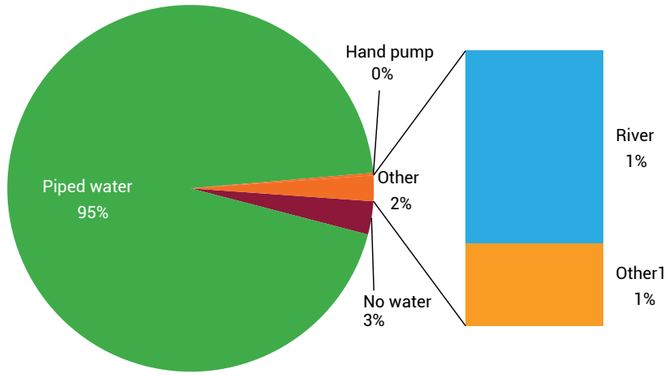
6.5 Availability of water

Source of water

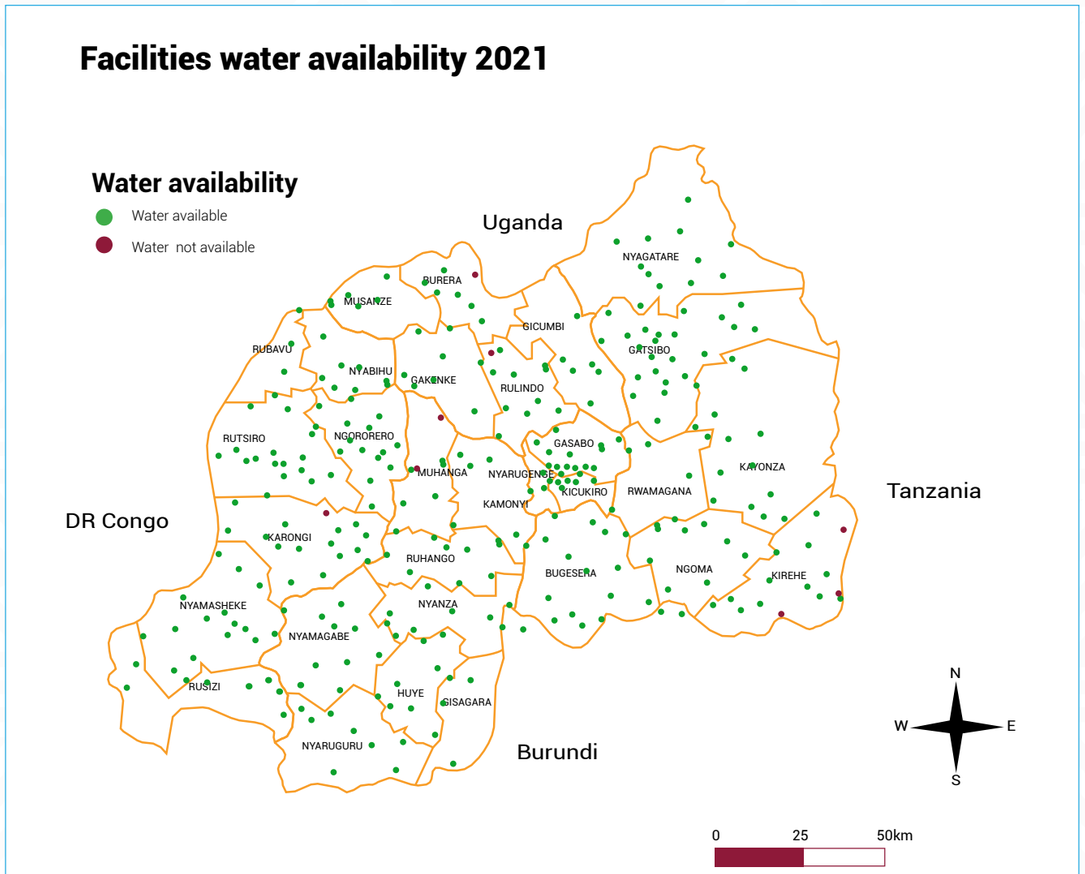
Water is one of the basic necessities of life and a key amenity for health facilities. It is used for drinking, cooking, infection prevention, bathing and laundry. Like electricity, facility in-charges were asked about availability of water and sources of the water in their respective health facilities (Table 6.5.1A in the Appendix). Nationally, 97% of the total facilities (3% had no water, list attached in Table 6.5.1bA in the Appendix) had a source of water (Figure 6.5.1). Almost all facilities in all districts had water from any source except in Ruhango and Burera with 23% and 13% of their facilities did not have water from any source at the time of the assessment.

All hospitals had a source of water; while 3% of health centers and 11% of health posts did not have water from any source. All private-for-profit, 97% of public/government owned, and 96% of the private for-not-profit facilities had water from any source. When asked about the source of water, 97% mentioned that their primary source was from the public pipes; 2% from the river and one percent from tanker (Figure 6.5.1). A similar percentage distribution was observed across the districts. Of those facilities with a source of water, 15% in Muhanga, 7% each in Ngorero, Nyabihu, and Nyaruguru, 6% in Rwamagana, and 5% in Rusizi had water from river. Nyanza, Gisagara, and Rwamagana had 8%, 6%, and 6% of their facilities with a water source from tankers (other source); respectively.

Figure 6.5.1: Percent distribution of facilities according to their primary source of water, Rwanda EmONC, 2021



Map 6.5.1: Percentage of facilities that had a source of water by district, Rwanda EmONC, 2021

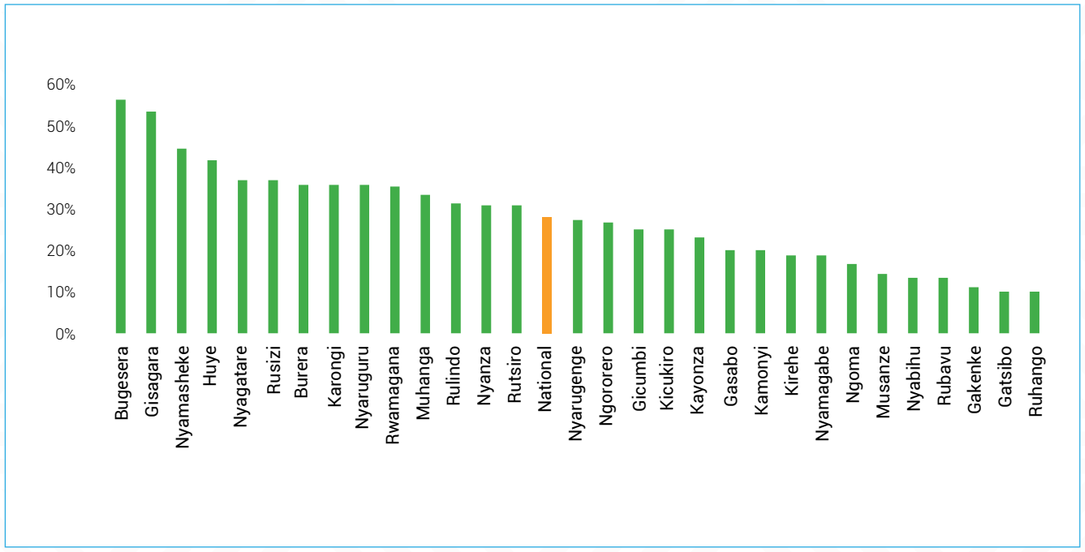


Of the total facilities with a water source, 86% of them had the water within the facility's compound; 14% had the water within 500 meters and only one percent had their water source beyond 500 meters. The point of water source in the facilities vary widely among districts with 16 of the 30 districts had the point of source within the facility's compound and Gisagara and Nyanza had most of their facilities with a point of water source within 500 meters distance. All hospitals and specialty maternity clinics had the water source within their compounds (Table 6.5.1A in the Appendix).

Interruptions of water supply

As presented in Table 6.5.1A in the Appendix and Figure 6.5.2 below, 28% of the total facilities with tap water source had severe shortages of water at a time in last year prior to the assessment. Such shortages of water in the facilities were worse in Bugesera as 56% had experienced the shortages; followed by Nyamasheke (44%), and Huye (42%). Health centers were the most affected ones in terms of shortage of water; compared to other types of facilities.

Figure 6.5.2: Percent distribution of facilities that had shortages of water for days (from those that had a source of water), Rwanda EmONC, 2021



Functioning water in selected maternal health service areas

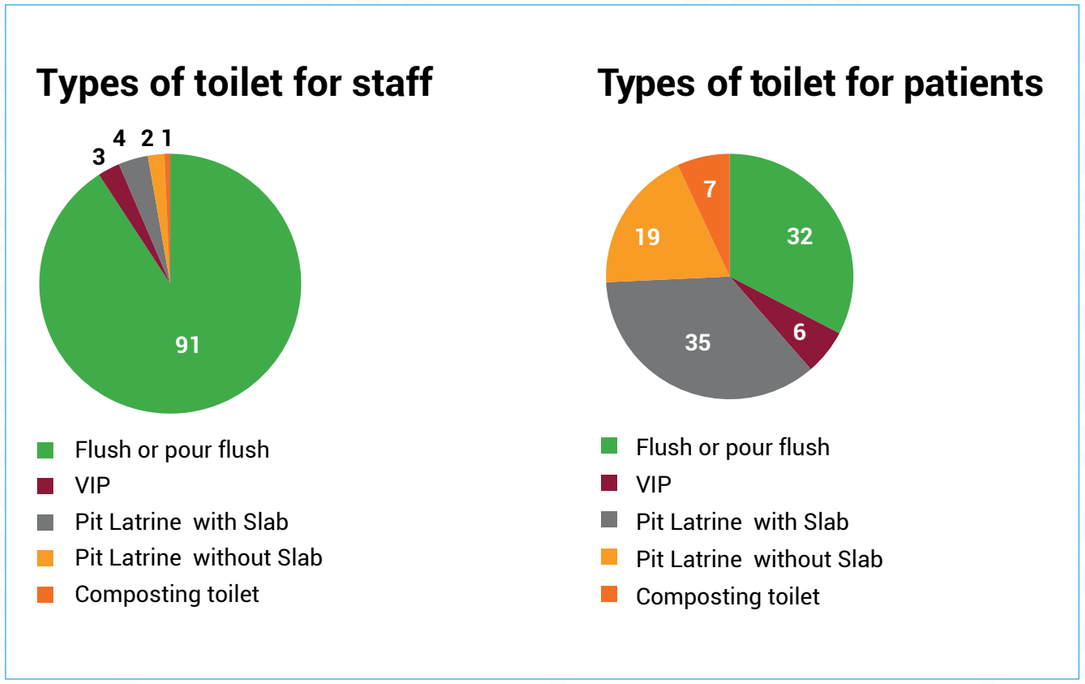
Like electricity, facilities were inquired on availability of water in selected maternal and newborn health service areas. Of those facilities that had a water source, a high proportion of facilities (89%) with labour and delivery room reported that they had water in the room. Large proportion (78%) of facilities that had ANC room mentioned that they had water in the room. Great majority of facilities (91% and 90%) with delivery room and room for pregnancy complications had water in the rooms, respectively. All facilities that had operating theater (general or Ob/Gyn) and laboratory and blood bank had water in these rooms. Hospitals were highly likely to have water in the maternal and newborn care rooms than the rest of facility types (Table 6.5.2A in the Appendix).

According to Table 6.5.3A in the Appendix, 87% of the facilities with rooms of newborn corner and pediatric ward had functioning water in the rooms. Similarly, all of the facilities with NICU had water in the NICU. All hospitals with the newborn care rooms had water in the rooms.

Availability of toilets

Table 6.5.4A and Figure 6.5.3 present percentage of facilities with toilets for staff and clients. Nationally, almost all of the facilities had a functioning toilet for staff and patients. Flush or pour flush (91%) toilet type was the most common one available for staff and pit latrine with slab (35%) was the common toilet type for patients; followed by flush or pour flush (32%). Similar percentage distribution was, generally observed among districts and facility types.

Figure 6.5.3: Percentage distribution of availability of types of toilets for staff and patients, Rwanda EmONC, 2021



6.6 Availability of Health Management Information System (HMIS)

Facilities were inquired about availability of HMIS and related services (Table 6.6.1A in the Appendix). Nationally, 100% the facilities had HMIS in-place to collect MNH service data. All of the facilities with HMIS system had the practice of compilation and reporting of routine MNH services with a reporting frequency of weekly. Of all the facilities with HMIS, great majority of them (97%) had a responsible person assigned for MNH service data. Twenty-four of the 30 districts had over 90% of their facilities with responsible MNH person. All of the higher level of care facilities had HMIS system and MNH responsible person in-place.

Most of the facilities with HMIS system were routinely calculating indicators for institutional delivery (94%). Calculation of institutional low birth weight, stillbirth rate, and CS rate were performed in 70%, 61%, and only 17% of the facilities, respectively. Routine collection of HMIS data on 1st and 2nd trimester post-abortion or safe-abortion care was generally low as only lower than a third of facilities did so (Table 6.6.2A in the Appendix).

CHAPTER
07

HUMAN RESOURCES

Availability of trained and qualified health workforce is one of the building blocks of a health system[26]. In line with this, the Rwanda rapid EmONC assessment had collected information on the availability of health workers at the time of the assessment, whether they are working 24/7, staffing patterns and regulatory policies that allow the health workers to function EmONC and EmNeC signal functions and coverage of key health workers to population.

Verification of the qualification of health workers was not done as it was beyond the scope of the assessment. In addition, the overall staffing (current availability of health workers, those that left, and posted) and performance of signal functions by each health worker cadre was purely captured through interview of facility managers and maternity in-charges. Some of the health workers that had worked in multiple health facilities with payroll systems might be double counted and this could overestimate few of the cadres in some facilities.

7.1 Staffing standards for key staff and public health facilities

Based on availability of data (the standards were available only for few health worker cadres for public facilities in the maternity/obstetrics)[27], we calculated actual staffing against the standards. The minimum standards were calculated as actual number of health facilities assessed multiplied by number of required staff for each cadre (only the key staff indicated for obstetrics norms) included for each facility type. According to Table 7.1.1 below, there was a huge shortage of key health workers at national level. A gap of 1,523 midwives/nurses was observed in all public hospitals and health centers/health posts; while obstetricians/gynecologists and anesthesiologists fell short by 183 and 112, respectively. There was also a shortage of 51 Anesthesiologists across all public health facilities, compared to the minimum standards set by the government.

Table 7.1.1: Number of health workers recommended by human resource standards, currently employed, and gaps, by health worker cadre and facility type, Rwanda EmONC, 2021

		Obstetrician/ Gynecologist	Midwife/ Nurse	Anesthesiologist (MD)	Anesthetist
Minimum number of health workers required to meet standard (aggregate number for all facilities by type) *	National	258	9,990	111	374
	Teaching hospitals	48	36	16	36
	Referral Hospital	30	18	9	18
	Provincial hospital	32	24	12	24
	District Hospital	148	1,332	74	296
	Health Centre	-	8,382	-	-
	Health posts	-	198	-	-
Actual number of health workers currently employed	National	75	8,467	60	262
	Teaching hospitals	27	1,363	17	101
	Referral Hospital	7	305	3	15
	Provincial hospital	3	266	-	11
	District Hospital	38	2,986	40	130
	Health Centre	-	3,498	-	5
	Health posts	-	49	-	-
(Gap)/Excess	National	(183)	(1,523)	(51)	(112)
	Teaching hospitals	(21)	1,327	1	65
	Referral Hospital	(23)	287	(6)	(3)
	Provincial hospital	(29)	242	(12)	(13)
	District Hospital	(110)	1,654	(34)	(166)
	Health Centre	-	(4,884)	-	5
	Health posts	-	(149)	-	-

* Standards are calculated for Government/public facilities while data from the rest of the facilities was not complete

26 WHO 2010. Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies.1.Delivery of health care. 2.Monitoring. 3.Health care quality, access, and evaluation. 4.Health care evaluation mechanisms. 5.National health programs–organization and administration. I. Geneva, Switzerland BN 978 92 4 156405 2
27 MOH, RBC. 2020. Obstetric Norms and Standards of Rwanda. Kigali, Rwanda.

7.2 Recent postings of health workers and net gain/loss

Table 7.2.1 below shows current staffing and turnover (left and posted/hired) by health worker cadre. Number of positions established was asked in each facility; but due to incomplete data/information that came from facilities, the analysis was not done in this report. Except medical doctors (GPs) that showed a net loss in hospitals by 37, there was a net gain in the rest of the health workers in both hospitals and health centers/clinics.

Table 7.2.1: Number of health workers, currently employed, and staff turnover (left, posted/hired) in the last 12 months, by health worker cadre and facility type, Rwanda EmONC, 2021

Health worker cadre	Hospitals (n=48)				Health Centers/Clinics (n=396)			
	Currently employed	In the last 12 months:			Currently employed	In the last 12 months:		
		staff left	staff posted/ hired	net gain (loss)		staff left	staff posted/ hired	net gain (loss)
Medical doctor	604	130	93	(37)	20	2	3	1
Obstetrician/ Gynecologist	75	9	15	6	15	-	2	2
General surgeon	58	3	9	6	2	-	9	9
Pediatrician	72	5	13	8	7	-	-	-
Neonatologist	12	-	3	3	-	-	-	-
Midwife	979	62	144	82	466	51	101	50
Nurse	3,941	149	366	217	3,145	375	800	425
Anesthesiologist (MD)	60	8	9	1	12	-	10	10
Nurse anesthetist	257	11	15	4	9	3	2	(1)
Laboratory technician	496	29	56	27	752	103	178	75

7.3 Extended leave, provision of care, and basic and comprehensive EmONC training

Figure 7.3.1 and Table 7.3.1 in the Appendix, presents the percentage of total health workers on leave, providing delivery services, and trained in EmONC, by type of facility and cadre of health workers. Accordingly, among hospitals, 8% each of Obstetricians/Gynecologists, Neonatologists, and Midwives were on extended leave. Among health centers/clinics, 11% of nurse anesthetists were on extended leave. From those not on extended leave, 74% of Obs/Gyne, 73% of midwives, 55% of neonatologists, were providing obstetric and newborn care services in hospitals. Similarly, 80% of medical doctors (GPs) and 74% of midwives were providing obstetric and newborn care in health centers/clinics.

In hospitals, 82% of Obs/Gyne, 63% of midwives, 44% of pediatricians were more likely to be trained on BEmONC than the rest of the cadres. In health centers/clinics, 80% of nurse anesthetists, 75% of medical doctors (GPs), and 59% midwives were highly likely trained on BEmONC than the rest of the cadres.

In CEmONC training, 86% of Obs/Gyne, 48% of pediatricians, and 40% of medical doctors (GPs) were the highest proportion of health workers, trained on CEmONC among hospitals; while all 2 of the general surgeons available, 80% of the 9 nurse anesthetists, and 75% of the 20 medical doctors (GPs) available in the health centers/clinics were trained on CEmONC (Table 7.3.1A in the Appendix).

Figure 7.3.1: Percent of key health workers in hospitals and health centers/clinics with basic and comprehensive EmONC training, by health worker cadre, Rwanda EmONC, 2021

7.4 Availability of health workers 24/7

Labour, delivery and obstetric emergencies can occur at any inconvenient hours of the day and night, requiring facilities to be open 24 hours a day and 7 days a week; equipped with competent staff and functional medical equipment; and well-supplied with medications and other medical commodities. Cognizant to this scenario, facility managers were asked about availability of health workers 24/7. As shown in Table 7.4.1 below, almost all hospitals had at least one medical doctor, midwife, nurse, and a laboratory technician on-staff and present from Monday to Friday and Saturday and Sunday during the day as well as during the night. At least one Obs/Gyne was available in 58% of the 48 hospitals. Of these facilities, 79% and 43% of them had Obs/Gyn present from Monday to Friday during the day and during the night, respectively.

In health centers/clinics, 98% and 92% of them had at least one nurse and midwife on-staff, respectively. Of these facilities that had at least one nurse, almost all of them had their nurses present 24/7. Of the 363 health centers/clinics with at least one midwife available, more than 87% of them had a midwife present all week round the clock. Due to their set-up, health centers/clinics had limited medical doctors and Obs/Gyne on-staff. Of the 9 health centers/clinics with at least one medical doctor (GP), 89% had a medical doctor available on-call basis throughout the week. This implies that nurses and midwives were the most frequently available health workers in the health centers/clinics (Table 7.4.1). Across all facilities, health workers were more likely to present on-site during the day than during the night and over the weekends and holidays. The gap of staff presence during the day and during the night was high among Obs/Gyne, general surgeons, neonatologists, pediatricians, and anesthesiologists (MDs).

Table 7.4.1: Percentage of health facilities with health workers present and on call (staff coverage during a normal week) at certain times, by health worker cadre, Rwanda EmONC, 2021

	% of facilities with at least one of the cadre on staff	Number of health facilities with at least one cadre on staff	Mon-Fri daytime		Mon-Fri night		Sat-Sun & Holidays daytime		Sat-Sun & Holidays night	
			Present On-site	On call	Present On-site	On call	Present On-site	On call	Present On-site	On call
			%	%	%	%	%	%	%	%
Hospitals (n=48)										
Medical doctor	98%	47	98%	89%	98%	92%	98%	94%	96%	91%
Obstetrician/ Gynecologist	58%	28	79%	71%	43%	71%	39%	68%	29%	68%
General surgeon	33%	16	81%	69%	38%	75%	44%	81%	31%	81%
Pediatrician	56%	27	74%	74%	41%	63%	33%	59%	30%	67%
Neonatologist	10%	5	100%	100%	40%	100%	100%	80%	60%	80%
Midwife	100%	48	100%	75%	100%	77%	100%	75%	100%	75%
Nurse	100%	48	100%	79%	98%	77%	100%	79%	100%	79%
Anesthesiologist (MD)	40%	19	84%	68%	53%	68%	68%	68%	47%	74%
Nurse Anesthetist	88%	42	100%	81%	93%	78%	95%	79%	98%	83%
Laboratory technician	100%	48	98%	73%	92%	73%	98%	75%	98%	75%
Health Centers/ Clinics (n=396)										
Medical doctor	2%	9	100%	89%	67%	89%	78%	89%	56%	89%
Obstetrician/ Gynecologist	1%	5	100%	60%	40%	60%	80%	60%	60%	60%
General surgeon	0.5%	2	50%	50%	100%	50%	50%	50%	50%	50%
Pediatrician	1%	4	50%	25%	25%	25%	25%	25%	25%	25%
Neonatologist	0%	0	0%	0%	0%	0%	0%	0%	0%	0%
Midwife	92%	363	94%	89%	88%	87%	89%	87%	87%	87%
Nurse	98%	390	99%	98%	99%	99%	100%	98%	99%	99%
Anesthesiologist (MD)	0.8%	3	100%	100%	33%	67%	100%	100%	33%	100%
Nurse Anesthetist	1%	5	80%	60%	80%	60%	80%	40%	80%	60%
Laboratory technician	92%	363	95%	80%	21%	25%	85%	75%	21%	27%

[1] Columns may not sum to total due to rounding. Total columns may not equal the first column 'percent with cadre present' due to missing information.

7.5 Regulatory policies that allow health workers to perform EmONC signal functions

The EmONC core team collected information on policy related information, including policies that allow the different health worker cadres that perform the EmONC signal functions. This information helps programmers and managers to compare what the policy says and what the actual practice is in the ground. Accordingly, medical doctors, Obs/Gyne, general surgeon, pediatrician, and neonatologist were all allowed to perform all the basic and comprehensive EmONC signal functions; while a midwife and a nurse were allowed to provide all basic signal functions plus blood transfusion, administering anesthesia, and post-abortion care services (Table 7.5.1 below). In the table "Y" means the specified cadre was allowed to provide the stated EmONC signal function and "N" means that the cadre of health worker was not allowed to perform the specified signal function.

Table 7.5.1A: Regulatory policies for EmONC signal functions, by health worker cadre, Rwanda EmONC, 2021

	Routine functions			Emergency obstetric functions									
	Normal vaginal delivery	Complete and use partograph for management of labor	Perform active management of the third stage of labor	Administer parenteral antibiotics	Administer uterotonic drugs – parenteral oxytocic	Administer parenteral anticonvulsants	Perform manual removal of placenta	Perform manual vacuum aspiration (MVA) or electric aspiration	Perform dilatation and evacuation (D&E) for 2nd trimester abortions	Perform assisted vaginal delivery with vacuum	Perform obstetric surgery (e.g., cesarean delivery)	Perform blood transfusion for the mother	Administer anesthesia (e.g., spinal, general, ketamine)
Medical doctor (GP)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Obstetrician/ Gynecologist	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
General surgeon	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Pediatrician	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Neonatologist	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Midwife	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
Nurse	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
Anesthesiologist (MD)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Nurse anesthetist	N	N	N	Y	Y	Y	N	N	N	N	N	N	Y
Laboratory technician	N	N	N	N	N	N	N	N	N	N	N	N	N

Y = Yes, the national policy stipulates that this cadre of health worker be trained in this area.
N = No, the national policy does not stipulate that this cadre of health worker be trained in this area.

7.6 Facilities that provide EmONC signal functions by health worker cadre

Table 7.6.1 below also shows percent of health facilities with at least one cadre of the category that performed each of the signal functions. The table first indicates the percentage of hospitals and health centers/clinics with at least one health worker on-staff; then among these facilities, percent of facilities with a health worker cadre that performed each of the signal functions by that category of that cadre. Accordingly, in hospitals, midwives and nurses were the most likely cadres that performed antibiotics, oxytocics, anticonvulsants, and blood transfusion; while medical doctors and Obs/Gyne were highly likely performed removal of retained products of conception and cesarean delivery. A similar percent distribution was observed among health centers/clinics.

Table 7.6.1: Percentage of health facilities that provide EmOC signal functions, by health worker cadre, Rwanda EmONC, 2021

	% of facilities with at least one cadre present	Number of facilities with at least one cadre present	Among facilities with at least one of the cadres on staff, the percent where that cadre provides:									
			Antibiotics	Oxytocics	Anti-convulsants	Manual removal of placenta	Removal of retained products			Assisted vaginal delivery	Perform obstetric surgery (eg. Cesarean delivery)	Blood transfusion for the mother
							MVA/ electric aspiration	D&C or D&E	Medical abortion	Vacuum extraction or forceps		
	%	n	%	%	%	%	%	%	%	%	%	%
Hospitals (n=48)												
Medical doctor	98%	47	53%	59%	59%	89%	95%	73%	77%	64%	98%	66%
Obstetrician/ Gynecologist	58%	28	48%	44%	48%	89%	100%	52%	74%	70%	100%	52%
General surgeon	33%	16	19%	19%	19%	19%	25%	8%	19%	19%	31%	25%
Pediatrician	56%	27	36%	20%	20%	12%	8%	4%	8%	8%	8%	16%
Neonatologist	10%	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Midwife	100%	48	96%	98%	98%	98%	89%	38%	49%	42%	7%	96%
Nurse	100%	48	98%	91%	98%	76%	60%	21%	38%	18%	7%	87%
Health Centers/ Clinics (n=396)												
Medical doctor	2%	9	89%	89%	89%	89%	100%	1%	33%	44%	67%	44%
Obstetrician/ Gynecologist	1%	5	60%	60%	60%	80%	100%	1%	80%	20%	100%	60%
General Surgeon	0.5%	2	50%	50%	50%	50%	50%	0%	0%	50%	50%	50%
Pediatrician	1%	4	25%	0%	25%	0%	0%	0%	0%	0%	25%	25%
Neonatologist	0%	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Midwife	92%	363	99%	99%	96%	86%	36%	5%	5%	2%	1%	3%
Nurse	98%	390	97%	98%	93%	79%	29%	4%	4%	0.5%	0.3%	2%

D&C = dilation and curettage; E&C = evacuation and curettage; MVA = manual vacuum aspiration

7.7 Facilities that provide EmNeC signal functions by health worker cadre

Table 7.7.1 below shows percent of hospitals and health centers/clinics with at least once cadre that performed each of the signal functions by specific category of cadres. In hospitals, all of them had at least one midwife and performed corticosteroids for preterm labor, antibiotics for preterm labor, and antibiotics for newborn sepsis. Similarly, nurses were the second most common cadres that provided newborn signal functions next to midwives.

In health centers/clinics, nurses and midwives were the most available staff and most common cadres in providing most of the newborn signal functions. Despite the fact that only 2% and 1% of health centers/ clinics had at least one medical doctor and Obs/Gyne, respectively, these two cadres were the most common health workers providing oxygen for newborns.

Table 7.7.1: Percentage of health facilities that provide emergency newborn signal functions, by health worker cadre, Rwanda EmONC, 2021

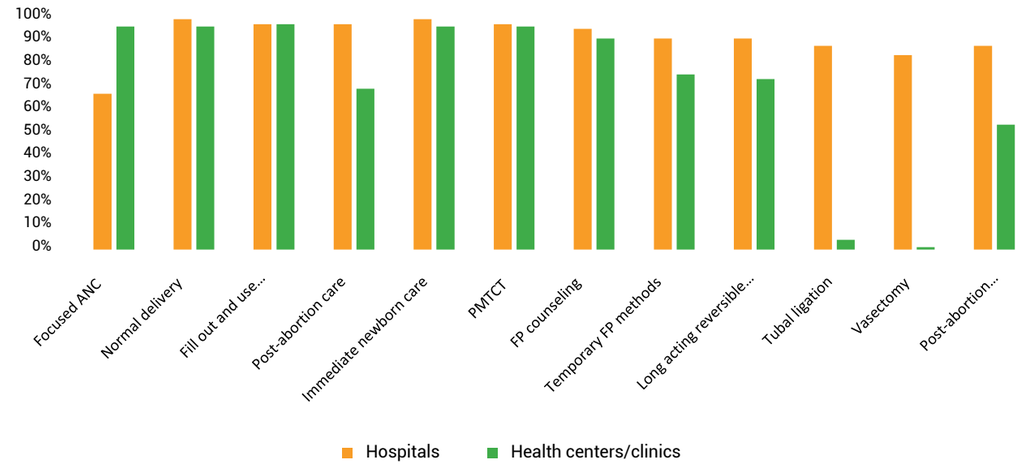
	% of facilities with cadre present	Corticosteroids for preterm labor	Antibiotics for Preterm labor	Antibiotics for neonatal sepsis	KMC	Newborn resuscitation with bag and mask	Oxygen for newborn	IV fluids to newborns
	%	%	%	%	%	%	%	%
Hospitals (n=48)								
Medical doctor	98%	61%	61%	59%	52%	84%	68%	52%
Obstetrician/Gynecologist	58%	63%	59%	56%	48%	85%	63%	48%
General surgeon	33%	25%	19%	13%	13%	19%	25%	25%
Pediatrician	56%	24%	24%	52%	40%	64%	56%	36%
Neonatologist	10%	0%	0%	60%	80%	80%	60%	40%
Midwife	100%	100%	100%	100%	98%	100%	100%	100%
Nurse	100%	91%	87%	96%	96%	96%	98%	96%
Health Centers/ Clinics (n=396)								
Medical doctor	2%	89%	89%	78%	33%	100%	89%	67%
Obstetrician/Gynecologist	1%	80%	60%	60%	20%	100%	60%	60%
General surgeon	1%	50%	50%	50%	50%	50%	50%	50%
Pediatrician	1%	25%	25%	50%	25%	50%	50%	50%
Neonatologist	0%	0%	0%	0%	0%	0%	0%	0%
Midwife	92%	86%	95%	53%	44%	93%	11%	34%
Nurse	98%	85%	93%	51%	43%	94%	9%	36%

[1] Columns may not sum to total due to rounding. Total columns may not equal the first column 'percent with cadre present' due to missing information.

7.8 Facilities that provide other essential services by health worker cadre

According to Figure 7.8.1 below, more than 80% of hospitals had at least one health worker staffed to provide normal delivery, fill out partograph, post-abortion care, immediate newborn care, PMTCT, FP counseling, temporary, long-acting, and permanent FP methods. However, only a little over 60% of the hospitals had cadres to provide focused-antenatal care. Coverage of human resources to provide such essential services in health centers/clinics was also high; except in provision of tubal ligation, vasectomy, and post-abortion care.

Figure 7.8.1: Percent of facilities with at least one health worker on staff who could perform each of the essential services, Rwanda EmONC, 2021



Coverage of human resource in providing essential services was highly dependent on midwives and nurses in all facilities; except provision of surgical family planning methods dependent on medical doctors (GPs) and Obs/Gyne (Table 7.8.1A in the Appendix).

CHAPTER

08

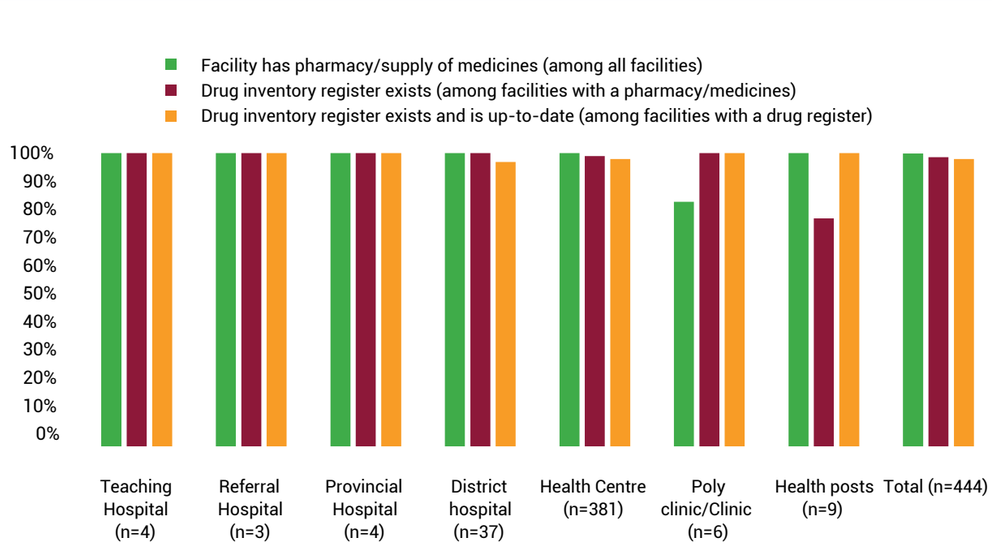
AVAILABILITY OF DRUGS, EQUIPMENT, AND SUPPLIES

This chapter describes the availability of essential drugs, equipment, and supplies. When we say, essential, we meant that the drugs are available in the health facilities based on national and international drug management standards and according to facility settings.

8.1 Management and stockout of drugs

Almost all facilities had either a pharmacy or supply of medicines. Only clinic in Nyarugenge district had no pharmacy or a supply of medicines. Of those with a pharmacy/supply of medicines, 99% of them had drug inventory registers; and 98% had the inventory registers up-to-date (Figure 8.1.1 and Table 8.1.1A in the Appendix).

Figure 8.1.1: Percent of facilities with a pharmacy or supply of medicines, with a drug inventory register, and whose register is up-to-date, by facility type, Rwanda EmONC, 2021



Among the 443 facilities with a drug store/supply of medicines, 98% of them reported that their source of drug supplies was government. All hospitals, health posts, and 98% of health centers had government as their primary source of medicines; while 80% (4 of the 5) specialty maternity clinics had private pharmacy as their source of medicines. The same pattern was observed in the primary source of gloves, syringes, and medical supplies. Government was the primary source for such supplies for all facilities, except Poly clinic clinics with private pharmacies as their primary source (Table 8.1.1A in the Appendix).

Mechanisms for ordering drugs

Table 8.1.2 below shows facility's different mechanisms for ordering drugs in the pharmacy. All teaching and provincial hospitals, 92% of district hospitals, 99% of health centers, 89% of health posts, and 40% of Poly clinic clinics ordered drugs on weekly, monthly or quarterly basis. Ordering drugs when it runs out was a mechanism for 40% of Poly clinic clinics, 11% of health posts, and only 3% of district hospitals.

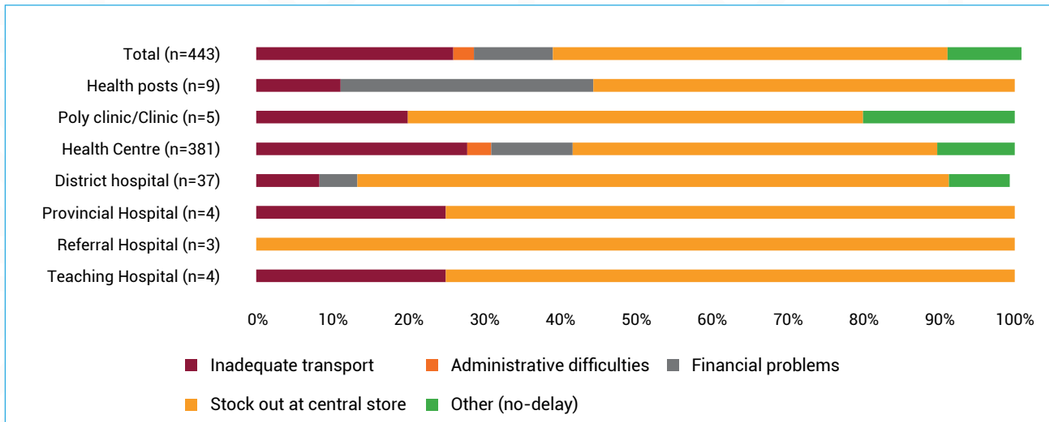
Table 8.1.2: Percentage of facilities with a pharmacy according to mechanisms for ordering drugs and reasons for delay, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=6)	Health posts (n=9)	Total (n=444)
	%	%	%	%	%	%	%	%
Among facilities with a pharmacy/supply of medicines	(n=4)	(n=3)	(n=4)	(n=37)	(n=381)	(n=5)	(n=9)	(n=443)
Drug supplies in the pharmacy are ordered								
Weekly/monthly/ quarterly	100%	100%	100%	92%	99%	40%	89%	98%
Every 6 or 12 months	0%	0%	0%	0%	1%	0%	0%	0%
Whenever stock reaches reorder level	0%	0%	0%	5%	0%	20%	0%	1%
Whenever stock runs out	0%	0%	0%	3%	0%	40%	11%	1%
Never order drugs (sent through kits)	0%	0%	0%	0%	0%	0%	0%	0%
Other	0%	0%	0%	0%	0%	0%	0%	0%

Most common cause of delays in delivery of supplies

As shown in Figure 8.1.2 below, 52% of the total facilities with a pharmacy/supply of medicines reported stockout at central level; while 26% had inadequate transport as a common cause of delay. Variations observed in the proportion of facilities that reported stock-out at central store as a most common cause of delay in the supply of medicines; from 48% among health centers to 100% among referral hospitals.

Figure 8.1.2: Percent distribution of facilities with a pharmacy or supply of medicines according to reasons for delays refilling stock, by facility type, Rwanda EmONC, 2021



Accessibility of pharmacy and reporting of pharmacy-related items

Table 8.1.3 below presents pharmacy-related items by facility type. Of all facilities with a pharmacy, 90% had their pharmacy accessible 24 hours a day. More than 97% of hospitals said that their pharmacies were accessible 24 hours a day; while 24 hours accessibility was limited to 90% of health centers, 80% of Poly clinic, and 78% of health posts.

All the facilities cited that they had a regular mechanism for ensuring that expired drugs are not used or distributed to the different wards. Destroying expired drugs was the most commonly used method in all hospitals; while health centers and health posts returned expired drugs to the suppliers for disposal. About 87% of the total facilities had a first-in-first-out system of supply management for ensuring drugs/ supplies that would expire early are distributed or used first. Ninety-three percent of the facilities were also mentioned that their drugs and supplies were protected from moisture, heat or infestations.

Almost all facilities indicated that and data collectors observed that oxytocin was refrigerated and its temperature was monitored. Among facilities storing required drugs in a functioning refrigerator, their power source was electricity or gas (92%) and 13% had a solar-powered refrigerator.

Table 8.1.3: Percentage of facilities reporting on pharmacy-related items, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=36)	Health Centre (n=381)	Poly clinic / Clinic (n=5)	Health posts (n=9)	Total (n=442)
	%	%	%	%	%	%	%	%
Pharmacy accessible 24 hours a day	100%	100%	100%	97%	90%	80%	78%	90%
Regular mechanism exists to ensure that expired drugs are not distributed	100%	100%	100%	100%	100%	100%	100%	100%
What regular method?								
Expired drugs are destroyed	100%	100%	75%	95%	31%	100%	33%	37%
Returned to the supplier	0%	0%	0%	3%	66%	0%	67%	52%
Other	0%	0%	0%	0%	2%	0%	0%	10%
Don't know	0%	0%	25%	3%	1%	0%	0%	1%
"First-in-first-out" system is in use (observation)	75%	67%	75%	81%	88%	100%	89%	87%
Drugs are protected from moisture, heat or infestation (observation)	100%	100%	100%	97%	93%	100%	100%	93%
Oxytocin refrigerated and temperature monitored daily								
Yes, refrigerated and monitored	100%	100%	100%	100%	98%	100%	89%	98%
No, oxytocin not refrigerated	0%	0%	0%	0%	2%	0%	11%	2%
Among facilities storing required drugs in functioning refrigerator:	n=4	n=3	n=4	n=37	n=381	n=5	n=9	n=443
Power source of main refrigerator storing drugs								
Electricity/Gas	100%	100%	100%	97%	91%	100%	78%	92%
Solar	25%	0%	25%	11%	13%	0%	0%	13%

Stockout of some essential drugs and supplies

Figure 8.1.3 below and Table 8.1.4A in the Appendix show stockout of some essential drugs, supplies and equipment in the last three months prior to the assessment. Accordingly, 16% of the facilities had faced stockout of contraceptives (any method), followed by gentamicin, ARVs, and magnesium sulfate (each 13%). Oxytocin was also stocked out in 12% of the facilities.

Figure 8.1.3: Percent of facilities with a pharmacy or supply of medicines that reported a stock out of selected drugs in the last 3 months, Rwanda EmONC, 2021

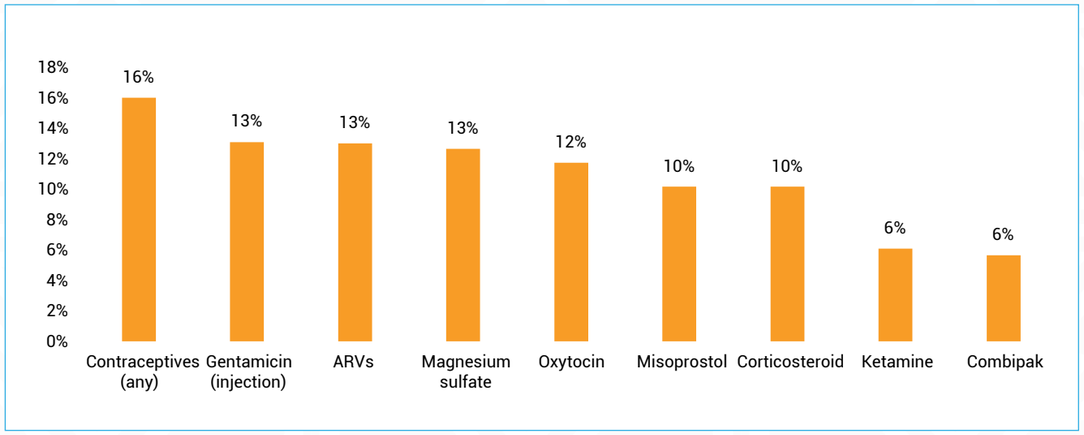


Table 8.1.5A in the Appendix presents interruptions in the safe supply of oxygen in the last 12 months prior to the assessment. Among facilities with an oxygen supply, only one percent reported that there was such an interruption in the labor and delivery and neonatal wards. Interruption of oxygen supply in the pediatric ward was below one percent.

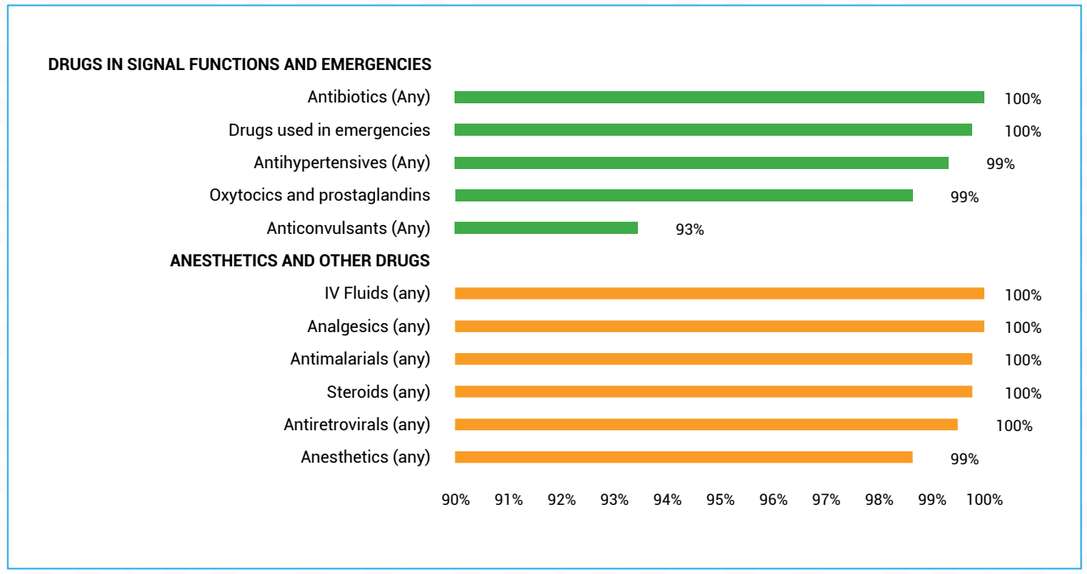
8.2 Availability of essential drugs

Availability of essential drugs and equipment play a paramount role in the delivery of quality of care. Table 8.2.1A in the Appendix shows availability of essential drugs: antibiotics, anticonvulsants, antihypertensives, oxytocics and prostaglandins, and drugs used in emergencies.

All facilities reported having one or more of the antibiotics with ampicillin (injection) and amoxicillin (oral) were the most common antibiotics (98% each) available in the facilities. While clindamycin (3% of facilities) and cefixime (5%) were the least available antibiotics in the facilities. Among all facilities, 99% of them had oxytocics and prostaglandins. Oxytocin (100%) was the widely available drug; whereas combi pack (available only in 6 hospitals and 3 health centers) and ergometrine (2% each) were the least available oxytocics in the facilities. Anticonvulsants (any) were available in 93% of the facilities with diazepam injection (94%) with the most widely used drug, followed by magnesium sulphate injection (50% concentration) (92%). Magnesium sulphate injection (other than 50% concentration) was the least available drug in this category.

Among drugs in emergencies, promethazine (91%) was commonly available while Diphenhydramine (2%) and Nitroglycerine (2%) were the least available in the facilities. Nifedipine (96%) and Labetalol (4%) were the most common and least common antihypertensives available in the facilities (Figure 8.2.1 and Table 8.2.1A in the Appendix).

Figure 8.2.1: Percent of facilities that had drugs related to the signal functions and emergencies, and anesthetics and other drugs, Rwanda EmONC, 2021



Anesthetics were stocked in 99% of the facilities in the country. Lignocaine/ Lidocaine 2% or 1% were the widely available one. Among analgesics, which were available in all facilities, Ibuprofen (100%) was stocked in all facilities and Pethidine (12%) was least stocked in the facilities. One or more steroids were available in all facilities with Dexamethasone most commonly stocked in 91% of facilities and Prednisone was least stocked (31% of the facilities).

Among IV fluids, normal saline was the most common one as it was available in 100% of the facilities. Antimalarials were also stocked in more than 93% of the facilities. One or more antiretrovirals were kept in all facilities with nevirapines for the newborn were the most commonly available one (98% of the facilities) and nevirapines for the mother as the least stocked drug (only 24% of the facilities had it) (Table 8.2.2A in the Appendix).

Table 8.2.3 below presents availability of selected contraceptives and other drugs and supplies at the time of the assessment. Large majority of the facilities (83%) had one or more of the selected contraceptives. However, only 27% had hormonal intrauterine devices in stock. The shortage was widely observed all types of facilities.

Among other drugs and supplies, vitamin K (for newborn) was the most widely available drug as it was available in 97% of the facilities; followed by oral rehydration solution (ORS) (95%), tetanus toxoid vaccine (86%), folic acid (81%), and nystatin (oral) for newborn (81%). But, sodium citrate and heparin were the least available drugs in 4% and 5% of the facilities; respectively.

Table 8.2.3: Percentage of facilities that had contraceptives and other drugs, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=6)	Health posts (n=9)	Total (n=444)
	%	%	%	%	%	%	%	%
Contraceptives (any)	100%	100%	100%	86%	82%	80%	100%	83%
Oral contraceptives	100%	100%	100%	94%	93%	75%	100%	94%
Implants (e.g: Implanon, Jadelle, etc)	100%	100%	100%	91%	94%	100%	89%	94%
3-month injectables	75%	100%	100%	91%	93%	100%	100%	93%
Copper intrauterine devices	100%	100%	100%	97%	86%	100%	67%	87%
Hormonal intrauterine devices	75%	0%	50%	34%	26%	50%	33%	27%
Male condoms	100%	100%	100%	97%	94%	100%	100%	95%
Female condoms	50%	0%	75%	59%	63%	25%	56%	61%
Emergency contraception	75%	67%	100%	91%	82%	25%	100%	82%
Other drugs and supplies								
Vitamin K (newborn)	100%	100%	100%	97%	97%	100%	100%	97%
Chlorhexidine (7% gel for cord cleansing)	75%	100%	75%	78%	67%	100%	78%	69%
Nystatin (oral) (for newborn)	100%	100%	100%	97%	81%	20%	56%	81%
Oral rehydration solution	50%	100%	100%	100%	97%	40%	67%	95%
Gentian violet paint	75%	0%	25%	27%	34%	40%	33%	33%
Ferrous sulfate or fumarate	75%	100%	100%	92%	74%	20%	89%	75%
Folic acid	75%	100%	100%	86%	82%	20%	56%	81%
Heparin	75%	67%	25%	27%	2%	40%	0%	5%
Magnesium trisilicate	25%	0%	75%	38%	14%	20%	0%	16%
Sodium citrate	25%	0%	50%	14%	2%	20%	0%	4%
Anti-tetanus serum / TAT	50%	100%	100%	81%	10%	60%	22%	19%
Tetanus toxoid vaccine	50%	33%	100%	51%	90%	100%	78%	86%
Anti-Rho (D) immune globulin	100%	100%	100%	92%	7%	80%	11%	17%
Insecticide-treated bednets (ITN)	25%	100%	100%	46%	57%	40%	89%	57%

8.3 Infection prevention and autoclave room

Table 8.3.1 below presents availability of some infrastructure elements for infection prevention in the maternity. Accordingly, almost all facilities had soap and antiseptics. All hospitals, Poly clinic clinics, and 96% of health centers and 89% of health posts had disposable latex examination gloves in stock at the time of the assessment. Decontamination container, non-sterile protective clothing, and prepared disinfection solution were available in more than 90% of the facilities.

However, bleach or bleaching powder (chlorine) was available in only 65% of the health facilities. Facilities in the primary level of care were the most affected in the availability of chlorine. Among the disinfectants and antiseptics, alcohol-based rub and polyvidone iodine were widely available; while ethanol was least stocked, only 52% had it.

Table 8.3.1: Percentage of facilities that have the indicated materials for infection prevention in the maternity area, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=6)	Health posts (n=9)	Total (n=444)
	%	%	%	%	%	%	%	%
Basic Items								
Soap	100%	100%	100%	100%	100%	100%	100%	100%
Antiseptics	100%	100%	100%	100%	99%	100%	100%	99%
Disposable latex examination gloves	100%	100%	100%	100%	96%	100%	89%	96%
Heavy duty gloves	100%	67%	75%	95%	75%	100%	78%	77%
Non-sterile protective clothing	100%	100%	75%	100%	93%	100%	100%	93%
Decontamination container	100%	100%	100%	100%	95%	100%	100%	95%
Bleach or bleaching powder (chlorine)	100%	67%	100%	78%	64%	83%	44%	65%
Prepared disinfection solution	100%	100%	100%	92%	93%	100%	78%	93%
Regular trash bin	100%	100%	75%	89%	86%	100%	89%	87%
Covered contaminated waste trash bin	100%	100%	100%	89%	87%	100%	78%	88%
Puncture proof sharps container	100%	100%	75%	97%	87%	100%	89%	89%
Mayo stand/ table (or equivalent to establish sterile field)	100%	100%	50%	73%	27%	67%	56%	33%
Surgeon's hand brush with nylon bristles	100%	100%	75%	57%	6%	67%	11%	14%
Disinfectants & antiseptics								
Chlorhexidine 7% gel	100%	100%	50%	89%	75%	100%	100%	77%
Ethanol	100%	67%	75%	70%	50%	33%	44%	52%
Polyvidone iodine	100%	100%	100%	97%	94%	83%	100%	94%
Alcohol-based rub	100%	100%	75%	100%	96%	100%	78%	95%

Autoclave room

Table 8.3.2 below shows facilities with autoclave room and materials/supplies in the autoclave room. Nationally, 70% of the facilities had a separate autoclave room. All referral, 3 of the 4 teaching, 3 of the 4 provincial hospitals and 81% of district hospitals had separate autoclave room. While two-thirds of health centers and health posts had a separate autoclave room. At national level, 51% of the facilities had autoclave with temperature and pressure gauges. Hot air sterilizer (dry oven) and steam sterilizer were available in only a quarter of the total facilities assessed. Sterilizer (pressure cooker) electric and kerosene were also available in 31% and 13% of the facilities; respectively.

Among miscellaneous items, a functioning incinerator was available in only 71% of the facilities at national level. All teaching, referral, and provincial hospitals and 89% of district hospitals had incinerator; while only 69% of the health centers had a functioning incinerator. Empty bed for the next patient was available in 87% of the facilities at the time of the assessment.

Table 8.3.2: Percentage of facilities with autoclave, sterilization and miscellaneous items in the maternity area, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic / Clinic (n=6)	Health posts (n=9)	Total (n=444)
	%	%	%	%	%	%	%	%
Autoclave								
Facility has separate autoclave room	75%	100%	75%	81%	68%	83%	67%	70%
Sterilization Equipment and Incineration								
Autoclave (with temperature and pressure gauges)	75%	100%	50%	70%	49%	67%	11%	51%
Hot air Sterilizer (dry oven)	50%	67%	75%	43%	21%	67%	0%	24%
Steam Sterilizer	75%	67%	75%	49%	22%	33%	33%	25%
Steam Instrument Sterilizer / Pressure Cooker (electric)	50%	33%	50%	38%	31%	33%	0%	31%
Sterilizer / Pressure Cooker (kerosene heated)	50%	33%	50%	22%	12%	0%	0%	13%
Sterilization drum	75%	67%	75%	51%	46%	50%	33%	47%
Sterilization drum stand	50%	67%	75%	30%	21%	50%	11%	23%
Miscellaneous Items								
Functioning incinerator	100%	100%	100%	89%	69%	50%	67%	71%
Food is provided to patients by facility	25%	33%	25%	14%	5%	17%	11%	6%
Empty bed for the next patient	100%	100%	100%	78%	87%	100%	78%	87%
Liquid spills or trash observed on floors (observation)	0%	0%	0%	0%	7%	0%	0%	6%

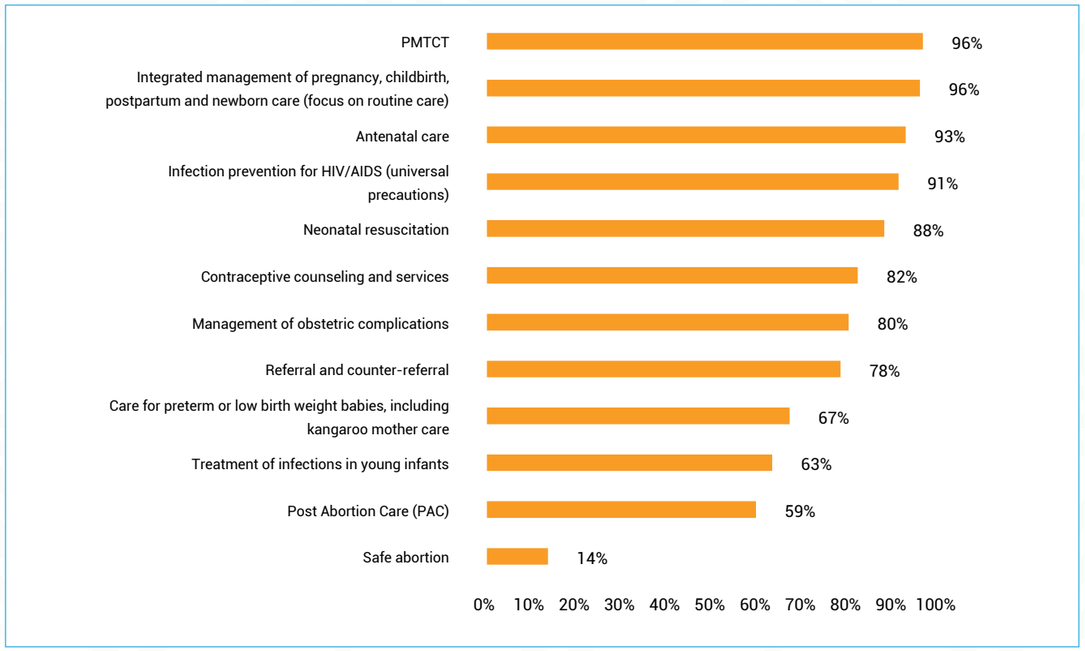
8.4 Guidelines, supplies, and medical equipment in labour and delivery wards

Guidelines

Availability of guidelines are crucial for the provision of quality services. Health providers need to refer these guidelines and materials for their quick update in performing procedures and/or administering drugs. However, the guidelines may be available in different forms; some are integrating some thematic areas. In the Rwanda case, we considered the guideline was available if the focus of service had a guideline whether it was integrated or stand alone. For example, "Care for pre-term or low-birth weight babies" guideline may be integrated with the "Integrated management of pregnancy, childbirth, postpartum, and newborn care".

As shown in Figure 8.4.1 below and Table 8.4.1A in the Appendix, the most commonly available guidelines were prevention of mother-to-child transmission of HIV (PMTCT) (96%) and integrated management of pregnancy, childbirth, postpartum, and new-born care (96%). Guidelines on antenatal care, infection prevention for HIV/AIDS (universal precautions), neonatal resuscitation, contraceptive counselling, and management of obstetric complications were available in 80% or more of the facilities. The least available guideline in the facilities was safe abortion care (14%).

Figure 8.4.1: Percent of facilities that have the indicated guidelines in the maternity area, Rwanda EmONC, 2021



Basic supplies and equipment in the maternity area

Table 8.4.2A in the Appendix presents basic supplies and equipment in the maternity area. Accordingly, the most widely available equipment in the maternity were blood pressure cuff and stethoscope (each 99%). The least available equipment was clinical thermometer; available only in 13% of the facilities, followed by ultrasound (32%). As expected, ultrasound was available in all hospitals and Poly clinic centres and only in 23% of health centres.

Availability of supplies in the maternity area was, generally upright; except few items: apnea monitor (10%), tubing for oxygen administration (17%), and pulse oximeter (41%) (Table 8.4.2A in the Appendix).

As shown in Table 8.4.3A in the Appendix, availability of equipment used for assisted vaginal delivery were very low as only 21% of the facilities had vacuum extractor with different size cups. Though forceps delivery was not performed in Rwanda, 11% to 16% of the facilities had obstetric forceps in the maternity area.

Basic supplies and equipment used for removal of retained products of conception

Table 8.4.3A in the appendix and Table 8.4.4 below present equipment and supplies in the maternity that are used for removal retained products of conception. Availability of electric vacuum aspiration machine was low (32%). The same is true for availability of manual vacuum aspiration set (43%). Hospitals were better in terms of availability of these items than health centers. Vacuum aspirators/syringes were available in only 39% of the facilities. From uterine evacuation equipment set, vaginal speculum (Sims) was available in 77% of the facilities. Sponge (ring) forceps were available in only 60% of the facilities. Uterine sound, different size forceps and curettes were not widely available in the facilities, except in teaching and referral hospitals, in which all of them had these basic equipments.

Table 8.4.4: Percentage and number of facilities with items for delivery episiotomy/perineal and cervical and repair pack in the maternity area, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=6)	Health posts (n=9)	Total (n=444)
	%	%	%	%	%	%	%	%
Delivery set/pack								
Facility has at least 1 complete delivery set/ pack	100%	100%	100%	97%	100%	100%	100%	99.5%
Number of complete delivery sets/packs	46	38	23	427	1712	48	24	2318
Number of complete sets per facility	12	13	6	12	4	8	3	5
Episiotomy /perineal set								
Facility has at least one complete set	75%	100%	75%	97%	89%	100%	89%	90%
Number of complete sets	31	25	8	312	1239	44	16	1675
Number of complete sets per facility	8	8	2	8	3	7	2	4
Cervical exploration and repair set								
Facility has Electric vacuum aspiration machine	100%	100%	100%	84%	24%	100%	11%	32%
Facility has at least one Complete MVA set	100%	100%	100%	89%	38%	67%	0%	43%

Items for delivery sets, dressing instrument sets, and gynecological and craniotomy equipment in the maternity area

Table 8.4.4 above and 8.4.5A in the Appendix shows some basic items for delivery sets, dressing instruments, gynecological and craniotomy equipment sets in the maternity area. Nationally, complete delivery set was available in all facilities with the highest median number of deliveries set per facility (12) among teaching and district hospitals and lowest (3) among health posts. Episiotomy/perineal set was available in 90% of the facilities with the number of set per facility ranged from 2 per facility in health posts and provincial hospitals and 8 per facility among teaching, referral and district hospitals.

Supplies used for delivery were widely available in the facilities; except long gloves that were available only in 68% of the facilities, at national level. As expected, hospitals were better supplied than lower-level facilities. Availability of dressing instruments were also broadly varying among the different items with the most available was Needle holder - Mayo hegar's 180 mm s/s (92%) and the least available was Artery forceps, mosquito 130 mm straight s/s (57%). Similarly, vaginal speculums (Sims) were most commonly available gynecological equipment (76%) at national level compared to the least available one - Uterine sound, graduated, 305 mm s/s (29%). All of the craniotomy equipment items assessed were not commonly available in the facilities (Table 8.4.5A in the Appendix).

Selected furnishings and amenities in the maternity area

Nationally, the most commonly available furnishings were beds (99%) and examination table (97%) and the least available were Filled O2 cylinder with cylinder carrier and key to open the valve (17%). However, filled oxygen cylinder was available in all hospitals and Poly clinic clinics (Table 8.4.6).

Table 8.4.6: Percentage of facilities with selected furnishings and amenities in the maternity area, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=6)	Health posts (n=9)	Total (n=444)
	%	%	%	%	%	%	%	%
Furnishings								
Instrument trolley	100%	100%	100%	100%	86%	100%	56%	87%
Instrument tray	100%	100%	100%	92%	89%	100%	67%	89%
Beds	100%	100%	100%	100%	99%	100%	89%	99%
Linens	100%	100%	100%	97%	78%	100%	67%	80%
Blankets for cold weather	100%	67%	100%	95%	72%	100%	33%	74%
Water filter (or other means to make potable water available to patients and staff)	100%	100%	50%	84%	71%	83%	78%	73%
Filled O2 cylinder with cylinder carrier and key to open the valve	100%	100%	100%	100%	5%	100%	0%	17%
Wheelchair	100%	100%	100%	95%	57%	100%	44%	61%
Stretcher with trolley	100%	100%	75%	97%	65%	100%	33%	68%
Examination table	100%	100%	100%	100%	96%	100%	100%	97%
Labor/delivery table with stirrups	100%	100%	100%	92%	86%	100%	100%	88%
Labor/delivery table without stirrups	100%	100%	75%	65%	48%	33%	67%	51%

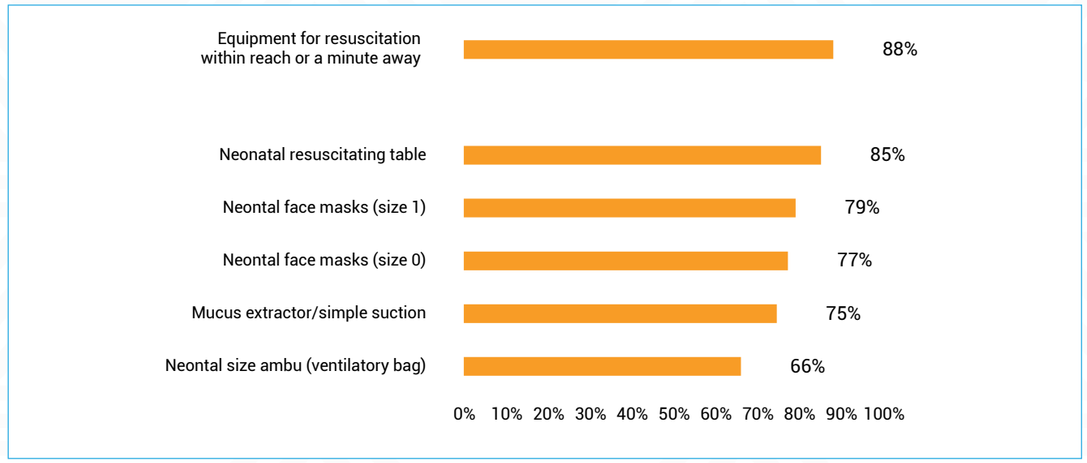
8.5 Newborn care equipment and supplies

Table 8.5.1A in the Appendix and Figure 8.5.1 below present the different new-born equipment and supplies needed in the maternity or in the new-born corner/unit. Accordingly, baby weighing scale and cord ties/clips were available in 96% and 95% of the facilities; respectively. Thermometer for newborn was available in 77% of the facilities.

Among neonatal resuscitation packs, neonatal resuscitation table was the most widely available item (85%), followed by neonatal face mask size 1 (79%) and size 0 (77%). Lack of ambu bag was visible in 37% of health centers, 11% of district hospitals, and even in one of the teaching hospitals. Decontamination supplies for bag and mask were available in 83% of the facilities. All referral and provincial hospitals and Poly clinics had such supplies in use while 84% of district hospitals, 83% of health centers, 3 of the 4 teaching hospitals, and 56% of health posts reported having decontamination supplies for bag and mask (Figure 8.5.1 below and Table 8.5.1A in the Appendix).

Health facilities were asked whether they have the neonatal resuscitation packs within reach or not. Eighty-eight percent of the facilities reported that neonatal resuscitation packs were within their reach of a minute away if needed (Figure 8.5.1 below and Table 8.5.1A in the Appendix).

Figure 85.1: Percent of facilities with selected items from neonatal resuscitation pack, Rwanda EmONC, 2021

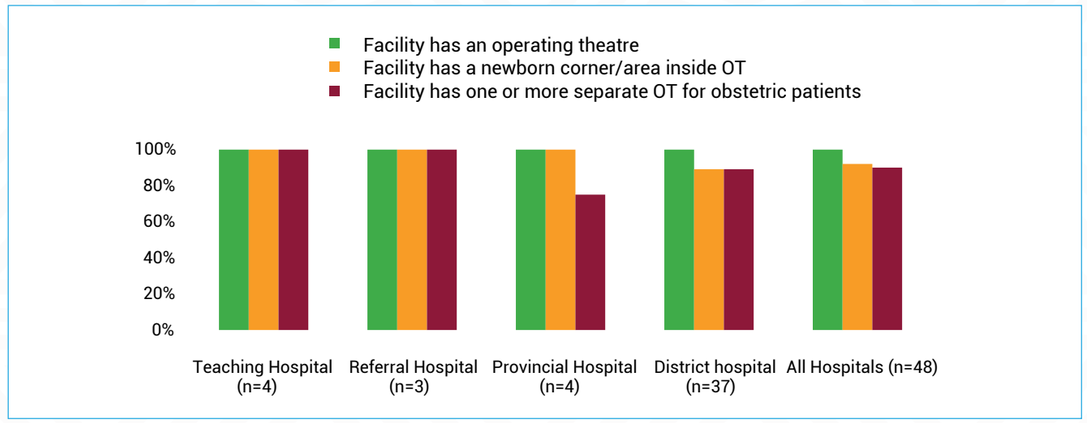


Out of the selected equipment for small and sick new-born babies, radiant warmer was available in only 66% of the facilities at national level. The gap at national level was attributed to the lack of radiant warmer in the health centers (61%). Syringes (0.5 and 1.0ml) were also available in only 58% of the facilities. The rest of supplies and equipment for small and sick newborn care were almost unavailable as only below 26% of the facilities had them. Most of such equipment and supplies were most likely available in hospitals and Poly clinic clinics than health centers and health posts. Average number of incubators available per facility was high in teaching hospitals (10) and very low in health centers and health posts (0.1) (Table 8.5.1A in the Appendix).

8.6 Operating theatre and equipment

Figure 8.6.1 below and Table 8.6.1 show the availability of operating theatres (OT), selected equipment and supplies among all hospitals. All of the 48 hospitals assessed had an OT. Of the 48 hospitals, 90% of them (43) had one or more separate OTs for obstetric patients. Similarly, 92% of the hospitals reported having a newborn corner inside their OTs.

Figure 8.6.1: Percent of hospitals and MCH specialty centres with an operating theatre for all clients and for obstetric clients, by facility type, Rwanda EmONC, 2021



As shown in Table 8.6.1 below, all the hospitals had an operating table in their OT ward. Syringes with 5ml and 10ml were also available in all the hospitals. Adjustable and shadowless light and surgical drapes were also widely available among hospitals.

Of the obstetric and laparotomy packs, towel clips, sponge forceps, uterine hemostasis forceps (20cm), needle holder, surgical knife blades, abdominal retractor (size 3), scissors straight 23cm, and different size and type of sutures were available in 90% or more of the hospitals (Table 8.6.1).

Table 8.6.1: Percentage of hospitals with an operating theatre (OT) and among those with an OT, the percent with select equipment and supplies, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	All Hospitals (n=48)
	%	%	%	%	%
Basic Items					
Operating table	100%	100%	100%	100%	100%
Light- adjustable, shadowless	100%	100%	100%	97%	98%
Surgical drapes	100%	100%	100%	97%	98%
Syringes 5ml	100%	100%	100%	100%	100%
Syringes 10ml	100%	100%	100%	100%	100%
Syringes 20ml	100%	100%	100%	81%	85%
Needles 21, 22, 23	100%	100%	100%	86%	90%
Obstetric laparotomy / cesarean delivery pack					
Stainless steel instrument tray with cover	75%	67%	75%	84%	81%
Towel clips	75%	100%	100%	89%	90%
Sponge forceps, 22.5 cm	100%	100%	75%	92%	92%
Straight artery forceps, 16 cm	75%	100%	75%	86%	85%
Uterine haemostasis forceps, 20 cm	100%	100%	100%	89%	92%
Needle holder	100%	100%	100%	95%	96%
Surgical knife handle/No 3	100%	100%	75%	78%	81%
Surgical knife handle/No 4	100%	100%	100%	73%	79%
Surgical knife blades	100%	100%	100%	95%	96%
Triangular point suture needles/7.3 cm/size 6	100%	100%	50%	62%	67%
Round-bodied needles/No 12/size 6	100%	67%	25%	70%	69%
Abdominal retractor/size 3	75%	100%	100%	89%	90%
Abdominal retractors/double-ended (Richardson)	100%	100%	75%	76%	79%
Curved operating scissors/blunt pointed (Mayo) 17cm	75%	100%	75%	89%	88%
Straight operating scissors/blunt pointed (Mayo) 17cm	75%	100%	75%	81%	81%
Scissors, straight, 23 cm	100%	100%	75%	89%	90%
Suction nozzle	100%	100%	75%	68%	73%
Suction tube, 22.5 cm, 23 French gauge	75%	100%	75%	81%	81%
Intestinal clamps, curved (Dry), 22.5 cm	100%	67%	75%	68%	71%
Intestinal clamps, straight, 22.5 cm	75%	67%	75%	62%	65%
Dressing (non-toothed tissue) forceps/15 cm	100%	100%	75%	86%	88%
Dressing (non-toothed tissue) forceps/25 cm	100%	100%	75%	73%	77%
Sutures (different sizes and types)	100%	100%	75%	89%	90%
Mini-laparotomy kit (for female sterilization)	75%	100%	75%	89%	88%

Table 8.6.2 below shows availability of anesthesia equipment and supplies in hospitals. Anesthesia face masks were presented in all teaching, referral, and provincial hospitals and 92% of district hospitals. Similarly, spinal needles (18-25 gauges) and electric suction aspirator, oxygen cylinder with manometer and flowmeter, oropharyngeal airways, laryngoscopes, and endotracheal tubes (8mm) were available in 90% or more of the hospitals.

Table 8.6.2: Percentage of hospitals with an operating theatre (OT) and with anesthesia equipment and supplies, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	All Hospitals (n=48)
Anesthesia Equipment					
Anesthetic face masks	100%	100%	100%	92%	94%
Oropharyngeal airways	100%	100%	100%	86%	90%
Laryngoscopes (with spare bulbs and batteries)	100%	100%	75%	89%	90%
Endotracheal tubes with cuffs (8 mm)	75%	100%	100%	89%	90%
Endotracheal tubes with cuffs (10 mm)	75%	100%	100%	76%	79%
Intubating forceps	100%	100%	100%	78%	83%
Endotracheal tube connectors: 15 mm plastic (connect directly to breathing valve; three for each tube size)	100%	67%	75%	73%	75%
Spinal needles (18-gauge to 25-gauge)	100%	100%	100%	95%	96%
Suction aspirator, Foot-operated	75%	100%	50%	57%	60%
Suction aspirator Electric	100%	100%	75%	92%	92%
Anesthesia vaporizers (draw-over system)	100%	100%	50%	81%	81%
Oxygen cylinders with manometer and flowmeter (low flow) tubes and connectors	75%	100%	75%	92%	90%

8.7 Laboratory equipment and supplies

Laboratory equipment and supplies available at the time of the assessment

Table 8.7.1 below shows laboratory supplies that were available at the time of the assessment by type of facility and type of supply. Accordingly, all the 444 facilities assessed had a microscope. Similarly, all facilities had immersion oil in stock. Most of the supplies were available in many of the hospitals and Poly clinic clinics. However, Ammonia and May Grunwald stain were the least available supplies as only 4% and 8% of the total facilities had them, respectively. CD4 machine was available only 1 of the 4 teaching, 3 of the 4 provincials, and 38% of the district hospitals. Referral hospitals were all stocked with CD4 machine. Of the 381 health centers, only 2% of them (6 in number) had a CD4 machine.

Table 8.7.1: Percentage of facilities with laboratory supplies, by type of facility (among facilities with a laboratory), Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=6)	Health posts (n=9)	Total (n=444)
	%	%	%	%	%	%	%	%
Laboratory supplies								
Microscope	100%	100%	100%	100%	100%	100%	100%	100%
Immersion oil	100%	100%	100%	97%	99%	100%	100%	99%
Glass rods	100%	100%	100%	76%	71%	100%	89%	73%
Sink or staining tank	100%	100%	100%	86%	72%	100%	44%	74%
Measuring cylinder, various sizes	100%	100%	75%	73%	41%	67%	0%	45%
Wash bottle	100%	100%	75%	73%	71%	83%	44%	72%
Bottle with buffered water	100%	67%	75%	57%	57%	83%	22%	57%
Timer clock with alarm	100%	100%	100%	100%	93%	100%	67%	93%
Rack for drying slides	100%	100%	100%	100%	74%	83%	67%	77%
Giemsa stain	100%	100%	100%	97%	99%	100%	100%	99%
Wright stain	50%	33%	0%	35%	17%	17%	11%	19%
May Grunwald stain	100%	33%	25%	19%	6%	17%	0%	8%
Funnel and filter paper	100%	67%	75%	73%	48%	50%	33%	50%
Methanol	100%	100%	100%	62%	40%	33%	11%	43%
Refrigerator for laboratory supplies	100%	100%	100%	100%	92%	100%	44%	92%
Glass containers	100%	67%	100%	89%	69%	67%	44%	71%
Counting chamber (Differential counter)	100%	67%	100%	65%	29%	50%	11%	33%
Pipette (5 ml)	100%	100%	50%	73%	73%	83%	11%	72%
Pipette (graduated, 1.0 ml)	100%	100%	50%	78%	64%	67%	22%	65%
Dropping pipette	100%	67%	75%	81%	72%	100%	44%	73%
Cover slips	100%	100%	100%	95%	87%	100%	67%	88%
Petri dishes	100%	67%	50%	32%	17%	50%	11%	20%
Bowls, kidney dishes, various sizes	100%	67%	50%	41%	38%	50%	22%	39%
Turk diluting solution	75%	0%	0%	11%	12%	0%	11%	12%
Tally counter	50%	0%	25%	19%	8%	17%	11%	10%
Haemoglobinometer and hydrochloric acid solution	50%	67%	75%	43%	67%	50%	44%	64%
Spectrophotometer	100%	67%	100%	73%	57%	83%	11%	59%
Microhematocrit centrifuge (manual or electric)	75%	0%	50%	35%	46%	67%	11%	45%
Balance for reading results	100%	33%	50%	30%	25%	0%	22%	26%
Heparinized capillary tubes (75 mm x 1.5 mm)	75%	33%	50%	27%	33%	67%	22%	34%
Spirit lamp	75%	33%	0%	27%	33%	17%	0%	32%
Ethanol	100%	67%	75%	76%	55%	50%	67%	58%
Test tubes	100%	100%	100%	95%	86%	100%	89%	87%
Test tube rack	100%	100%	100%	84%	64%	100%	67%	67%
Beaker, various sizes	75%	100%	75%	54%	33%	33%	22%	36%
Ammonia	25%	0%	0%	11%	3%	17%	0%	4%
Lugol's iodine solution	100%	100%	75%	92%	26%	83%	11%	34%
CD4 machine	25%	100%	75%	38%	2%	0%	0%	6%

Laboratory equipment and supplies for blood transfusion and screening

Table 8.7.2 presents the availability of equipment and supplies for laboratory and blood transfusion. All the facilities had laboratories with set of guidelines for the laboratory procedures; but only 14 percent of the total facilities had provided blood transfusions. As expected, all hospitals had provided blood transfusions; while only 2% of the health centres and none of the health posts did have blood transfusions. Eighty three percent of the Poly clinic clinics di have blood transfusions as well.

Of those facilities with a blood bank, refrigerator for blood bank was found in 88% of them; however, only 20% of the Poly clinic clinics had a blood bank refrigerator. Only 4 of the 7 health centres with a blood bank had a refrigerator for blood bank. Microscope slides and test tubes with different sizes were available in all the 60 health facilities that had a blood transfusion service. Centrifuge (electric) and centrifuge (hand driven) were available in 97% and 18% of the 60 facilities with a blood transfusion, respectively.

Ninety-six percent of the 60 facilities had blood typing and cross-matching reagents were stocked in 96% of the facilities with blood transfusion. However, blood collection bags were available only in 35% of them (Table 8.7.2).

Among the blood collection and screening tests, Hepatitis B, C, rapid HIV test, and syphilis tests were all available in almost all hospitals and 5 of the 7 Poly clinic clinics. TB microscopy was widely available in teaching, provincial and referral hospitals, and 89% of district hospitals. Pregnancy test was also available in almost all hospitals and Poly clinic clinics and health centers with blood transfusion. Average number of blood units in stock was reported 13.8 with teaching hospitals recorded high (35.5) and low in health centers (1.3) and Poly clinic clinics (3.0) (Table 8.7.2).

Table 8.7.2: Percentage of facilities with a laboratory and among those the percent with equipment and supplies for blood transfusion and screening, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=6)	Health posts (n=9)	Total (n=444)
	%	%	%	%	%	%	%	%
Among all facilities								
Facility has a laboratory	100%	100%	100%	100%	100%	100%	100%	100%
Among facilities with a laboratory	(n=4)	(n=3)	(n=4)	(n=37)	(n=381)	(n=6)	(n=9)	(n=444)
Facility has set of guidelines for laboratory	100%	100%	100%	100%	100%	100%	100%	100%
Among facilities with a laboratory	(n=4)	(n=3)	(n=4)	(n=37)	(n=381)	(n=6)	(n=9)	(n=444)
Facility provides blood transfusion	100%	100%	100%	100%	2%	83%	0%	14%
Equipment & Supplies	(n=4)	(n=3)	(n=4)	(n=37)	(n=7)	(n=5)	(n=0)	(n=60)
Refrigerator for blood bank	100%	100%	100%	100%	57%	20%		88%
Test tubes - various sizes	100%	100%	100%	100%	100%	100%		100%
Microscope slides	100%	100%	100%	100%	100%	100%		100%
Compound microscope for cross-matching	25%	33%	100%	51%	29%	60%		50%
Microscope illuminator	50%	33%	50%	57%	29%	60%		52%
Blood lancets	100%	100%	100%	97%	100%	100%		98%
Cotton wool	100%	100%	100%	95%	100%	100%		97%
Rack	100%	100%	75%	76%	57%	100%		78%
8.5 g/l Sodium Chloride solution	100%	100%	50%	57%	43%	80%		62%
20% Bovine albumin	25%	67%	0%	19%	29%	60%		25%
Centrifuge (electric)	100%	100%	100%	95%	100%	100%		97%
Centrifuge (hand driven)	0%	0%	25%	22%	0%	40%		18%
37o Water bath (or incubator)	100%	100%	100%	86%	100%	80%		90%
Pipettes Volumetric - various sizes	100%	100%	100%	89%	86%	100%		92%
Blood typing and cross-matching reagents	100%	100%	100%	97%	100%	100%		98%
Bags for collecting blood	75%	0%	50%	35%	14%	40%		35%
Blood transfusion supplies								
Average number of units of blood in stock	35.5	24.0	19.5	12.8	1.3	3.0	.	13.8
Blood collection and Screening tests								
Airway needle for giving blood	75%	33%	75%	57%	43%	40%		55%
Artery forceps	100%	0%	50%	30%	14%	40%		33%
Anticoagulant bottles	75%	67%	75%	84%	71%	80%		80%
Scale for blood collection	100%	33%	50%	35%	14%	40%		38%
Hepatitis B Test	100%	100%	100%	92%	57%	100%		90%
Hepatitis C Test	100%	100%	100%	92%	86%	100%		93%
HIV Rapid Diagnostic Test (RDT) kit	100%	100%	100%	100%	100%	100%		100%
Syphilis Test	100%	100%	100%	100%	86%	100%		98%
TB microscopy (slides, stain)	100%	100%	100%	89%	57%	40%		83%
Malaria RDT kit	25%	0%	50%	43%	86%	80%		48%
Pregnancy test	100%	100%	100%	95%	100%	100%		97%

CHAPTER

09

CASE REVIEWS

9.1 Caesarean delivery reviews

Description of reviewed cases settings

The main purpose of the caesarean delivery case review was to understand the primary causes for caesarean sections and to evaluate some aspects of the quality of the procedure and record-keeping. The three most recent caesareans, as documented in the facility operating room register book, were reviewed if they were performed and discharged in the last 12 months prior to the assessment.

As shown in Table 9.1.1 below, of the total 444 facilities assessed, 56 of them (13%) had provided cases for review. Of these, 98% had provided 3 cases for review, 100% had provided 2 cases for review. The review facilities included all public hospitals, and few health centers and Poly clinic clinics. A total of 167 cesarian delivery cases were reviewed of which 126 took place in public/government facilities, 110 cases were conducted in government/public facilities, 18 in private-for-profit, and 16 in private-not-for-profit. Thirty six percent (36%) of reviewed cases were in Nyarugenge district and 33% in Gasabo district. Out of all 30 districts, 8 registered low proportion of CS case reviews: 5% in Nyagatare and 6% in Bugesera, Burera, Kirehe, and Rwamagana. CS review had been conducted from 22 CEmONC facilities and 34 of the 420 partially functioning facilities.

As expected, most cases came from hospitals (n=146); only 11 percent (n=18) were from medicalized health centres and Poly clinic clinics. Government facilities provided 126 cases while 21 were from private-for-profit facilities and 20 from private-not-for-profit facilities.

Table 9.1.1: Number of facilities where cesarean deliveries were reviewed1 and how many, by district, type of facility, managing authority and EmONC classification, Rwanda EmONC, 2021

	Total number of facilities	Percent of facilities where cesareans were reviewed		Number of facilities where cesareans were reviewed and how many		Total number of cesareans reviewed
	n	n	%	2	3	
National	444	56	13%	56	55	167
District						
Bugesera	17	1	6%	1	1	3
Burera	16	1	6%	1	1	3
Gakenke	9	2	22%	2	2	6
Gasabo	15	5	33%	5	5	15
Gatsibo	20	2	10%	2	2	6
Gicumbi	16	2	13%	2	2	6
Gisagara	16	3	19%	3	3	9
Huye	12	2	17%	2	2	6
Kamonyi	10	1	10%	1	1	3
Karongi	14	3	21%	3	3	9
Kayonza	14	2	14%	2	2	6
Kicukiro	12	3	25%	3	3	9
Kirehe	17	1	6%	1	1	3
Muhanga	13	1	8%	1	1	3
Musanze	14	1	7%	1	1	3
Ngoma	13	1	8%	1	1	3
Ngororero	15	2	13%	2	2	6
Nyabihu	15	2	13%	2	2	6
Nyagatare	20	1	5%	1	1	3
Nyamagabe	16	2	13%	2	2	6
Nyamasheke	18	2	11%	2	1	5
Nyanza	13	1	8%	1	1	3
Nyarugenge	11	4	36%	4	4	12
Nyaruguru	15	1	7%	1	1	3
Rubavu	15	2	13%	2	2	6
Ruhango	13	2	15%	2	2	6
Rulindo	16	2	13%	2	2	6
Rusizi	19	2	11%	2	2	6
Rutsiro	13	1	8%	1	1	3
Rwamagana	17	1	6%	1	1	3
Location						
Urban	99	28	28%	28	27	83
Rural	345	28	8%	28	28	84
Type of facility						
Teaching hospital	1	4	400%	1	1	3
Referral hospital	8	3	38%	8	8	24
Provincial hospital	5	4	80%	5	5	15
District hospital	37	37	100%	35	34	104
Health centers	381	3	1%	3	3	9
Poly clinic/clinic	6	5	83%	3	3	9
Health posts	9	0	0%	0	0	0
Managing authority						
Public/Government	366	42	11%	42	42	126
Private-for-profit	10	7	70%	7	7	21
Private-not-for-profit*	68	7	10%	7	6	20
EmONC classification						
Comprehensive EmONC	22	22	100%	22	22	66
Basic EmONC	2	0	0%	0	0	0
Partially functioning EmONC**	420	34	8%	34	33	101

[1] Maximum number reviewed was 3 per facility

* Includes NGO, faith-based or mission health facilities

Characteristics of women whose CS were reviewed

Table 9.1.2 below reports on the distribution of cesarean deliveries reviewed according to maternal age, parity, gestational age, HIV status, and by managing authority. The mean age in years for all cesareans reviewed was 30.45. The mean age observed was quite similar for all facilities by managing authorities. For all CS reviewed, large majority were multi-parous (2-5 previous deliveries) (73%), followed by primiparous (one previous delivery). Similar percentage distribution was observed among the cases in different ownerships.

At national level, of the total 167 cases reviewed, 87% were term or post-term (>37weeks). All of the cases in the private-for-profit were also term or post-term; while 86% and 80% of the cases were in a similar category in cases from public/government and private-not-for profit facilities, respectively. Nationally, 93% were tested for HIV at the time of delivery while only 5% were HIV positive. Similarly, 92%, 94%, and 100% of the cases in public/government, private-for-profit, and private not-for-profit were tested for HIV. Of these, 8% of the cases in public/government and 15% of in private not-for-profit were tested positive (Table 9.1.2).

Table 9.1.2: Percent distribution of cesarean deliveries reviewed according to maternal age, parity, gestational age and HIV status, by managing authority, Rwanda EmONC, 2021

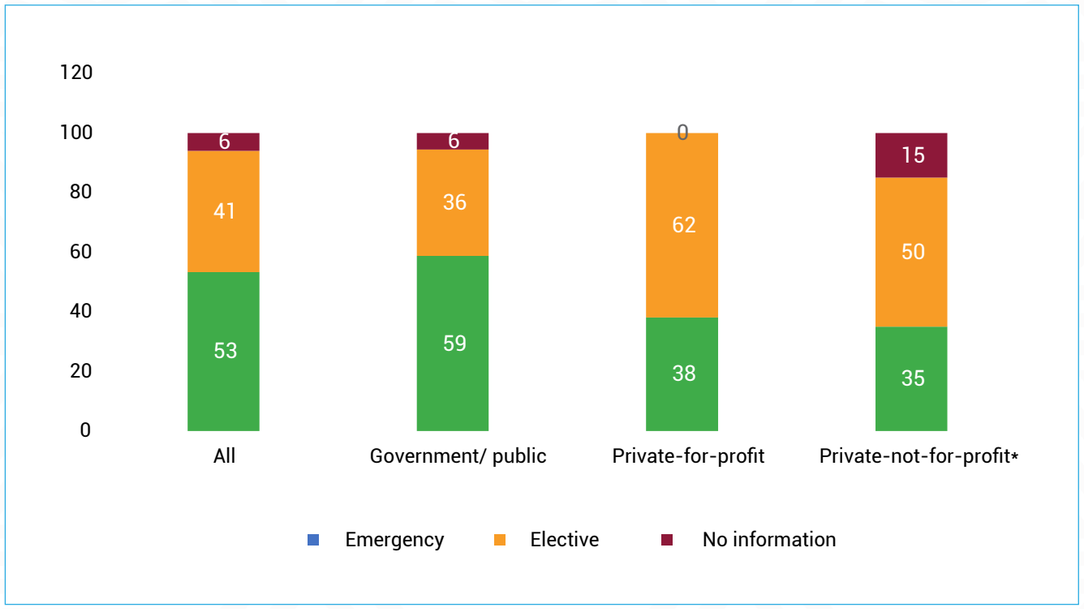
	All cesareans reviewed	Cesareans reviewed in government/ public facilities	Cesareans reviewed in private-for-profit	Cesareans reviewed in private-not-for-profit*
Characteristics	**n=167**	**n=110**	**n=18**	**n=16**
Age (in years)				
<18	1.2	1.59	0	0
18-24	18.56	19.84	4.76	25
25-29	23.95	23.02	38.1	15
30-34	26.95	29.37	19.05	20
35-39	19.16	15.87	33.33	25
>40	10.18	10.32	4.76	15
Mean age (in years)	30.45	30.22	31.81	30.45
Parity (index pregnancy)	0	0	0	0
Nulliparous (0 parity, first delivery)	0	0	0	0
Parity 1 (one previous delivery)	27	27	10	45
Multiparous (2-5 previous deliveries)	73	73	90	55
Grand multiparous (6 or more parity)	0	0	0	0
No information	0	0	0	0
Gestational age				
Preterm (<37 weeks)	8	8	0	15
Term or post-term (> 37 weeks)	87	86	100	80
No information	5	6	0	5
HIV positive (% yes)	5	6	0	0
Tested for HIV at the time of delivery (%Yes)	93	92	94	100
A method of contraception provided (%Yes)	47	56	29	15

* Includes NGO, faith-based health facilities

Table 9.1.3 below show the type of cesareans performed, onset of labour, whether partograph was used for an emergency CS, fetal presentation, and some treatments administered during the CS. Accordingly, of the 167 cesarean deliveries reviewed, nearly half (47%) of them had on-set of labour before the cesarean while a similar proportion of them (42%) had spontaneous labour. A similar percentage distribution was observed among the different facility ownerships.

Over half of the cesareans done were emergency (53%) and the rest were elective (41%), and those that had no information (6%). Unlike this distribution, most of the cesareans in the private-for-profit and private not-for-profit facilities were classified as elective (62%) and 50%, respectively. Among whose cesareans were an emergency, only 59% had partograph administered during labour (Figure 9.1.3).

Figure 9.1.3: Percent distribution of caesarean deliveries reviewed according to type of caesarean, by facility type, Rwanda EmONC, 2021



Distribution of cesarean reviewed according to the indication, onset of labor, urgency of cesarean, and use of partograph, by managing authority

Table 9.1.3 also shows that 89% of the cesareans performed had taken uterotonics after baby was delivered. In 98% of the cesareans, antibiotics was used before the CS procedure. About 5% and 7% of the cases had developed complications during operation and after operation, respectively. Of the 167 cases, 77% of them had cephalic as fetal presentation while 11 were breach. Ninety-nine percent of the cases reviewed had the maternal outcome as alive

Table 9.1.3: Percent distribution of cesarean reviewed according to characteristics of the index cesarean delivery and maternal survival status, by managing authority, Rwanda EmONC, 2021

	All cesareans reviewed	Cesareans reviewed in government/ public	Cesareans reviewed in private-f or-profit	Cesareans reviewed in private-not-for-profit*
Characteristics	n=167	n=126	n=21	n=20
Onset of labor				
Spontaneous	42	40	52	42
Induced	11	13	10	11
Cesarean before labor	47	46	38	47
No information				
Cesarean was:				
Emergency	53	59	38	35
Elective	41	36	62	50
No information	6	6	0	15
Among women whose cesarean was an emergency				
Partograph used	59	61	67	33
Partograph not used	32	29	17	67
No information	10	10	17	0
Fetal presentation				
Cephalic	77	75	86	80
Breech	11	10	10	15
Transversal or oblique	6	6	5	5
No information	6	8	0	0
Number of neonates				
Singleton	95	93	100	100
Multiple	5	7	0	0
No information	0	0	0	0
Number of previous CS				
0	1	0	8	0
1	44	48	50	0
2+	54	52	42	100
No information	0	0	0	0
Prophylactic uterotonics administered after baby delivered (% yes)	89	89	81	100
Antibiotics administered before C/S (% yes)	98	97	100	100
Developed a complication during operation (% yes)	5	6	0	0
Developed a complication post operation (% yes)	7	10	0	0
Maternal outcome				
Alive	99	99	100	100
Dead	1	1	0	0
Among women who died, primary cause of death	(n=1)	(n=1)	(n=0)	(n=0)
Ambolie ammiotique	100	100	0	0

* Includes NGO, faith-based or mission

Indications for cesarean section

Of all – 167 cases of cesareans reviewed, 71% of them were performed due to maternal indications and the rest (29%) were due to newborn indications. Of the maternal indications, previous CS/uterine scar (34%) was the leading cause for the current CS procedure. Of the newborn indications, fetal distress (14%) was the most common cause for CS delivery, followed by breech with footling (8%) at national level. However, the later one was the leading indication in the private-for-profit facilities (9.5%).

Table 9.1.4: Percent distribution of cesarean deliveries reviewed and their indications, by type of cesarean and partograph used, Rwanda EmONC, 2021

	All cesareans reviewed	Cesareans reviewed in government/ public	Cesareans reviewed in private-for-profit	Cesareans reviewed in private-not-for-profit*
	(n=167)	(n=126)	(n=21)	(n=20)
Indication for cesarean:				
Maternal indications				
Placenta previa	0.6	0.79	0	0
Placenta abruption	0.6	0.79	0	0
Maternal distress	0.6	0.79	0	0
Psycho-social/maternal/family request	2.4	0.79	9.52	5
Maternal medical disease	1.2	1.59	0	0
Failed induction	6.6	7.9	4.8	0
Failure to progress	4.2	4.8	0	5
Failed trial of labour	1.2	0.79	0	5
Previous CS / uterine scar	34	33	48	20
Severe pre-eclampsia/eclampsia	1.8	1.59	0	5
Precious baby	0	0	0	0
Obstructed labor	3	4	0	0
Cephalo-pelvic disproportion	0.6	0	4.76	0
Prolonged labor	3.6	4.0	4.8	0
Vesico-vaginal fistula/fistula post-repair	0	0	0	0
Other	7.2	7.1	4.8	10
No information	3.6	4.8	0.0	0
Newborn indications				
Cord prolapse	1.2	0	0	10
Fetal distress	14.4	15.1	4.8	20
Severe intrauterine growth retardation	0	0	0	0
Malpresentation (transverse, oblique, brow)	3.6	3.2	4.8	5
Breech with footling	7.8	6.4	9.5	15
Multiple gestation	2.4	2.4	4.8	0
Other	0	0	0	0

* Includes NGO, faith-based or mission

Table 9.1.5A in the Appendix provides proportion of cesareans reviewed who were referred from another facility and other selected variables by type of cesarean, infection status, and indication. Regarding the time lapse factor, among the 167 cases reviewed, 127 (76%) were referred from other facilities that was likely to delay care. While 30 (18%) received a cesarian section within 30 minutes, 16 (10%) within 2 hours, and 5 cases received a cesarian delivery after 5 hours. For the 112 cases (67%), the time lapse was missing. By type of cesarean, 85 were emergency cases and 54 were elective.

Regarding the main CS indications, the review results indicated that "Previous CS scar" is the main indication with 53 cases (32%), 23 cases for "Fetal distress", 12 cases for "Breech with footling" and 9 cases for "Failed induction" (Table 9.1.5A in the Appendix).

Other factor looked at was the length of stay in the facility: 114 women (68%) were hospitalized for 3 days and 39 (23%) spent 4 to 8 days. Indication for CS deliveries was primarily previous CS scar with 35% of all reviewed cases while among fetal indications, fetal destress was the main indication for 12% of cases (Table 9.1.5A in the Appendix).

When we looked at the case reviews by Robson Classification of cesarean deliveries[28], "all multiparous with at least one previous uterine scar, with single cephalic pregnancy, > 37 weeks of gestation" was the highest contributor (31%) of the CS delivery. No information was also apparent as 14% of the cases had no information to calculate Robson classification (Table 9.1.6).

Table 9.1.6: Percent distribution of cesarean reviewed according to Robson Classification of Cesarean Deliveries, Rwanda EmONC, 2021

Group	Description	Frequency	%
1	Nulliparous with single cephalic pregnancy, >37 weeks' gestation in spontaneous labour	17	10%
2	Nulliparous with single cephalic pregnancy, >37 weeks' gestation who either had labour induced or were delivered by CS before labor	11	7%
3	Multiparous without a previous uterine scar, with single cephalic pregnancy, >37 weeks' gestation in spontaneous labor	11	7%
4	Multiparous without a previous uterine scar, with single cephalic pregnancy, >37 gestation who either had labour induced or were delivered by CS before labour	11	7%
5	All multiparous with at least one previous uterine scar, with single cephalic pregnancy, >37 weeks' gestation	51	31%
6	All nulliparous women with a single breech pregnancy	5	3%
7	All multiparous women with a single breech pregnancy including women with previous uterine scars	13	8%
8	All women with multiple pregnancies including women with previous uterine scars	9	5%
9	All women with a single pregnancy with a transverse or oblique lie, including women with previous uterine scars	10	6%
10	All women with a single cephalic pregnancy, <37 weeks' gestation, including women with previous scar	5	3%
11	All women for whom there is not enough information to classify them into any of the above categories	24	14%
	Total	**167**	**100%**

28 Robson MS. 2001. Classification of caesarean sections. Fetal Matern Med Rev. 2001; 12: 23-39 DOI: https://doi.org/10.1017/S0965539501000122

Fetal Outcomes

Figure 9.1.4 below shows the distribution of newborn outcomes. Accordingly, 95% of the reviewed cases resulted in a live birth; while 3% were live birth with low apgar score (5 cases), 1% (one case) with neonatal death and 1% (2 cases) with stillbirth.

Figure 9.1.4: Percent distribution of caesarean deliveries reviewed according to newborn outcome, Rwanda EmONC, 2021

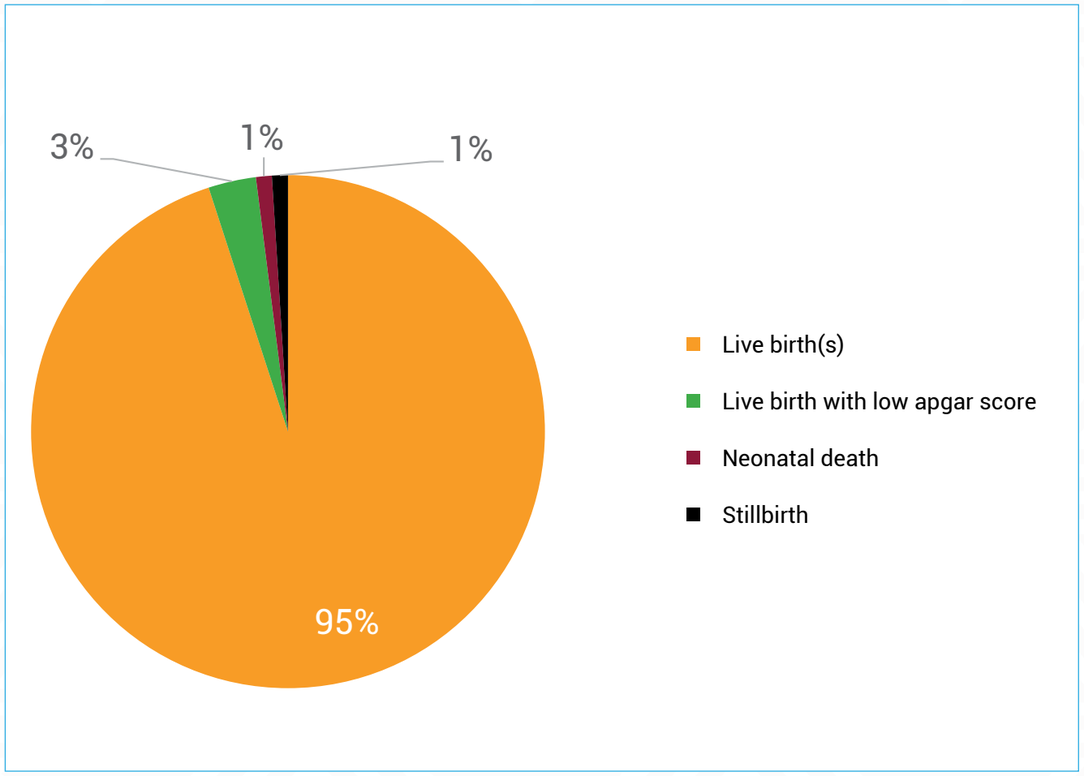


Table 9.1.7: below presents newborn outcomes by the different indications of cesarean delivery. As shown in the data, neonatal death was prevalent among cases with previous CS (only 2%) and stillbirths were prevalent among cases with failed trial of labour (50%). Live birth with low apgar score was manifested among 21% of cases with newborn indication that had fetal distress.

Table 9.1.7: Percent of caesareans reviewed according to newborn outcomes after caesarean, by selected characteristics, Rwanda EmONC, 2021

	Live birth(s)	Live birth with low apgar score	Neonatal death	Stillbirth	Number of cesareans reviewed
	(n=159)	(n=5)	(n=1)	(n=2)	(n=167)
Indication for cesarean delivery					
Maternal indications					
Placenta previa	100%	0%	0%	0%	1
Placenta abruption	100%	0%	0%	0%	1
Maternal distress	100%	0%	0%	0%	1
Psycho-social / mater	100%	0%	0%	0%	4
Maternal medical dise	100%	0%	0%	0%	2
Failed induction	100%	0%	0%	0%	12
Failure to progress	100%	0%	0%	0%	7
Failed trial of labor	50%	0%	0%	50%	2
Previous CS scar	98%	0%	2%	0%	57
Severe pre-eclampsia	100%	0%	0%	0%	4
Malpresentation (tran	100%	0%	0%	0%	6
Obstructed labor	100%	0%	0%	0%	6
Cephalo-pelvic dispro	100%	0%	0%	0%	1
Prolonged labor	100%	0%	0%	0%	9
Multiple gestation	100%	0%	0%	0%	6
Other (specify)	93%	0%	0%	7%	15
No information	100%	0%	0%	0%	6
Fetal indications					
Cord prolapse	100%	0%	0%	0%	2
Fetal distress	79%	21%	0%	0%	24
Breech with footling	100%	0%	0%	0%	100

Table 9.1.6A in the Appendix shows type of health worker cadre who performed the cesarean delivery and who administered the anesthesia and the type of anesthesia administered for the surgery. In all the facilities (either government owned or private), the General practitioner was the most likely cadre that performed the surgery, followed by an Obstetrician/Gynecologist. Regarding administering anesthesia, the nurse anesthetist was the highly likely health worker who managed anesthesia. General anesthesia was the most frequently used anesthesia in all the facilities.

9.2 Post Abortion and Safe Abortion Care reviews

Distribution of PAC and SAC cases by facility type and EmOC classification

Table 9.2.1 shows that a total of 336 PAC and 81 SAC cases (total 417) were reviewed. The majority (60%) of PAC cases reviewed were from health centers/clinics; while 89% of the AC cases were reviewed from hospitals. Over 80% of both PAC and SAC cases were reviewed from public/government health facilities. Regarding EmONC status, partially functioning EmONC facilities registered more PAC and SAC cases than CEmONC or BEmONC facilities - one out of 5 PAC cases and 2 out of 5 SAC cases received care in comprehensive EmONC facilities.

Table 9.2.1: Percent distribution of facilities where cases of post-abortion and safe abortion care were reviewed, by type of facility, managing authority, and EmONC classification, Rwanda EmONC, 2021

	PAC (n=336)	SAC (n=81)
Number of facilties with >1 review	96%	88%
Number of PAC cases reviewed		
1	37%	
2	33%	
3	30%	
Number of SAC cases reviewed		
1		37%
2		33%
3		30%
Type of facility		
Hospitals	40%	89%
Health centers/clinics*	60%	11%
Managing authority		
Public/government	82%	89%
Private-for-profit	5%	4%
Private -not-for-profit**	12%	7%
EmONC classification		
Comprehensive EmONC	20%	41%
Basic EmONC	1%	0%
Partially functioning EmONC***	79%	59%
Location		
Urban	31%	49%
Rural	69%	51%

* Includes...
** Includes NGO, faith-based or mission health facilities
*** Partially functoning indicates those facilities providing signal functions but misses at least one signal function

Characteristics of women whose PAC and SAC cases were reviewed by age and parity

Table 9.2.2 below indicates that 99% of women with PAC cases reviewed were between 18 and 40 years old while only 74% of SAC cases were between this age group. The average age of women with PAC was 36.6 and SAC were 23.5.

The majority of women with PAC and SAC cases were in less than 12 weeks of gestational age (46% and 63%, respectively). Over 68% of women with PAC cases were married/in union while 60% of SAC cases were single/not in union. Most women with PAC were multigravida and most SAC were in primigravida.

Table 9.2.2: Percent distribution of women whose cases were reviewed according to age and parity, by PAC and SAC, Rwanda EmONC, 2021

	PAC (n=336)	SAC (n=81)
	%	%
Age (in years)		
<18	1	26
18-24	23	41
25-29	18	11
30-34	19	10
35-39	17	10
>40	22	2
No information	0	0
Average age (in years)	37	23
Gestational age (% yes)		
<12 wks	46	63
>12 wks	17	30
No information	37	7
Marital status		
Married/in union	69	28
Single/ not in union	10	60
No information	21	11
Parity		
Primigravida (first pregnancy)	24	65
Multigravida (> 1 pregnancy)	58	28
No information	18	6
Average number of living children	2	1
Sources of information for PAC/SAC review		
PAC/SAC/abortion register	54	23
Notes in patient folder	28	63
Other	18	14

Distribution of women whose status on admission and after admission was recorded

According to Table 9.2.3, among all cases reviewed, status upon and after admission was recorded for 47% of total cases and 93 % for hospitals. Blood pressure, as an example, was recorded only in 69% of the facilities where PAC cases were reviewed. Similarly, hospitals recorded such vital signs better than health centers/clinics. A similar percentage distribution was observed among government owned and private, not for-profit facilities.

The review results had reported that out of all reviewed cases, only 2% had infection. Occurrence of acute renal failure, anemia and Hypovolemic shock were not common in the facilities where PAC cases was reviewed. Of all PAC cases (336), 62% were spontaneous abortions, while 29% of them had no information on the type of abortion. Recording of vital signs after admission was generally low.

Table 9.2.3: Percent of reviewed PAC cases in which status on admission and after admission was recorded, by facility type and managing authority, Rwanda EmONC, 2021

	Number of PAC cases	Hospitals	Health Centers/ Clinics*	Public/ government	Private-for-profit	Private- not-for-profit**
	(n=336)	(n=135)	(n=201)	(n=277)	(n=18)	(n=41)
	%	%	%	%	%	%
Woman referred (% yes)	47	93	15	49	0	51
Vital signs checked on admission (% yes)						
Pretreatment blood pressure (systolic : diastolic) - % recorded	69	87	57	70	61	71
Pretreatment pulse (beats per minute – BPM) - % recorded	67	87	54	67	67	71
Body temperature - % recorded	71	89	58	71	67	71
Bleeding	n=336	n=135	n=201	n=277	n=18	n=41
Severe	5	9	2	5	6	5
Moderate	54	61	49	58	39	32
Light	7	12	4	5	22	12
No information	35	19	45	32	33	51
Estimate of blood loss - Average (ml)	232	248	200	226	200	275
Infection	2	2	1	1	6	5
Signs of injury/trauma to the:	n=336	n=135	n=201	n=277	n=18	n=41
a. Cervix	1	1	1	1	0	0
b. Vaginal area	1	1	1	0	17	0
c. Uterine perforation	0	0	0	0	0	0
Signs of / reported use of mifepristone and/or misoprostol to induce abortion	10	16	6	10	11	12
Anemia	2	4	1	1	6	7
Acute renal failure	0	0	0	0	0	0
Hypovolemic shock	1	1	2	1	6	0
Disseminated intravascular coagulation	0	0	0	0	0	0
Assessment of type of abortion						
Unsafe induced abortion	5	5	4	4	0	10
Spontaneous abortion	62	83	48	63	61	59
Unable to determine	4	3	4	3	6	7
No information	29	9	43	30	33	24
Vital signs checked after admission (% yes)						
Blood pressure	69	87	57	70	61	71
Pulse	67	87	54	67	67	71
Body temperature	71	89	58	71	67	71
Bleeding	65	82	53	64	61	73

Distribution of PAC cases in which modes of treatment were recorded

Table 9.2.4 in the Appendix presents distribution of women with PAC cases that received treatments. Of all the 336 PAC cases, 64% of them received IV fluids, 63% were given antibiotics for prophylaxis, and 54% were given antibiotics for therapeutic reasons. Ultrasound was performed among 37% of the cases while only 4% received blood transfusion.

Of the 336 PAC cases, MVA was performed in 30% of them; while Electric vacuum aspiration was performed only among 5% of the total PAC cases reviewed. MVA was most likely been performed among hospitals than health centers/clinics despite the absolute number of PAC cases in health centers/clinics was higher than hospitals. Similarly, private-for-profit facilities were highly likely performed MVA than the rest of the facilities with other ownership modalities.

Pre-discharge status of PAC cases

As shown in Table 9.2.5 in the Appendix, nationally, 65% of the total PAC cases reviewed received contraceptive counseling and 26% were discharged with a contraceptive method. Of all the PAC cases, 69% of them had taken STI or HIV test and 14% were screened for cervical cancer and 9% were screened for gender-based violence.

Characteristics of women with SAC cases during admission, treatment, and pre-discharge status

According to Table 9.2.6 below, a total of 81 women with SAC cases were reviewed their records in the maternity. Vital signs were recorded in great majority of the SAC cases reviewed both in hospitals and health centers/clinics, though the number of cases taken from health centers/clinics were only 9.

During treatment, 72% of the 81 SAC cases had their RH status recorded and a similar percentage distribution of them received misoprostol for induction of labour. MVA was performed among 36% of the SAC cases at national level while 10% had gone through EVA.

Of the 81 SAC cases, 70% of them received contraceptive counseling and 19% were discharged with a contraceptive method. The most common method provided was implants, followed by condoms. GBV and cervical cancer screening was done among 46% and 20% of the SAC cases, respectively. Of all the SAC cases reviewed, 93% of them were discharged alive at national level; while the rest of the 7% cases had no information on their survival status. All of the cases from health centers/clinics and 92% of the cases from hospitals were discharged alive (Table 9.2.6).

Table 9.2.6: Percent of reviewed SAC cases in which status on admission, treatment, and pre-discharge status were recorded, by facility type and managing authority, Rwanda EmONC, 2021

	Number of SAC cases	Hospitals	Health Centers/ clinics	Public/ government	Private-for-profit	Private- not-for-profit*
	(n=81)	(n=72)	(n=9)	(n=72)	(n=3)	(n=6)
	%	%	%	%	%	%
Vital signs checked on admission (% yes)						
Blood pressure	94	93	100	93	100	100
Pulse	94	93	100	93	100	100
Body temperature	94	93	100	93	100	100
Bleeding checked	83	85	67	85	100	50
Treatment (% yes)						
Antibiotics provided (IM, IV or oral) for prophylaxis	62	57	100	64	100	17
Mifepristone + misoprostol	30	31	22	24	67	83
Only misoprostol given for induction	72	74	56	76	67	17
Misoprostol given prior to surgery	26	26	22	25	67	17
Manual vacuum aspiration performed	36	33	56	39	0	17
Electric vacuum aspiration performed	10	7	33	7	100	0
Dilatation and evacuation (D&E)	4	4	0	4	0	0
Dilatation and sharp curettage (D&C)	2	3	0	3	0	0
Rh status determined	72	72	67	72	100	50
Pre-discharge status						
Contraceptive counseling provided	70	67	100	67	100	100
Referred elsewhere for contraceptive counselling and provision	14	15	0	15	0	0
Discharged with contraceptive method of choice	19	13	67	21	0	0
Type of method						
Oral contraceptives	13	0	29	13	0	0
Injectiables	0	0	0	0	0	0
IUD	6	11	0	7	0	0
Condoms	31	0	71	27	100	0
Implant	50	89	0	53	0	0
Other	0	0	0	0	0	0
Performed STI or HIV testing	90	89	100	89	100	100
Screened for gender-based violence	46	51	0	46	0	67
Screened for cervical cancer	20	18	33	22	0	0
Duration of stay (Average number of hours)	31	34	9	32	1	31
Survival status						
Alive	93	92	100	96	100	50
Died	0	0	0	0	0	0
No information	7	8	0	4	0	50

* Includes NGO, faith-based or mission health facilities

9.3 Neonatal and young infant complication reviews

Characteristics of reviewed newborn morbidities

A total of 748 neonatal and young infant case records who had breathing difficulties, were preterm or low birth weight (<2000 grams), or had signs of infection (< 60 days of age) were identified and analysed (Table 9.3.1 below). Of the neonates with breathing difficulties, 44% were from hospitals and 54% from health centres. Similarly, from low-birth weight babies, 50% were reviewed from hospitals and 47% from health centers. The majority of young infants with infections reviewed were from district hospitals (69%).

Table 9.3.1: Percent distribution of facilities where cases of babies with breathing difficulties, preterm and low birth weight, and newborn sepsis were reviewed, by type of facility, managing authority and EmONC classification, Rwanda EmONC, 2021

	Breathing Difficulties (n=322)	Pre-term & low birth weight (n=282)	Newborn/young infant infection (n=144)
	%	%	%
Number of morbidities reviewed			
1	115	110	50
2	108	95	49
3	99	77	45
Type of facility			

Teaching hospital	4	4	8
Referral hospital	3	3	6
Provincial hospital	3	4	5
District Hospital	34	38	69
Health Centre	54	47	8
Poly clinic/Clinic	2	2	2
Health posts	0	1	1
Managing Authority			
Public/Government	83	83	80
Private, for profit	4	4	6
Private, not for profit*	13	12	14
EmONC classification			
Comprehensive EmONC	20	23	41
Basic EmONC	0	0	0
Partially functioning EmONC**	80	77	59

* Includes NGO, faith-based or mission health facilities
** Partially functioning indicates those facilities providing signal functions but misses at least one signal function

Among newborns with breathing difficulties, most (80%) were of normal birth weight. There was poor documentation for newborns with infections as 19% lacked information on birth weight. Most newborns with breathing difficulties (81%) were born at term while only 9% were born pre-term. Of pre-term and low birth weight babies, 78% were were born pre-term with only 12% born at term. Sixty-nine percent of those born with infections were actually born at term while 22% had no information on gestational age (Table 9.3.2).

Table 9.3.2: Percent distribution of reviewed morbidities according to birth weight and gestational age by morbidity type, Rwanda EmONC, 2021

	Breathing Difficulties (n=322)	Pre-term & low birth weight (n=282)	Newborn/young infant infection (n=144)
	%	%	%
Birth Weight			
Very low birth weight (<1500 grams)	2	25	0
Low birth weight (1500 - 1999 grams)	2	65	1
Low birth weight (2000 - 2499 grams)	10	5	8
Normal birth weight (>=2500grams)	80	1	72
No information	7	4	19
Gestational Age			
Pre-term (<37 weeks)	9	78	8
Term (37 - 42 weeks)	81	12	69
Post-term (>42 weeks)	0	0	1
No information	10	10	22

Newborns with breathing difficulties

Table 9.3.3 below presents percent distribution of newborns with breathing difficulties at birth and adherence to treatment protocols, by facility type and managing authority. The majority (80%) of them had undergone spontaneous vaginal delivery, while few (13%) had caesarean deliveries. Thirteen percent of the mothers had obstetric complications. There was a lack of information about neonatal resuscitation with 30% of the cases with variations among hospitals (27%) and health centers/clinics (33%). Most of the babies (48%) with breathing difficulties had both stimulation and resuscitation with bag and mask.

Only 39% of the newborns in the reviewed cases received oxygen as required. Of the 322 cases with breathing difficulties, 6% died before discharge, with 8% and 4% in hospitals and health centers/clinics, respectively. Lack of information was a serious problem in the case notes and patient cards of those reviewed cases newborns with breathing difficulties; 86% of the cases had no information on duration of labour, 30% did not have information on the type of resuscitation used, and 4% had no information on newborn outcome.

Table 9.3.3: Percent distribution of reviewed morbidities for adherence to treatment protocols and breathing difficulties at birth, by facility type and managing authority, Rwanda EmONC, 2021

	All cases	Hospitals	Health Centers/ clinics	Public/ Government	Private for-profit	Private, not for profit*
	(n=322)	(n=142)	(n=180)	(n=268)	(n=12)	(n=42)
	%	%	%	%	%	%
Patient status at Birth/Admission						
Duration of Labour						
Precipitated labour (<1 hour)	0	0	1	0	0	0
Normal (1 - 12 hours)	13	11	15	15	8	5
Prolonged (>12 hours)	1	1	1	1	0	0
No information	86	89	84	84	92	95
Mode of delivery						
Vaginal	80	61	94	81	42	79
Instrumental	0	0	0	0	0	0
Cesarean section	13	25	3	11	50	12
No information	8	15	2	7	8	10
Mother/baby was referred from another facility (% yes)	31	61	8	32	0	36
Mother experienced obstetric complication (% yes)	13	19	8	14	0	12
Evidence of meconium (written in chart) (% yes)	9	17	2	9	8	7
Type of resuscitation used						
Stimulation	2	2	2	2	0	2
Bag and mask	20	17	22	19	25	21
Both Stimulation&bag and mask	48	53	43	47	50	50
Intubation	0	1	0	0	0	0
No information	30	27	33	31	25	26
Oxygen given as needed (% yes)	39	83	4	36	67	50
Follow up plan/Mother counseled (% yes)	61	85	43	62	67	57
Newborn outcome after resuscitation						
Alive	90	91	89	89	100	90
Dead	6	8	4	7	0	0
No information	4	1	7	4	0	10

* Includes NGO, faith-based or mission health facilities

Preterm babies of low birth weight (<2,000 grams)

Of all preterm babies of low-birth-weight, 91% were born at a health facility, 4% were on the way to a health facility, and 3% were born at home (Table 9.3.4 below). Nationally, over half (55%) of the mothers had received antenatal corticosteroids. Among the 12 cases selected at the private-for-profit facilities, 75% (9) of the mothers had received antenatal corticosteroids. Of the total cases reviewed for pre-term and low-birth weight babies, 34% were treated in an incubator and kangaroo mother care was initiated for 64% of the young infants. The cases in the hospitals were highly likely to receive incubator service (64%) than those in the health centers/clinics (4%). A daily monitoring chart was found in 92% of cases at hospital but just 12% of cases at health centres/clinics. Overall, 87% were alive at discharge, 5% died, and the outcome was unknown or unrecorded in the remaining 9% of the cases.

Table 9.3.4: Percent distribution of adherence to treatment protocols among reviewed cases of preterm and low birth weight babies, by facility type and managing authority, Rwanda EmONC, 2021

	All cases	Hospitals	Health Centers/ Clinics	Public/ Government	Private for-profit	Private, not for profit*
	(n=282)	(n=140)	(n=142)	(n=235)	(n=12)	(n=35)
	%	%	%	%	%	%
Patient status at Birth/Admission						
Location of delivery						
Home	3	4	3	3	8	6
On the way to a health facility	4	7	0	3	0	11
Health facility	91	86	96	93	92	83
No information	2	3	1	2	0	0
Mother received antenatal corticosteroids (% yes)	55	60	49	54	75	54
Breastfeeding status						
Breastfed well	28	17	39	31	25	14
Breastfed but with difficulty	13	19	7	14	17	6
Was not breastfed	20	29	11	23	8	9
No information	38	34	42	33	50	71
Treatment (% yes)						
Received incubator service	34	64	4	32	33	46
Initiated KMC	65	76	53	66	42	63
Daily monitoring chart found in the file	52	92	12	51	75	49
Feeding plan described/mother counseled	65	84	46	66	100	49
Outcome of the newborn after treatment						
Alive at discharge	87	87	86	86	100	86
Dead	5	6	3	4	0	9
No information	9	6	11	10	0	6

* Includes NGO, faith-based or mission health facilities

Young infants with infections (<60 days of age)

According to Table 9.3.5 below and among newborns and young infants with infections, the majority (82%) were seen in the in-patient department, while 14% were out-patient, and the rest (4%) were both OPD and in-patient. Nationally, the median age of the newborn was recorded as 11 days with 10 and 13 days in hospitals and health centers/clinics, respectively.

Temperature was recorded in 90% of cases and weight was also recorded 82% of the time. However, heart rate, breathing rate and oxygen saturation rate were less recorded, 76%, 76%, and 77% of the time, respectively. Overall, 6% of the newborns and young infants with infections were recorded to have died and 3% had no information on the outcome.

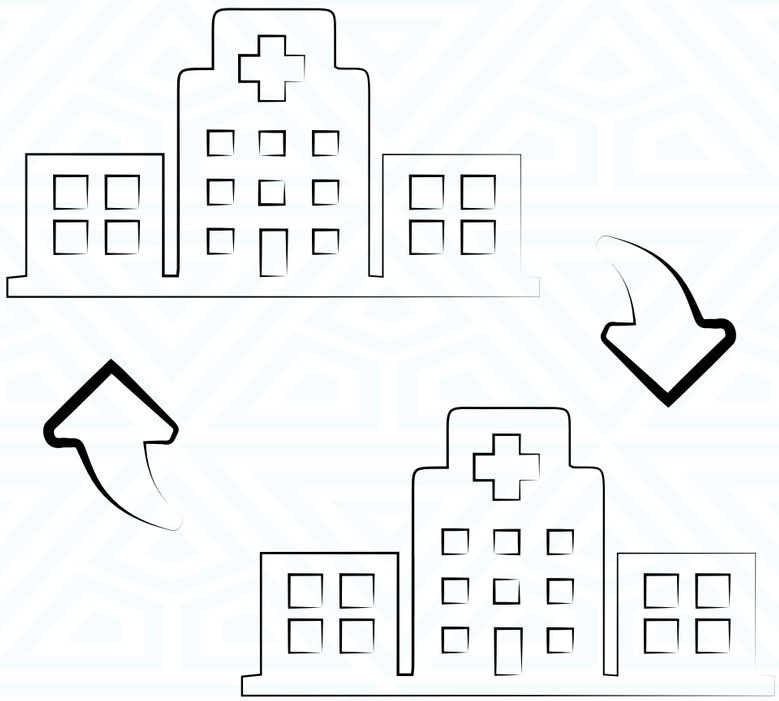
Table 9.3.5: Percent distribution of adherence to treatment protocols among reviewed cases of newborn/young infant infection, by facility type and managing authority, Rwanda EmONC, 2021

	All cases	Hospitals	Health Centers/ Clinics	Public/ Government	Private for-profit	Private, not for profit*
	(n=144)	(n=128)	(n=16)	(n=155)	(n=9)	(n=20)
	%	%	%	%	%	%
Patient status at Birth/Admission						
Location of delivery						
Home	2	2	0	3	0	0
On the way to a health facility	6	6	0	4	0	15
Health facility	84	89	44	83	100	85
No information	8	2	56	10	0	0
Mother/baby/young infant was referred from other facilty (% yes)	51	55	13	52	22	55
Admission/consultation						
OPD	14	7	69	16	11	5
In-patient	82	88	31	80	89	90
Both OPD and in-patient	4	5	0	4	0	5
Median Age of babies/young infants (in days)	11	10	13	12	6	7
Current weight recorded (% yes)	82	81	88	82	100	75
Temperature recorded (% yes)	90	91	88	88	100	100
Heart rate recorded (% yes)	76	80	38	72	100	85
Breathing rate recorded (% yes)	76	74	88	73	89	85
Oxygen saturation level recorded (% yes)	77	81	44	75	89	85
Treatment						
For OPD: Ampicillin & Gentamycin given	26	29	6	29	33	10
For in-patient: Injectable antibiotics given	84	90	38	84	56	95
Follow-up plan described/mother counseled	92	92	94	93	100	85
Outcome of the infant after treatment						
Alive	91	92	81	89	100	100
Dead	6	5	13	8	0	0
No information	3	2	6	3	0	0

* Includes NGO, faith-based or mission health facilities
^ Young infant refers to age less than 60 days

CHAPTER

10



REFERRAL SYSTEM

Most of the lower level of health facilities are not expected to perform at comprehensive EmONC. This implies that these facilities are obliged to refer women and newborns with complications for higher level of care in hospitals as most pregnancy related complications are unpredictable as when to happen; but, can be safely managed if there are such comprehensive EmONC facilities nearby.

To facilitate successful referrals, availability of efficient communication and transportation services in all the facilities is critical. Module 1 of the Rwanda rapid EmONC assessment asked questions related to referral services, availability of communication means and transportation including availability of ambulances.

10.1 Availability of emergency services 24/7 and distance and time to the nearest facility with obstetric and newborn care

Availability of emergency services 24/7

According to Table 10.1.1 below, almost all of the facilities and 62 of the facilities reported that they were providing obstetric care and newborn care services 24/7; respectively. All of the districts had all their facilities perform obstetric care 24/7 except Kicukiro and Rwamagana that had lower than 90% of their facilities with obstetric care provided 24/7. On the contrary, Gisagara, Kamonyi, Ngoma, and Rulindo had all their facilities performing newborn care 24/7 while Nyamagabe had the least proportion of facilities (13%) with newborn care 24/7. All hospitals had both obstetric and newborn care services 24/7 though only 57% of health centers had newborn care 24/7.

Table 10.1.1: Percent of facilities that provided obstetric and newborn care 24/7 by region, facility type, managing authority, and location, Rwanda EmONC, 2021

	Number of facilities	Provides obstetric care 24/7	Provides newborn care 24/7
National	444	98	62
Region			
Bugesera	17	100	53
Burera	16	100	94
Gakenke	9	100	89
Gasabo	15	93	73
Gatsibo	20	100	70
Gicumbi	16	100	56
Gisagara	16	100	100
Huye	12	100	83
Kamonyi	10	100	100
Karongi	14	93	36
Kayonza	14	93	71
Kicukiro	12	83	42
Kirehe	17	100	88
Muhanga	13	100	46
Musanze	14	100	21
Ngoma	13	100	100
Ngororero	15	100	53
Nyabihu	15	100	67
Nyagatare	20	100	50
Nyamagabe	16	100	13
Nyamasheke	18	100	44
Nyanza	13	100	62
Nyarugenge	11	100	82
Nyaruguru	15	100	73
Rubavu	15	100	47
Ruhango	13	92	54
Rulindo	16	100	100
Rusizi	19	100	32
Rutsiro	13	100	54
Rwamagana	17	88	41
Facility type			
Teaching hospital	4	100	100
Referral hospital	3	100	100
Provincial hospital	4	100	100
District Hospital	37	100	100
Health Centre	381	98	57
Poly clinic/Clinic	6	100	83
Health posts	9	100	33
Managing authority			
Public/government	366	98	63
Private-for-profit	10	100	90
Private-not-for-profit1	68	99	54
Location			
Urban	99	95	62
Rural	345	99	62

1 Includes faith-based, or mission facilities.

Distance (Km) and time (minutes) to the nearest facility with obstetric surgery

All hospitals have been providing obstetric surgery services 24/7. However, health centers/clinics and health posts had limited services. In this regard, such lower-level facilities were asked how far was the distance to the nearest facility that provides surgery services. Accordingly, of the total health centers/clinics (388) that did not have surgical capacity, over half (54%) of them were within 25 kms from the nearest facilities that provide obstetric surgery. Distance is expressed in kilometers and in minutes. More than a quarter of the health centers/clinics were also within 50kms radius to the nearest facility that has surgical capacity. District wise, 22 of the 30 districts had more than half of their facilities within 25 kms distance to the nearest facilities with surgical capacity. This shows that referral to the higher level of care in most districts could be achieved in the shortest time possible (Table 10.1.2 in the Appendix).

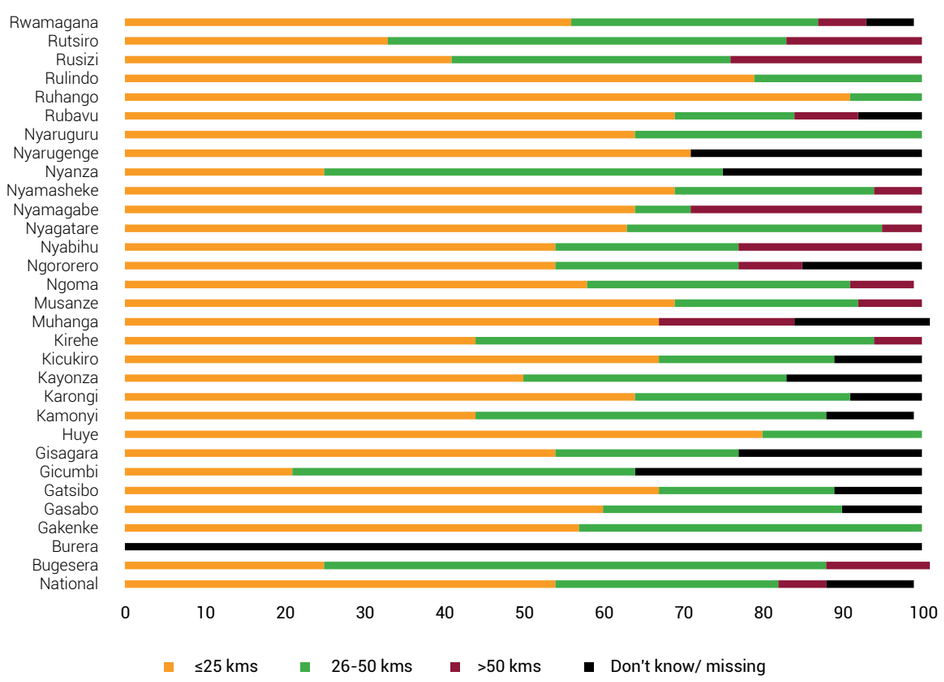
Time to travel to the nearest facility is highly dependent on the type and quality of roads in the country. Taking into account this assumption, of the 388 health centers/clinics that did not provide obstetric surgery in the last 3 months prior to the survey, close to a third of them were within 30 minutes radius to refer their clients to the facilities with surgical capacity. A little over a third of them (35%) were also within an hour far from the nearest facilities that provide obstetric surgery. Among districts, 69% of the facilities in Musanze, 53% in Nyagatare, 50% in Huye, and 50% in Rwamagana were within 30 minutes distance to the nearest surgical facilities. Generally, 25 of the 30 districts had most of their facilities within an hour far from facilities that provide obstetric surgery. Seventy five percent of the 388 health centers/clinics that resided in urban areas were within one hour radius to the nearest referral facility with surgical capacity (Table 10.1.3A in the Appendix).

Distance (Km) and time (minutes) to the nearest facility with specialized newborn care

Like the facilities with surgical capacity, we did ask both hospitals and health centers/clinics that did not have specialized newborn care about their nearest facility that provides such care. Of the 48 hospitals, 15 did not have specialized newborn care and of the 396 health centers/clinics, 394 had no such service. As shown in Tables 10.1.4A in the Appendix, all of the 15 hospitals and 394 health centers/clinics that had no specialized newborn care were within 25 kilometers distance from their nearest referral facilities with specialized newborn care.

Time wise, 13 out of the 15 hospitals (87%) were within 30 minutes' drive from the nearest referral facility with specialized newborn care. Similarly, two-thirds of the health centers/clinics were within an hour distance to the nearest referral facility with such care. Similar percentage distribution was observed among districts (Figure 10.1.1 below and Table 10.1.5A in the Appendix).

Figure 10.1.1: Percent of health centers/clinics that did not have specialized newborn care in the last 3 months with the nearest referral facility with specialized newborn care, Rwanda EmONC, 2021



10.2 Availability of communication

The facilities in this rapid EmONC assessment were asked about availability of communication materials/equipment to facilitate referral services. These materials were functioning landline telephone in the maternity, functioning landline elsewhere in the facility, cell phone owned by facility or owned by individual staff, functioning two-way radio, functioning public telephone, and availability of computers. Availability of a closed user group within the facility was also one of the communication questions.

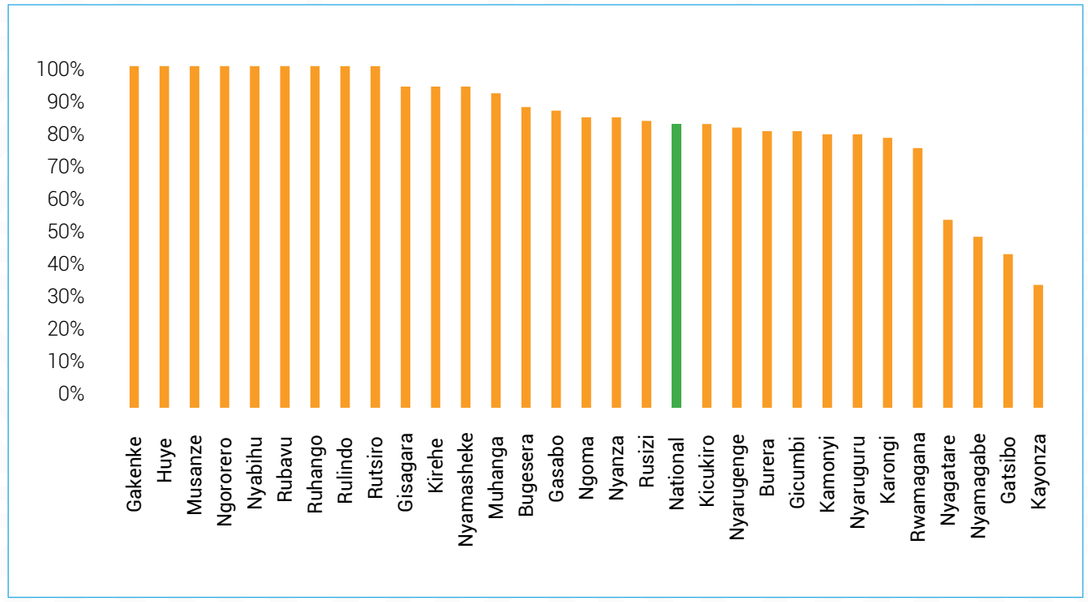
According to Table 10.2.1A in the Appendix, availability of a landline telephone, both at the maternity or within the compound of the facility, was not common in the entire country as only 17% and 16% of the facilities had such landline telephone; respectively. Nearly four-fifth of the facilities were using a functioning cell phone owned by facilities for emergency referrals. Gakenke, Ngororero, Nyabihu, Rubavu, Ruhango, Rulindo, and Rutsiro had all their facilities with facility-owned cell phones. All teaching, referral, and provincial hospitals, 83 - 84% of Poly clinic/clinics and district hospitals, and 78% of health centers/clinics had facility-owned cell phones for emergency services.

Nationally, only one percent of the facilities had a two-way radio used for communication to referral services. Such two-way radio communication was found in Gasabo, Karongi, Nyarugenge, and Rubavu districts. In terms of facility type, only teaching hospitals and Poly clinic/clinics were using two-way radio communications (Table 10.2.1A.

Large proportion of facilities (83%) had at least one functioning mode of communication for referral services. Gakenke, Huye, Musanze, Ngororero, Nyabihu, Rubavu, Ruhango, Rulindo, and Rutsiro had all their facilities with at least one functioning mode of communication materials. Twenty-four of the 30 districts had more than 80% of their facilities with at least one functioning mode of communication (Figure 10.2.1 below).

Almost all of the facilities assessed had a computer and 96% of them had internet at national level. Sixty percent (60%) of the facilities were also using a closed user group for facilitating referral services (Table 10.2.1A in the Appendix).

Figure 10.2.1: Percent of facilities with at least one functioning mode of communication by district, Rwanda EmONC, 2021



Cell phone signal and policy for reimbursement of staff air time

Table 10.2.2A in the Appendix shows the percentage of facilities with a cell phone signal at the facility, use of staff cell phones for referral, and reimbursement for use of staff's air time. Nationally, of those facilities with either a facility-owned or individual-owned cell phone, 52% of them had very dependable cell phone signal; while 17% had somewhat dependable signal and 11% did not have dependable signal. A fifth of the total facilities did not have dependable signals. Cell phone signal dependability was worse among health posts, health centers, and district hospitals, compared to the rest of the facility types.

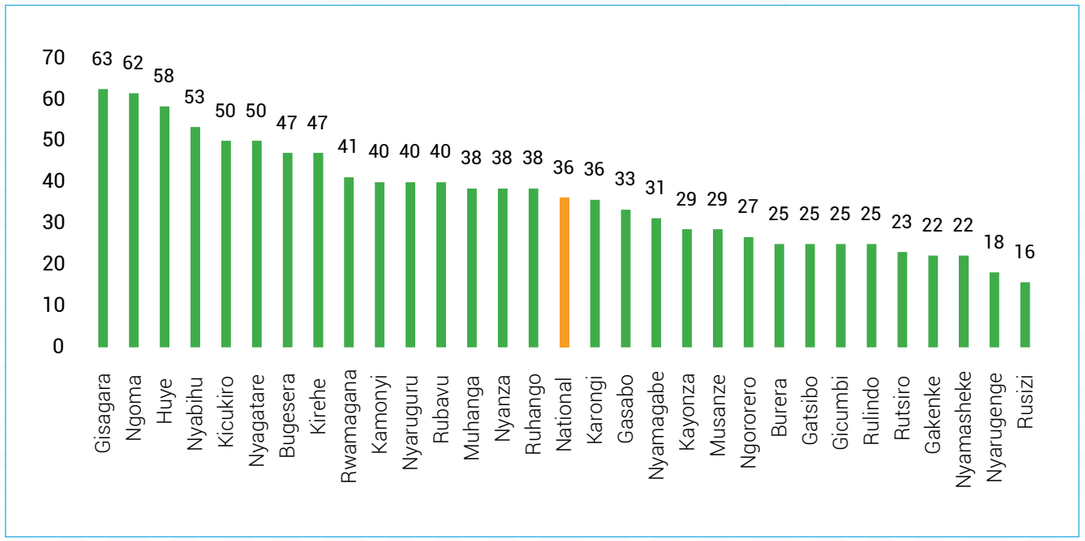
At national level, close to half of the facilities had a policy of reimbursing staff for using their air time for facility related work. Ngorero, Nyamashake, Nyanza, and Rutsiro had all their facilities reimbursing staff's airtime for use of facility related work; while Burera had no facility for doing such practice (Table 10.2.2A in the Appendix).

10.3 Availability of transportation

Availability of motor vehicle ambulances

Availability of comprehensive obstetric and newborn care is always a problem due to resource limitations. To fill such a gap, ambulances play a crucial role in facilitating referrals to a higher level of care. In line with this, facilities were asked if they have a functional motor vehicle ambulance for emergency referrals and how many if they have one. Accordingly, only 36% of the facilities had at least one functional motor vehicle ambulance. Nine percent of the total facilities assessed had other motor vehicle transportation, and 51% had stretchers as an emergency transportation. Availability of ambulances was high in Gisagara (63%) and low in Rusizi (16%). Fifteen districts out of 30 had stood above the national average in terms of availability of ambulances. All teaching, referral, and provincial hospitals and 92% of district hospitals had at least one functioning ambulance on-site; while 29% of health centers/clinics, 50% of Poly clinic clinics and 22% of health posts had ambulances on-site (Figure 10.3.1 below and Table 10.3.1A in the Appendix).

Figure 10.3.1: Percent of facilities with at least one functioning motor vehicle ambulance on-site by district, Rwanda EmONC, 2021



Coverage of ambulances to population

Ambulance service is a critical element of the smooth and facilitated referral system. According to the MOH's Health Sector Strategic Plan (HSSP) 4, the target for ambulance to population coverage for the 2020 was 1/50,000 and in 2024, it will be expected to be lower than one to 50,000 population. As shown in Table 10.3.2 below, the coverage of ambulances per 100,000 populations turned out to be 3 ambulances for every 100,000 populations. The coverage at national level and in most of the districts seems good; while Muhanga and Rutsiro had coverage below the national standard.

Table 10.3.2: Ratio of functioning motorized vehicle ambulances to population, by district, Rwanda EmONC, 2021

	Population	Total ambulances (public and private)	Ratio of ambulances to 100,000 population
National	12,955,768	361	3
District			
Bugesera	497,930	10	2
Burera	414,896	8	2
Gakenke	400,677	7	2
Gasabo	694,839	13	2
Gatsibo	537,689	15	3
Gicumbi	469,487	12	3
Gisagara	388,062	17	4
Huye	387,913	21	5
Kamonyi	432,805	9	2
Karongi	386,202	18	5
Kayonza	427,042	16	4
Kicukiro	378,973	14	4
Kirehe	427,639	15	4
Muhanga	374,692	5	1
Musanze	452,551	8	2
Ngoma	417,395	15	4
Ngororero	417,295	8	2
Nyabihu	348,688	11	3
Nyagatare	648,332	29	4
Nyamagabe	392,252	11	3
Nyamasheke	487,293	14	3
Nyanza	369,217	9	2
Nyarugenge	313,812	6	2
Nyaruguru	352,407	8	2
Rubavu	486,478	11	2
Ruhango	372,689	17	5
Rulindo	366,233	12	3
Rusizi	508,456	8	2
Rutsiro	397,006	5	1
Rwamagana	406,816	9	2

Map 10.3.1: Ratio of functioning motorized vehicle ambulances to 100,000 population by district, Rwanda EmONC, 2021

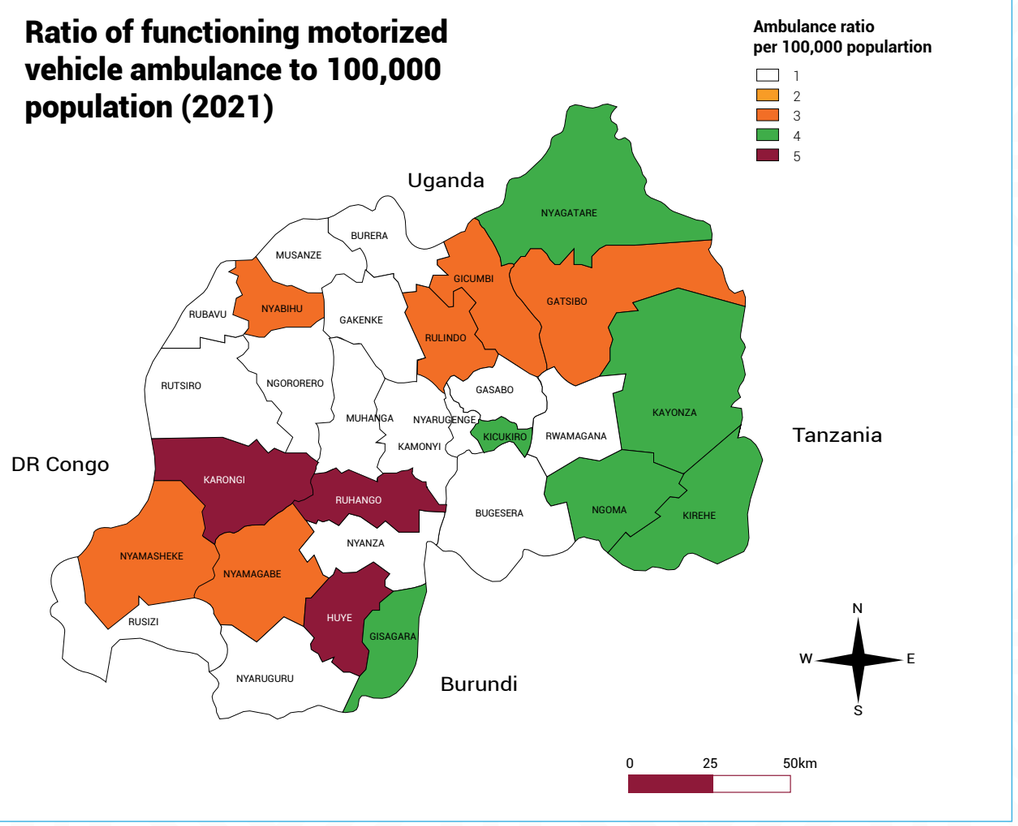
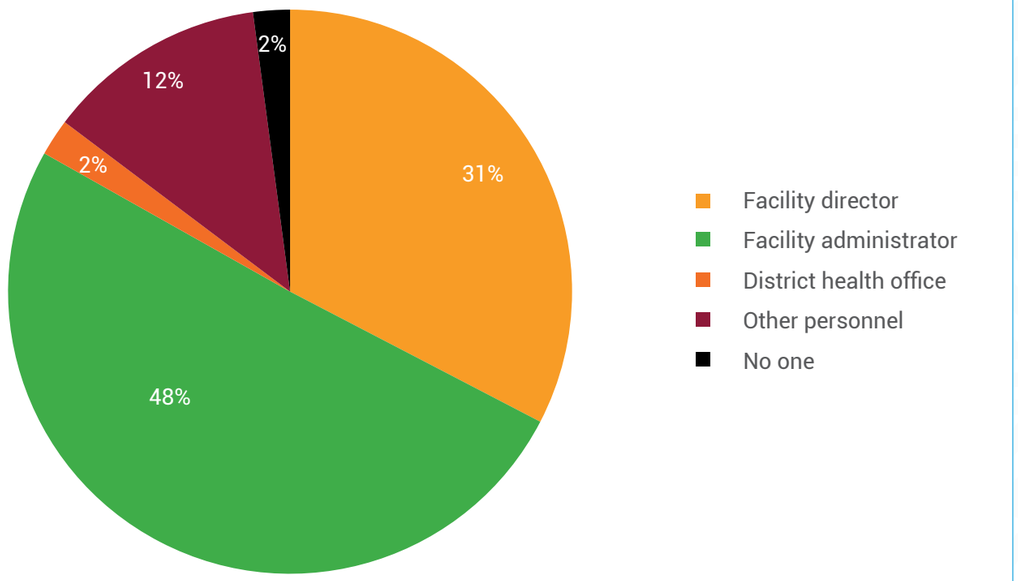


Figure 10.3.2: Percent distribution of facilities according to staff member in charge of managing the emergency transport system, Rwanda EmONC, 2021



Facility accountability on the management of ambulances

Of the 444 facilities assessed, 180 had at least one motorized ambulance on-site. Of these, 84% of them had routine preventive maintenance systems to their ambulances and other motor vehicles. Twelve of the 30 districts had all their facilities with a routine maintenance system. The higher the facility level, the more likely that the facilities had a routine maintenance system (Table 10.3.3A in the Appendix).

Nationally, 82% of the 180 facilities with a functioning ambulance had sufficient fuel on the day of the visit to transport women and their newborns if needed. Similarly, about three-quarters of the facilities had sufficient funds available if maintenance was needed. A large variation was observed in the availability of funds for maintenance of emergency transport vehicles with the highest in Gakenke, Gatsibo, Karongi, Kayonza, Kicukiro, Nyanza, and Rubavu (100%) and the lowest in Burera and Rutsiro (both zero percent) (Table 10.3.3A in the Appendix).

Facility Administrator (48%) was the most frequently cited responsible personnel in managing ambulances whether they are in working order, followed by Facility Director (31%). A similar percentage distribution was observed among districts except few (seven districts) that had Facility Director as the most common person making sure that ambulances are in good working condition (Figure 10.3.2 below and Table 10.3.3A in the Appendix).

CHAPTER
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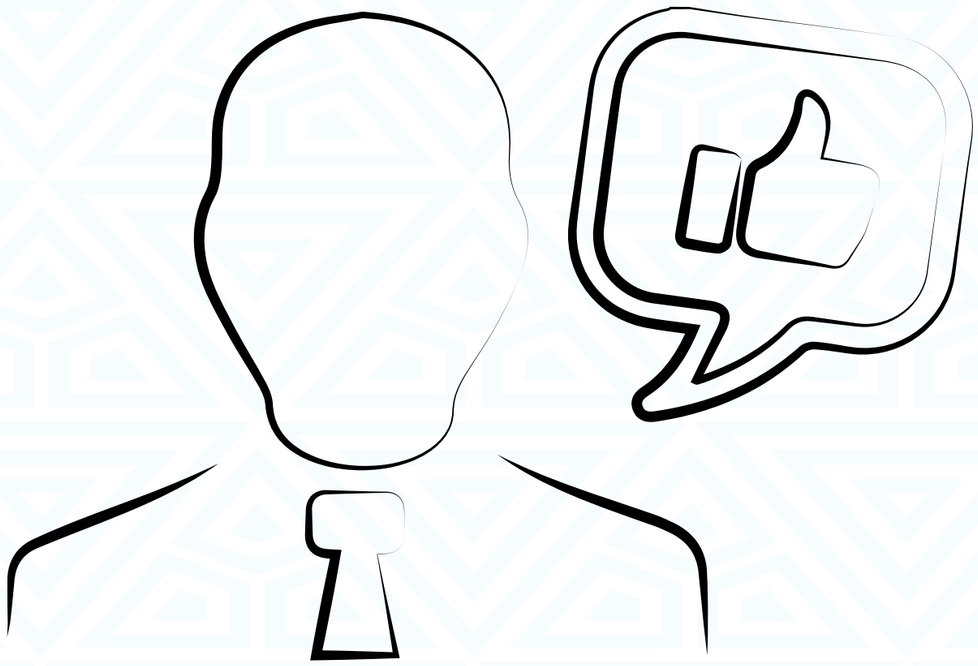

CONCLUSIONS AND RECOMMENDATIONS

11.1 Conclusions

Rwanda has made a crucial step to undertake this first ever rapid EmONC assessment that shows government's commitment to improve the quality of maternal and neonatal health services and thereby reducing maternal and neonatal mortality and morbidities.

The 2021 rapid EmONC assessment is then providing a snapshot of the coverage and gaps of the EmONC services.

Most of the maternal and neonatal indices were unacceptably low. This calls for a substantial investment to support the public health facilities, particularly to the lower-level facilities whereby most deliveries are occurring and they are closer to the population.

Availability of EmONC facilities as the first EmONC indicator was assessed and found to be very low; leaving the country with only 24 fully functioning EmONC facilities (19% from the UN recommended). Coverage of EmONC facilities were widely varied among districts with none available in 13 of the 30 districts.

These were Rwamagana, Rutsiro, Rusizi, Rulindo, Nyaruguru, Nyamagabe, Ngoma, Kicukiro, Karongi, Kamonyi, Gicumbi, Gasabo, and Burera. Applying some more rigorous criteria of EmONC availability, the coverage looks even chronically low (only 5 facilities fulfilled such criteria).

Lack of BEMONC facilities (only 2 available) in the country attributed to the overcrowded service seekers in the limited number of public hospitals that could be handled in the lower-level facilities.

Substantiating this issue, 47% of the total facilities (209 of the 444) were missing only one or two of the Basic EmONC signal functions; in which 174 of these facilities were health centers that could potentially be functioning as BEmONC.

By upgrading these facilities to function as BEmONC, it will be easy to decongest the hospitals or reduce the number of referrals due to the missing services.

Health centers/clinics were not performing assisted vaginal delivery (1%) that might attributed to the lack of BEmONC facilities that could be reasoned out as provider confidence to use instrumental delivery or preference to use cesarean delivery through referral.

The country also had only 3 fully-functioning EmNeC health centers/clinics though all hospitals were qualifying as fully EmNeC.

The proportion of institutional deliveries in all facilities was recorded as 71% from the expected 411,993 births in the communities though there are limitations in the estimation of expected births (based on projected population of the 2012 census).

Close to a third (29%) of the expected deliveries took place outside of the health facilities (home deliveries). Institutional delivery rate was much lower in fully-functioning EmONC facilities (19%).

Facility readiness to provide EmONC signal functions was also one of the important indicators useful for planning. Generally, both hospitals and health centers/clinics were better equipped with the minimum required drugs/equipment/supplies than being staffed, for being ready to provide EmONC signal functions.

However, for resuscitation of a newborn with bag and mask, a health worker was available to perform it in large majority of facilities; but lacked resuscitation packs in 17% of hospitals and 51% of health centers/clinics.

Maternal and newborn care services are highly dependent on availability of qualified and skilled health workers.

This assessment shows severe shortages of most categories of health workers in the public health facilities (standards available for government facilities only), except medical doctors (GPs).

Nationally, a huge gap was observed among nurses/midwives (1,523), Obstetrician/Gynecologists (183), Nurse Anesthetist (112), and Anesthesiologist (MD) (51).

Facility amenities like electricity, water, and communication materials are very helpful to facilitate quality service delivery.

The assessment shows that all facilities had a source of electricity with 66% of them had a back-up generator.

However, 24% of the total facilities reported that they had experienced electricity interruptions for over 2 hours in the last 7 days prior to the assessment.

Similarly, availability of water was encouraging as only 3% had no water source with a severe shortage in Ruhango district as 23% of their facilities had not water source at the time of the assessment.

A functioning toilet was also universally available in the health facilities; except in Rutsiro and Burera, in which 8% and 6% of their facilities had no functioning toilet for staff or patients.

Facility-owned on-site communication was widely available in 83% of the facilities and individual-owned cell-phone was also in use by 69% of the total facilities.

However, on-site communication was challenged by reimbursement of staff's cell phones (only 48%) for using it for emergency referrals and communications.

Availability of effective referral system is paramount in facilitating healthcare delivery; particularly for lower and medium level care facilities that they often do not provide a full spectrum of health services.

This assessment reveals only 36% of the facilities had a functioning motor vehicle ambulance and 9% had non-ambulance motor vehicles.

Rusizi and Nyarugenge were the most affected districts with 16% and 18% of their facilities lacked motor vehicle ambulance.

11.2 Recommendations

We have drawn the following gaps and potential solutions/recommendations based on the findings of this assessment.

11.2.1 Coverage and utilization EmONC services

Gaps:

- A gap of 81% (106 facilities) EmONC facilities from the recommended number (130) in the country. Fourteen of the 30 districts had a gap of at least one CEmONC and almost all districts had a gap of 3 BEmONC facilities on the average.
- Of the 420 partially functioning EmONC facilities 47% (209) were missing only 1 or 2 Basic signal functions that are potential to be upgraded.
- Only 16% of the expected births (411,993) took place in fully-functioning EmONC facilities.
- Of the actual births happened in all facilities (293,964), large majority (51%) occurred in facilities that missed 1 or 2 Basic EmONC signal functions
- Met need for EmONC was only 11% in EmONC facilities. Twenty-one of the 30 districts were below the national average. This implies that 89% of the expected complications were delivered or treated in a non-EmONC facility or the complications had never been reported.

Recommendations:

Collaborate to partners and donors to prioritize resources fill the gaps:

- All the 14 districts that lacked at least one CEmONC should have one by upgrading their district hospitals fulfilling the missing signal functions;
- Upgrade those facilities that missed 1 or 2 signal functions (209 facilities). In upgrading these facilities, considerations of GIS mapping, caseloads (institutional birth rate and met need), and referral networking are crucial as distance and time to reach into the nearest facilities with surgical services should be the primary assumption for equity.
- Provide accelerated CEmONC and BEmONC training to health professionals, supported by staff rotation to facilitate on-job training.
- Provide motor vehicle ambulances either to the lower-level facilities or to the districts to facilitate referral services.
- Designate EmONC facilities based on the recommended EmONC targets in each district and based on catchment population size and of referral networking (distance and time – within 2 hours of radius).
- Develop a national network of EmONC facilities (at least one CEmONC and the rest BEmONC facilities per 500,000 populations) based on the geo-spatial distribution in each district or region to improve coverage and utilization of EmONC services.

11.2.2 Readiness to provide EmONC and EmNec signal functions

Gaps:

- Facilities were generally better equipped with drugs/supplies and equipment than being staffed to perform most of the EmONC signal functions. So, availability of trained personnel was a gap in the health facilities. In addition, only 63% of midwives and 27% of nurses in hospitals and 59% of midwives and 36% of nurses in health centers/clinics were trained on BEmONC.
- Assisted vaginal delivery was the least performed signal function in all facilities. It is almost non-existent in the health centers/clinics though it is one of the BEmONC signal functions.
- Facility readiness to provide EmONC signal functions was generally lower than performance of the signal functions in the last 3 months prior to the assessment. This implies that facilities were performing under sub-optimal conditions (used alternative drugs that were not in the recommended list, cadres might not be well trained, or lacked some equipment/supplies but performing it). Examples: Readiness to provide cesarean delivery – 8% of the hospitals might be providing the service with sub-optimal conditions.
- Similarly, readiness to provide EmNeC signal functions was lower than provision of EmNeC signal functions.
- Readiness to provide KMC and newborn resuscitation with bag and mask were very low; 4% and 45% respectively.
- Availability of KMC guideline was low as only 67% of the facilities had it.
- Neonatal size ambu bag was available in only 63% of health centers/clinics.

Recommendations:

- Training of midwives and nurses is crucial as the gap of midwives and nurses performing BEmONC was low in both hospitals and health centers/clinics.
- Support lower-level facilities to facilitate midwives and nurses work in rotation to other facilities where by build their skills in providing loading dose of magnesium sulphate as an example. And, encourage these categories of facility staff to perform assisted delivery through facilitating referrals to the nearby district hospitals by availing ambulances.
- Train health providers in health centers and clinics on KMC and there was confusions in the definition of KMC (observation of interviews). Availing the guideline as part of the training is also crucial to improve performance of this signal function.
- Conduct qualitative study why some signal functions are not performed in the health facilities (Example: Assisted Vaginal Delivery using vacuum extraction), particularly in health centers/clinics if providers have some kind preference to use cesarean delivery other than “no indication” as a reason.
- Coordinate with implementing partners to procure and supply lower-level health facilities with neonatal size ambu bag to improve facility's readiness to provide newborn resuscitation.

11.2.3 Coverage and utilization of other MNH services

Gaps:

- Cervical screening service was not available in 36% of the facilities.
- Safe abortion care lacked in 87% of the facilities.
- Performance of medical abortion (mifepristone or misoprostol) did not happen in 81% of the total facilities – 90% of the health centers)
- Electric or Manual vacuum aspiration lacked in 63% of the total facilities.
- About 62%% of the facilities had not done maternal death audit.
- Newborn death/stillbirth audit was not done in 26%% of health centers/clinics.
- About 54% of the facilities were not qualified for mother-baby friendly birthing place.

Recommendations:

- Train midwives, nurses, clinical officers if staff capacity is an issue to increase coverage of cervical cancer screening, safe abortion and post-abortion care services.
- Revisit the service provision protocols for cervical screening and safe abortion/post-abortion care services to update and orient providers as needed.
- Medical abortion care plays a crucial role in providing access to safe, effective and acceptable abortion care. In both high- and low-resource settings, the use of medical methods of abortion have contributed to task shifting and sharing and more efficient use of resources. Hence, it is recomme-nded to increase access to medical abortion as 81% of the facilities did not have this service.
- On surgical abortion, vacuum aspiration should gradually replace D&C that is no longer a recommended procedure.
- Strengthen district level supportive supervision to improve performance and practices in the auditing of maternal death, newborn death, and stillbirths occurring in the facilities.
- Triangulate the Maternal Death Surveillance and Response (MDSR) data with this EmONC assessment to improve performance and linkages to facility practices.

11.2.4 Respectful maternity care

Gaps:

- About 15% of the facilities did not have curtains/means of providing patient privacy (8% of district hospitals, 16% health centers, and 33% of health posts).
- Of the 444 facilities, 56% did not have means of ventilation.
- About 13% did not have functioning and sanitary toilet for patient use.
- Functioning and sanitary toilet for visitors and family use was not available in 22% of the total facilities (most of them were health centers and health posts)
- Waiting area for visitors and family was not available in 18% of the total facilities.
- Three percent (3% - all health centers/health posts) did not have sufficient light source during the night to perform tasks.
- Though facilities reported that a woman is allowed to have a companion of her choice during labor and delivery, the core team's observations in the health facilities did not comply with facilities' reports.

Recommendations:

- The government, in collaboration with partners, need to fulfill the above-mentioned infrastructure amenities as respectful maternity care is a known strategy to improve institutional delivery and met need for EmONC.
- Improve RMC through in-service trainings and support to the health facilities through mobilization of funds.

11.2.5 Quality of care issues in EmONC and other MNH services

Gaps

- DOCFR in EmONC facilities (1.3%) was higher than the international standard (<1%). Ruptured uterus and PPH were the highest contributing causes for the DOCFR.
- Despite the fact that a standard is not available, very early neonatal death was exceptionally higher than 10 per 1,000 live births in Huye, Ngorero, Rutsiro, Karongi, Gisagara, Nyamagabe, and Nyaruguru.
- Only 46% of the facilities were certified by a mother-baby friendly birthing facility.
- As indicated above, 15% of the facilities did not have curtains for providing patient privacy.
- About 13% did not have functioning and sanitary toilet for patient use.
- Readiness to provide cesarean delivery and blood transfusion were lower than actual performance of the signal functions; implying that the services were provided under sub-optimal conditions.
- Similarly, readiness to provide parenteral uterotonics and parenteral anticonvulsants were lower than actual performance – signifying those facilities had provided the drugs that were not WHO recommended first line drugs (Example, diazepam instead of magnesium sulphate injection for the case of parenteral anticonvulsants).
- 5% of the facilities had used D&C for the removal of retained products of conception instead of vacuum aspiration.
- Only 63% of the midwives in hospitals and 59% from health centers/clinics received EmONC training.
- Only 55% of mothers from the 282 cases of pre-term or low birth-weight babies received antenatal corticosteroids. Availability of antenatal corticosteroids was limited to 84% od district hospitals and only 67% of health centers.

Recommendations:

- Improve management of Ruptured uterus and PPH through accelerated training of health care providers with developing/revisiting the existing guidelines on management of these obstetric complications. For PPH, early treatment with intravenous fluids and use of oxytocics are recommended.
- For the case of mother-baby friendly services and RMC, apply WHO's criteria[29] for improving infrastructure of the facilities and provide training to health care providers to provide quality of care services.
- Provide integrated training of health care providers (or refresher training for those who were already trained) on EmONC including availing guidelines to all providers and facilities either in printed form or electronically.
- Avail antenatal corticosteroids in all facilities and train midwives and nurses on administering the drug

29 WHO 2015. Mother–baby friendly birthing facilities. International Federation of Gynecology and Obstetrics 1,2, International Confederation of Midwives, White Ribbon Alliance, International Pediatric Association, World Health Organization. Elsevier, 2015. Accessed on February 26, 2022. https://www.whiteribbonalliance.org/wp-content/uploads/2017/11/MB-FBF-guidelines.pdf

11.2.6 Data quality of EmONC services

Gaps:

- Unavailability of postpartum ward register in 17% of hospitals and 29% of health centers/clinics. Unavailability of safe/post-abortion care register in 35% of hospitals and 82% of health centers/clinics.
- Quality of labour and delivery and safe/post-abortion care register books were not complete as 21% and 56% of these register books were not complete during data extraction of service statistics data, respectively.
- Under-reporting of major obstetric complications as a routine practice to monitor and calculate EmONC indicators.
- The under-reporting of maternal death, newborn death, stillbirths, and direct and indirect obstetric complications was observed in many of the facilities. Example, the mismatch between maternal death data extracted from the facilities and the MDSR forced the data collection on maternal death to be collected again in all hospitals.
- Number of low-birth weight babies that received KMC was higher than the number of birth outcomes that show data quality problem and the data was dropped.

Recommendations:

- Standardize the different register books and distribute to the health facilities with an up-to-date training of health providers on the register books. The standardization should also include Medical Record Number (MRN) across register books to track the same record. Example, if a woman delivered in the maternity received family planning method, the two register books should be synchronized with the MRN of a woman.
- Strengthen streamlining of EmONC indicators/services in the existing HMIS/DHIS2 system and ensure regular monitoring of EmONC indicators.
- Improve the performance and linkages of facility data and civil registration and vital statistics system at all levels despite the system was widely available in the country.

11.2.7 Infrastructure

Gaps:

- Despite the fact that electricity was available universally in all facilities, interruptions (power cut) for over 2 hours in the last week prior to the assessment was apparent in facilities in Rutsiro (85%), Bugesera (47%) Nyabihu (47%), Nyamagabe (44%), and Nyagatare (40%).
- About 36% of the health centers/clinics had no backup generator to tackle such power interruptions.
- Three percent (3%) of the total facilities had no water source and all were health centers and health posts.
- From those facilities that had tap water, 56% of the facilities in Bugesera, 53% in Gisagara, 44% in Nyamasheke, 31% - 42% in Rutsiro, Nyanza, Rulindo, Muhanga, Rwamagana, Nyaruguru, Karongi, Burera, Rusizi, Nyagatare, and Huye had experienced water shortages for days in the last year prior to the assessment.
- Newborn corner was not available in 75% of health centers and 78% of the health posts.

Recommendations:

- Infrastructure related resources require an intensive budget to fulfill the gaps. However, in collaboration with other partners, the RBC and MOH should mobilize such resources to satisfy the above-mentioned infrastructure gaps (construction or upgrading of health facilities and back-up generators) to improve service delivery, coverage, and quality of EmONC and EmNeC services to save lives.
- Some infrastructure elements like water and electricity require collaboration with these specific ministries to facilitate availability of water and power grid to the health facilities that lacked or experienced severe shortages.

11.2.8 Referrals

Gaps:

- Landline telephone was not common in the entire country.
- Facility owned cell phone was not available in 21% of the total facilities.
- Almost all facilities (99%) did not have a two-way functioning radio.
- About 31% of the total facilities had not been using individual-owned cell phone for referral services. In addition, of those using staff's cell-phones, 52% had no policy to reimburse staff's airtime that used for referral services.
- Motor vehicle ambulance was not available in 64% of the total facilities.

Recommendations:

- Mobilize resources to avail either of the listed communication materials in all the facilities that lacked them (facility-owned cell phone, two-way radio, or reimbursing individual owned cell phones or a combination of these items).
- Availability of an ambulance is a critical step for lower-level health facilities as often times they do refer (46% of the health centers were in more than 25 kilometers to the nearest hospital that provides surgery) to hospitals for higher level of care.

In line with this, it is better to have a high-level discussion among the steering committee members to better avail and position ambulances either at facility level or district level with the network of EmONC facilities. The decision can further be informed using geo-positioned data (GIS information).

11.2.9 Human resources for EmONC

Gaps:

- A huge gap of Midwife/Nurse category in health centers (4,884) and health posts (149) when compared to the national standards.
- A gap of Obs/Gyne in public hospitals (183).
- A gap of Anesthetist (112) and Anesthesiologist – MD (51) in public hospitals.
- Availability of health workers were limited mostly to Monday-Friday during the day than at night and over the weekends/holidays.
- 60% of the Medical Doctors from hospitals were not trained on CEmONC. In addition, 73% of the Nurses and 37% of the Midwives in the hospitals were not trained on BEmONC.
- 64% of Nurses and 41% of Midwives from health centers/clinics were not trained on BEmONC.

Recommendations:

- Revisit the HR standards of the country in relation to quantity of staff, deployment and re-deployment strategies and staff rotation to meet the gaps; particularly to the lower-level health facilities.
- Collaborate with partners to support training institutions for their accelerated training schemes, in particular to Midwife/Nurse categories and Obs/Gyne for hospitals.
- Encourage staff rotation and institute incentive mechanisms for those working at night and during the weekends/holidays to respond to service demand 24/7.
- Strengthen district level supportive supervision to the health facilities for timely support and feedback system to improve availability and quality of service delivery.
- Explore other opportunities for health workers like residence/housing allowances and reimbursement of staff's cell phones for using emergency services to recuperate availability and retention.

11.2.10 Drugs/equipment/supplies

Gaps:

Stock-out of some essential drugs:

- 13% of the facilities had stockout of gentamicin
- 13% had stockout of magnesium sulphate
- 12% had stockout of oxytocin
- 10% had misoprostol stockout
- 10% had stockout of corticosteroid
- 13% had stockout of ARVs
- 16% had stockout of contraceptives
- 6% each had stockout of ketamine and Combi pack

Lack of some essential equipment and supplies in the facilities:

- 27% of the facilities lack filled oxygen cylinder
- 8% of the district hospitals had experienced interruptions in the oxygen supply in their labour and delivery and neonatal wards
- 79% of the facilities did not have vacuum extraction with different size cups
- 68% (76% of health centers/clinics and 16% of district hospitals) lack electric vacuum aspiration machine. Sixty-two percent health centers and 11% district hospitals did not have complete MVA equipment set
- Neonatal size ambu bag was not available in 34% of the facilities. Moreover, neonatal face masks (size 0 and 1) were not available in 23% and 21% of the facilities, respectively
- 19% of the district hospitals and one of the teaching and provincial hospitals lack a separate autoclave room. Autoclave with temperature and pressure gauge was not available in 49% of the facilities.
- 29% of the facilities lack a functioning incinerator.

Unavailability of some guidelines:

- 33% of the facilities (majority were health centers) did not have guidelines on care for preterm or low birthweight babies, including KMC, respectively.
- 12% (most of them were health centers) had no guideline on neonatal resuscitation.
- 37% did not have guidelines on treatment of infections in young infants.
- 86% and 41% of the facilities lacked safe abortion and post-abortion care guidelines, respectively.

Recommendations:

- In collaboration with partners and donors, the RBC and MOH should strengthen the national/local procurement system to fill the supply gaps in essential drugs, equipment and supplies of the facilities to save the lives of mothers and newborns. In doing so, it needs to do an in-depth analysis of the facilities that miss the specified drugs/ equipment/supplies.
- Strengthen the logistics manage-ment information system (LMIS) for timely forecast and ordering of drugs/ equipment/ supplies as 52% of the facilities had cited stockout in central store as a reason for delay in supply or resupply of drugs/equipment/ supplies.
- Build the capacity of pharmacists and pharmacy technicians in LMIS with supply of guidelines and LMIS forms to improve performance in tracking, forecasting, ordering, and supply and resupply of drugs/ equipment/supplies.
- The RBC and MOH should work on revisions, printing and distribution of the guidelines for the facilities.
- Provide regular supportive supervisions (district to health facilities and central to district and health facilities) to the health facilities to timely solve supply chain related problems.

Appendix A. Tables in the Appendix

Table 3.1.2A: Distribution of facilities according to EmONC status, by region, managing authority, and location, Rwanda EmONC, 2021

	Hospitals				Health Centers/clinics				All Facilities			
	Comprehensive	Basic	Partially functioning*	Total number of hospitals	Comp	Basic	Partially functioning*	Total number of health centers/ clinics	Comp	Basic	Partially functioning*	Total number of facilities
	n	n	n		n	n	n		n	n	n	
National	21	0	27	48	1	2	393	396	22	2	420	444
Region												
Bugesera	1	0	0	1	0	1	15	16	1	1	15	17
Burera	0	0	1	1	0	0	15	15	0	0	16	16
Gakenke	2	0	0	2	0	0	7	7	2	0	7	9
Gasabo	0	0	4	4	0	0	11	11	0	0	15	15
Gatsibo	1	0	1	2	0	0	18	18	1	0	19	20
Gicumbi	0	0	1	1	0	0	15	15	0	0	16	16
Gisagara	2	0	0	2	0	0	14	14	2	0	14	16
Huye	1	0	1	2	0	0	10	10	1	0	11	12
Kamonyi	0	0	1	1	0	0	9	9	0	0	10	10
Karongi	0	0	3	3	0	0	11	11	0	0	14	14
Kayonza	1	0	1	2	0	0	12	12	1	0	13	14
Kicukiro	0	0	2	2	0	0	10	10	0	0	12	12
Kirehe	0	0	1	1	0	1	15	16	0	1	16	17
Muhanga	1	0	0	1	0	0	12	12	1	0	12	13
Musanze	1	0	0	1	0	0	13	13	1	0	13	14
Ngoma	0	0	1	1	0	0	12	12	0	0	13	13
Ngororero	2	0	0	2	0	0	13	13	2	0	13	15
Nyabihu	1	0	0	1	0	0	14	14	1	0	14	15
Nyagatare	1	0	0	1	0	0	19	19	1	0	19	20
Nyamagabe	0	0	2	2	0	0	14	14	0	0	16	16
Nyamasheke	1	0	1	2	0	0	16	16	1	0	17	18
Nyanza	1	0	0	1	0	0	12	12	1	0	12	13
Nyarugenge	2	0	0	2	0	0	9	9	2	0	9	11
Nyaruguru	0	0	1	1	0	0	14	14	0	0	15	15
Rubavu	1	0	0	1	1	0	13	14	2	0	13	15
Ruhango	2	0	0	2	0	0	11	11	2	0	11	13
Rulindo	0	0	2	2	0	0	14	14	0	0	16	16
Rusizi	0	0	2	2	0	0	17	17	0	0	19	19
Rutsiro	0	0	1	1	0	0	12	12	0	0	13	13
Rwamagana	0	0	1	1	0	0	16	16	0	0	17	17
Managing Authority												
Public/ Government	19	0	20	39	0	1	326	327	19	1	346	366
Private, for-profit	0	0	2	2	1	0	7	8	1	0	9	10
Private not-for-profit**	2	0	5	7	0	1	60	61	2	1	65	68
Location												
Urban	9	0	15	24	0	1	74	75	9	1	89	99
Rural	12	0	12	24	1	1	319	321	13	1	331	345

NOTE: [X facilities] excluded due to incomplete information to establish EmOC status
* Partially functoning indicates those facilities providing signal functions but misses at least one BEmONC signal function
** Includes NGO, faith-based or mission health facilities

Table 3.1.3A: Percent distribution of facilities according to EmONC status, by region, managing authority, and location, Rwanda EmONC, 2021

	Hospitals				Health Centers/Clinics				All Facilities			
	Comp	Basic	Partially functioning*	Total number of hospitals	Comp	Basic	Partially functioning*	Total number of health centers	Comp	Basic	Partially functioning*	Total number of facilities
	%	%	%	n	%	%	%	n	%	%	%	n
National	44%	0%	56%	48	0.3%	0.5%	99%	396	5%	0%	95%	444
District												
Bugesera	100%	0%	0%	1	0%	7%	94%	16	6%	6%	88%	17
Burera	0%	0%	100%	1	0%	0%	100%	15	0%	0%	100%	16
Gakenke	100%	0%	0%	2	0%	0%	100%	7	22%	0%	78%	9
Gasabo	0%	0%	100%	4	0%	0%	100%	11	0%	0%	100%	15
Gatsibo	50%	0%	50%	2	0%	0%	100%	18	5%	0%	95%	20
Gicumbi	0%	0%	100%	1	0%	0%	100%	15	0%	0%	100%	16
Gisagara	100%	0%	0%	2	0%	0%	100%	14	13%	0%	88%	16
Huye	50%	0%	50%	2	0%	0%	100%	10	8%	0%	92%	12
Kamonyi	0%	0%	100%	1	0%	0%	100%	9	0%	0%	100%	10
Karongi	0%	0%	100%	3	0%	0%	100%	11	0%	0%	100%	14
Kayonza	50%	0%	50%	2	0%	0%	100%	12	7%	0%	93%	14
Kicukiro	0%	0%	100%	2	0%	0%	100%	10	0%	0%	100%	12
Kirehe	0%	0%	100%	1	0%	7%	94%	16	0%	6%	94%	17
Muhanga	100%	0%	0%	1	0%	0%	100%	12	8%	0%	92%	13
Musanze	100%	0%	0%	1	0%	0%	100%	13	7%	0%	93%	14
Ngoma	0%	0%	100%	1	0%	0%	100%	12	0%	0%	100%	13
Ngororero	100%	0%	0%	2	0%	0%	100%	13	13%	0%	87%	15
Nyabihu	100%	0%	0%	1	0%	0%	100%	14	7%	0%	93%	15
Nyagatare	100%	0%	0%	1	0%	0%	100%	19	5%	0%	95%	20
Nyamagabe	0%	0%	100%	2	0%	0%	100%	14	0%	0%	100%	16
Nyamasheke	50%	0%	50%	2	0%	0%	100%	16	6%	0%	94%	18
Nyanza	100%	0%	0%	1	0%	0%	100%	12	8%	0%	92%	13
Nyarugenge	100%	0%	0%	2	0%	0%	100%	9	18%	0%	82%	11
Nyaruguru	0%	0%	100%	1	0%	0%	100%	14	0%	0%	100%	15
Rubavu	100%	0%	0%	1	7%	0%	93%	14	13%	0%	87%	15
Ruhango	100%	0%	0%	2	0%	0%	100%	11	15%	0%	85%	13
Rulindo	0%	0%	100%	2	0%	0%	100%	14	0%	0%	100%	16
Rusizi	0%	0%	100%	2	0%	0%	100%	17	0%	0%	100%	19
Rutsiro	0%	0%	100%	1	0%	0%	100%	12	0%	0%	100%	13
Rwamagana	0%	0%	100%	1	0%	0%	100%	16	0%	0%	100%	17
Managing Authority												
Public/ Government	49%	0%	51%	39	0%	0%	100%	327	5%	0%	95%	366
Private, for-profit	0%	0%	100%	2	13%	0%	88%	8	10%	0%	90%	10
Private not-for-profit**	29%	0%	71%	7	0%	2%	98%	61	3%	1%	96%	68
Location												
Urban	38%	0%	63%	24	0%	1%	99%	75	9%	1%	90%	99
Rural	50%	0%	50%	24	0%	0%	99%	321	4%	0%	96%	345

NOTE: [X facilities] excluded due to incomplete information to establish EmNeC status
* Partially functoning indicates those facilities providing signal functions but misses at least one BEmONC signal function
** Includes NGO, faith-based or mission health facilities

Table 3.1.4A: Percent distribution of facilities by number of EmONC status, by district, managing authority, facility type, and location, Rwanda EmONC, 2021

	CEmONC		BEmONC		Almost There		On the way		Barely functioning		Basic or comprehensive EmOC		All facilities
	%	n	%	n	%	n	%	n	%	n	%	n	n
National	5%	22	0.5%	2	47%	209	41%	183	6%	28	5%	24	444
Region													
Bugesera	6%	1	6%	1	53%	9	35%	6	0%	0	12%	2	17
Burera	0%	0	0%	0	13%	2	69%	11	19%	3	0%	0	16
Gakenke	22%	2	0%	0	67%	6	11%	1	0%	0	22%	2	9
Gasabo	0%	0	0%	0	93%	14	7%	1	0%	0	0%	0	15
Gatsibo	5%	1	0%	0	45%	9	35%	7	15%	3	5%	1	20
Gicumbi	0%	0	0%	0	38%	6	56%	9	6%	1	0%	0	16
Gisagara	13%	2	0%	0	44%	7	38%	6	6%	1	13%	2	16
Huye	8%	1	0%	0	50%	6	42%	5	0%	0	8%	1	12
Kamonyi	0%	0	0%	0	70%	7	20%	2	10%	1	0%	0	10
Karongi	0%	0	0%	0	29%	4	71%	10	0%	0	0%	0	14
Kayonza	7%	1	0%	0	36%	5	50%	7	7%	1	7%	1	14
Kicukiro	0%	0	0%	0	58%	7	42%	5	0%	0	0%	0	12
Kirehe	0%	0	6%	1	35%	6	47%	8	12%	2	6%	1	17
Muhanga	8%	1	0%	0	23%	3	69%	9	0%	0	8%	1	13
Musanze	7%	1	0%	0	79%	11	14%	2	0%	0	7%	1	14
Ngoma	0%	0	0%	0	38%	5	54%	7	8%	1	0%	0	13
Ngororero	13%	2	0%	0	27%	4	53%	8	7%	1	13%	2	15
Nyabihu	7%	1	0%	0	53%	8	33%	5	7%	1	7%	1	15
Nyagatare	5%	1	0%	0	35%	7	50%	10	10%	2	5%	1	20
Nyamagabe	0%	0	0%	0	94%	15	6%	1	0%	0	0%	0	16
Nyamasheke	6%	1	0%	0	33%	6	56%	10	6%	1	6%	1	18
Nyanza	8%	1	0%	0	69%	9	8%	1	15%	2	8%	1	13
Nyarugenge	18%	2	0%	0	55%	6	18%	2	9%	1	18%	2	11
Nyaruguru	0%	0	0%	0	73%	11	20%	3	7%	1	0%	0	15
Rubavu	13%	2	0%	0	13%	2	67%	10	7%	1	13%	2	15
Ruhango	15%	2	0%	0	15%	2	69%	9	0%	0	15%	2	13
Rulindo	0%	0	0%	0	75%	12	25%	4	0%	0	0%	0	16
Rusizi	0%	0	0%	0	58%	11	37%	7	5%	1	0%	0	19
Rutsiro	0%	0	0%	0	31%	4	62%	8	8%	1	0%	0	13
Rwamagana	0%	0	0%	0	29%	5	53%	9	18%	3	0%	0	17
Managing Authority													
Public/Government	5%	19	0%	1	46%	170	41%	151	7%	25	5%	20	366
Private, for-profit	10%	1	0%	0	80%	8	10%	1	0%	0	10%	1	10
Private not-for-profit*	3%	2	1%	1	46%	31	46%	31	4%	3	4%	3	68
Type of Facility													
Teaching hospital	50%	2	0%	0	50%	2	0%	0	0%	0	50%	2	4
Referral hospital	33%	1	0%	0	67%	2	0%	0	0%	0	33%	1	3
Provincial hospital	50%	2	0%	0	50%	2	0%	0	0%	0	50%	2	4
District Hospital	43%	16	0%	0	57%	21	0%	0	0%	0	43%	16	37
Health Centre	0%	0	1%	2	46%	174	48%	181	6%	24	1%	2	381
Poly clinic/Clinic	17%	1	0%	0	83%	5	0%	0	0%	0	17%	1	6
Health posts	0%	0	0%	0	33%	3	22%	2	44%	4	0%	0	9
Location													
Urban	9%	9	1%	1	61%	60	27%	27	2%	2	10%	10	99
Rural	4%	13	0%	1	43%	149	45%	156	8%	26	4%	14	345

Which signal function(s) is missing cannot be determined in this table.
* Includes NGO and faith-based or mission health facilities

Table 3.1.6A: Distribution of facilities according to Emergency Newborn Care (EmNeC) status, by region, managing authority, and location, Rwanda EmONC, 2021

	Hospitals			Health Centers/clinics			All Facilities		
	Fully EmNeC	Partially functioning*	Total number of hospitals	Fully EmNeC	Partially functioning*	Total number of health centers/ clinics	Fully EmNeC	Partially functioning*	Total number of facilities
	n	n		n	n		n	n	
National	48	1	48	3	393	396	51	394	444
Region									
Bugesera	1	0	1	0	16	16	1	16	17
Burera	1	0	1	0	15	15	1	15	16
Gakenke	2	0	2	0	7	7	2	7	9
Gasabo	4	0	4	0	11	11	4	11	15
Gatsibo	2	0	2	0	18	18	2	18	20
Gicumbi	1	0	1	1	14	15	2	14	16
Gisagara	2	0	2	0	14	14	2	14	16
Huye	2	0	2	0	10	10	2	10	12
Kamonyi	1	0	1	0	9	9	1	9	10
Karongi	3	0	3	0	11	11	3	11	14
Kayonza	2	0	2	0	12	12	2	12	14
Kicukiro	2	0	2	0	10	10	2	10	12
Kirehe	1	0	1	1	15	16	2	15	17
Muhanga	1	0	1	0	12	12	1	12	13
Musanze	1	0	1	0	13	13	1	13	14
Ngoma	1	1	1	0	12	12	1	13	13
Ngororero	2	0	2	0	13	13	2	13	15
Nyabihu	1	0	1	0	14	14	1	14	15
Nyagatare	1	0	1	0	19	19	1	19	20
Nyamagabe	2	0	2	0	14	14	2	14	16
Nyamasheke	2	0	2	0	16	16	2	16	18
Nyanza	1	0	1	0	12	12	1	12	13
Nyarugenge	2	0	2	0	9	9	2	9	11
Nyaruguru	1	0	1	0	14	14	1	14	15
Rubavu	1	0	1	1	13	14	2	13	15
Ruhango	2	0	2	0	11	11	2	11	13
Rulindo	2	0	2	0	14	14	2	14	16
Rusizi	2	0	2	0	17	17	2	17	19
Rutsiro	1	0	1	0	12	12	1	12	13
Rwamagana	1	0	1	0	16	16	1	16	17
Managing Authority									
Public/Government	39	0	39	1	326	327	40	326	366
Private, for-profit	2	0	2	1	7	8	3	7	10
Private not-for-profit**	7	0	7	1	60	61	8	60	68
Location									
Urban	24	0	24	0	75	75	24	75	99
Rural	24	0	24	3	318	321	27	318	345

NOTE: [X facilities] excluded due to incomplete information to establish EmOC status
* Partially functoning indicates those facilities providing signal functions but misses at least one signal function
** Includes NGO, faith-based or mission health facilities

Table 3.1.7A: Percent distribution of facilities according to EmNeC status, by region, managing authority, and location, Rwanda EmONC, 2021

	Hospitals			Health Centers/clinics			All Facilities		
	Fully EmNeC	Partially functioning*	Total number of hospitals	Fully EmNeC	Partially functioning*	Total number of health centers	Fully EmNeC	Partially functioning*	Total number of facilities
	%	%		%	%		%	%	
National	100%	2%	48	1%	99%	396	11%	89%	444
Region									
Bugesera	100%	0%	1	0%	100%	16	6%	94%	17
Burera	100%	0%	1	0%	100%	15	6%	94%	16
Gakenke	100%	0%	2	0%	100%	7	22%	78%	9
Gasabo	100%	0%	4	0%	100%	11	27%	73%	15
Gatsibo	100%	0%	2	0%	100%	18	10%	90%	20
Gicumbi	100%	0%	1	7%	93%	15	13%	88%	16
Gisagara	100%	0%	2	0%	100%	14	13%	88%	16
Huye	100%	0%	2	0%	100%	10	17%	83%	12
Kamonyi	100%	0%	1	0%	100%	9	10%	90%	10
Karongi	100%	0%	3	0%	100%	11	21%	79%	14
Kayonza	100%	0%	2	0%	100%	12	14%	86%	14
Kicukiro	100%	0%	2	0%	100%	10	17%	83%	12
Kirehe	100%	0%	1	6%	94%	16	12%	88%	17
Muhanga	100%	0%	1	0%	100%	12	8%	92%	13
Musanze	100%	0%	1	0%	100%	13	7%	93%	14
Ngoma	100%	0%	1	0%	100%	12	8%	100%	13
Ngororero	100%	0%	2	0%	100%	13	13%	87%	15
Nyabihu	100%	0%	1	0%	100%	14	7%	93%	15
Nyagatare	100%	0%	1	0%	100%	19	5%	95%	20
Nyamagabe	100%	0%	2	0%	100%	14	13%	88%	16
Nyamasheke	100%	0%	2	0%	100%	16	11%	89%	18
Nyanza	100%	0%	1	0%	100%	12	8%	92%	13
Nyarugenge	100%	0%	2	0%	100%	9	18%	82%	11
Nyaruguru	100%	0%	1	0%	100%	14	7%	93%	15
Rubavu	100%	0%	1	7%	93%	14	13%	87%	15
Ruhango	100%	0%	2	0%	100%	11	15%	85%	13
Rulindo	100%	0%	2	0%	100%	14	13%	88%	16
Rusizi	100%	0%	2	0%	100%	17	11%	89%	19
Rutsiro	100%	0%	1	0%	100%	12	8%	92%	13
Rwamagana	100%	0%	1	0%	100%	16	6%	94%	17
Managing Authority									
Public/Government	100%	0%	39	0%	100%	327	11%	89%	366
Private, for-profit	100%	0%	2	13%	88%	8	30%	70%	10
Private not-for-profit*	100%	0%	7	2%	98%	61	12%	88%	68
Location									
Urban	100%	0%	24	0%	100%	75	24%	76%	99
Rural	100%	0%	24	1%	99%	321	8%	92%	345

NOTE: [X facilities] excluded due to incomplete information to establish EmNeC status
* Partially functoning indicates those facilities providing signal functions but misses at least one signal function
** Includes NGO, faith-based or mission health facilities

Table 3.1.8A: Percent distribution of facilities by number of EmNeC status, by district, managing authority, facility type, and location, Rwanda EmONC, 2021

	Fully EmNeC		Almost There		On the way		Barely functioning		All facilities
	%	n	%	n	%	n	%	n	n
National	11%	51	15%	68	47%	207	27%	118	444
Region									
Bugesera	6%	1	6%	1	47%	8	41%	7	17
Burera	6%	1	0%	0	69%	11	25%	4	16
Gakenke	22%	2	11%	1	33%	3	33%	3	9
Gasabo	27%	4	0%	0	53%	8	20%	3	15
Gatsibo	10%	2	5%	1	35%	7	50%	10	20
Gicumbi	13%	2	19%	3	38%	6	31%	5	16
Gisagara	13%	2	6%	1	69%	11	13%	2	16
Huye	17%	2	8%	1	42%	5	33%	4	12
Kamonyi	10%	1	10%	1	50%	5	30%	3	10
Karongi	21%	3	14%	2	43%	6	21%	3	14
Kayonza	14%	2	0%	0	57%	8	29%	4	14
Kicukiro	17%	2	17%	2	50%	6	17%	2	12
Kirehe	12%	2	24%	4	53%	9	12%	2	17
Muhanga	8%	1	23%	3	69%	9	0%	0	13
Musanze	7%	1	0%	0	93%	13	0%	0	14
Ngoma	8%	1	31%	4	38%	5	23%	3	13
Ngororero	13%	2	7%	1	53%	8	27%	4	15
Nyabihu	7%	1	13%	2	53%	8	27%	4	15
Nyagatare	5%	1	0%	0	25%	5	70%	14	20
Nyamagabe	13%	2	31%	5	50%	8	6%	1	16
Nyamasheke	11%	2	22%	4	11%	2	56%	10	18
Nyanza	8%	1	15%	2	62%	8	15%	2	13
Nyarugenge	18%	2	27%	3	36%	4	18%	2	11
Nyaruguru	7%	1	20%	3	60%	9	13%	2	15
Rubavu	13%	2	20%	3	20%	3	47%	7	15
Ruhango	15%	2	15%	2	62%	8	8%	1	13
Rulindo	13%	2	0%	0	69%	11	19%	3	16
Rusizi	11%	2	53%	10	26%	5	11%	2	19
Rutsiro	8%	1	38%	5	31%	4	23%	3	13
Rwamagana	6%	1	24%	4	24%	4	47%	8	17
Managing Authority									
Public/Government	11%	40	13%	46	48%	177	28%	103	366
Private, for-profit	30%	3	50%	5	20%	2	0%	0	10
Private not-for-profit*	12%	8	25%	17	41%	28	22%	15	68
Type of Facility									
Teaching hospital	100%	4	0%	0	0%	0	0%	0	4
Referral hospital	100%	3	0%	0	0%	0	0%	0	3
Provincial hospital	100%	4	0%	0	0%	0	0%	0	4
District Hospital	100%	37	0%	0	0%	0	0%	0	37
Health Centre	1%	2	17%	63	53%	203	30%	113	381
Poly clinic/Clinic	17%	1	67%	4	17%	1	0%	0	6
Health posts	0%	0	11%	1	33%	3	56%	5	9
Location									
Urban	24%	24	17%	17	38%	38	20%	20	99
Rural	8%	27	15%	51	49%	169	28%	98	345

Which signal function(s) is missing cannot be determined in this table.
* Includes NGO and faith-based or mission health facilities

Table 3.3.2A: Percent distribution of institutional deliveries according to region, by facility type, EmONC status, managing authority, and location, Rwanda EmONC, 2021

	National	Region/Provinve				
		East	Kigali_City	North	South	West
Total Deliveries	293,964	81,054	48,126	39,199	64,106	61,479
Facility Type						
Teaching hospital	3%	0%	10%	0%	4%	0%
Referral Hospital	4%	4%	0%	13%	0%	4%
Provincial hospital	3%	5%	0%	2%	4%	3%
District Hospital	37%	30%	55%	27%	40%	33%
Health Centre	52%	60%	28%	58%	52%	56%
Poly clinic/Clinic	1%	0%	6%	0%	0%	1%
Health posts	1%	1%	0%	0%	0%	3%
EmONC Status						
Comprehensive	21%	18%	13%	23%	30%	18%
Basic	1%	2%	0%	0%	0%	0%
Partially functioning	78%	80%	87%	77%	70%	82%
Managing Authority						
Public/government	83%	87%	83%	85%	94%	66%
Private-for-profit	3%	1%	14%	0%	0%	1%
Private-not-for-profit	14%	12%	2%	15%	6%	33%
Location						
Urban	43%	37%	100%	28%	36%	24%
Rural	57%	63%	0%	72%	64%	76%

Table 3.3.3A: Percent distribution of mode of delivery by region, facility type, managing authority, and location, Rwanda EmONC, 2021

	Mode of delivery					Number of deliveries
	Spontaneous vaginal	Instrumental vaginal	Destructive[1]	Cesarean	Laparotomy[2]	
National	77%	0.2%	0.0%	23%	0.2%	293,964
District						
Bugesera	88%	0.0%	0.0%	12%	0.1%	12,641
Burera	89%	0.0%	0.0%	11%	0.2%	6,139
Gakenke	72%	0.0%	0.0%	28%	0.2%	6,226
Gasabo	64%	0.4%	0.0%	36%	0.1%	23,643
Gatsibo	83%	0.6%	0.0%	16%	0.1%	13,980
Gicumbi	75%	0.0%	0.0%	25%	0.1%	9,886
Gisagara	81%	0.0%	0.0%	18%	0.4%	10,267
Huye	65%	0.0%	0.0%	33%	2.9%	9,813
Kamonyi	84%	0.0%	0.0%	16%	0.3%	6,538
Karongi	68%	0.1%	0.0%	32%	0.3%	7,375
Kayonza	78%	0.0%	0.0%	21%	0.1%	10,728
Kicukiro	69%	0.0%	0.0%	31%	0.0%	11,302
Kirehe	73%	0.0%	0.0%	27%	0.0%	11,452
Muhanga	69%	0.0%	0.0%	31%	0.1%	8,183
Musanze	77%	0.0%	0.0%	23%	0.1%	10,778
Ngoma	82%	0.0%	0.0%	18%	0.0%	8,370
Ngororero	80%	0.1%	0.0%	20%	0.1%	7,485
Nyabihu	82%	0.1%	0.0%	18%	0.0%	7,579
Nyagatare	84%	0.3%	0.0%	15%	0.1%	14,957
Nyamagabe	81%	0.0%	0.0%	19%	0.3%	7,382
Nyamasheke	80%	0.0%	0.0%	19%	0.3%	9,176
Nyanza	70%	0.1%	0.0%	29%	0.1%	7,227
Nyarugenge	62%	0.3%	0.0%	37%	0.1%	13,181
Nyaruguru	90%	0.0%	0.0%	10%	0.1%	6,785
Rubavu	87%	0.9%	0.0%	12%	0.0%	11,154
Ruhango	75%	1.1%	0.0%	24%	0.2%	7,911
Rulindo	82%	0.0%	0.0%	18%	0.2%	6,170
Rusizi	77%	0.0%	0.0%	23%	0.1%	12,453
Rutsiro	85%	0.0%	0.0%	15%	0.1%	6,257
Rwamagana	82%	0.0%	0.0%	18%	0.1%	8,926
Facility Type						
Teaching hospital	38%	0.5%	0.0%	58%	3.7%	7,577
Referral Hospital	51%	0.0%	0.0%	49%	0.2%	10,845
Provincial hospital	54%	0.2%	0.0%	45%	0.5%	8,805
District Hospital	54%	0.4%	0.0%	46%	0.2%	107,780

Health Centre	99%	0.0%	0.0%	1%	0.0%	152,736
Poly clinic/Clinic	37%	0.1%	0.0%	63%	0.0%	3,574
Health posts	100%	0.0%	0.0%	0%	0.0%	2,647
Managing Authority						
Public/ government	77%	0.2%	0.0%	23%	0.2%	244,508
Private-for-profit	40%	0.5%	0.0%	59%	0.0%	8,136
Private-not-for-profit	83%	0.0%	0.0%	17%	0.1%	41,320
Location						
Urban	64%	0.2%	0.0%	35%	0.3%	126,878
Rural	87%	0.1%	0.0%	13%	0.1%	167,086

[1] Destructive delivery includes craniotomies, embryotomies

[2] Laparotomy for ruptured uterus

Table 3.4.2A: Caesarean delivery as a proportion of institutional deliveries in all facilities and EmONC facilities, by region, managing authority, and location, Rwanda EmONC, 2021

	All facilities that provide CS			EmONC Facilities		
	Number of institutional deliveries	Number of deliveries by CS	Percent deliveries by CS	Number of institutional deliveries	Total deliveries by CS	Institutional CS rate
National	142,969	66,532	47%	64,423	28,266	44%
Region						
Bugesera	4,610	1,563	34%	5,250	1,563	30%
Burera	1,519	689	45%	-	-	
Gakenke	3,847	1,729	45%	3,847	1,729	45%
Gasabo	17,560	8,462	48%	-	-	
Gatsibo	5,169	2,244	43%	2,984	1,411	
Gicumbi	5,719	2,483	43%	-	-	
Gisagara	4,636	1,895	41%	3,956	1,708	43%
Huye	6,580	3,192	49%	2,723	1,454	53%
Kamonyi	2,656	1,037	39%	-	-	
Karongi	4,395	2,358	54%	-	-	
Kayonza	4,753	2,298	48%	2,061	929	45%
Kicukiro	6,721	3,473	52%	-	-	
Kirehe	4,778	3,145	66%	1,054	-	0%
Muhanga	4,211	2,522	60%	4,211	2,522	60%
Musanze	5,039	2,456	49%	5,039	2,456	49%
Ngoma	3,434	1,488	43%	-	-	
Ngororero	3,476	1,475	42%	3,476	1,475	42%
Nyabihu	3,449	1,338	39%	1,514	647	43%
Nyagatare	5,079	2,263	45%	5,079	2,263	45%
Nyamagabe	3,233	1,382	43%	-	-	
Nyamasheke	3,809	1,784	47%	1,843	951	52%
Nyanza	3,799	2,124	56%	3,799	2,124	56%
Nyarugenge	9,882	4,743	48%	8,536	3,808	45%
Nyaruguru	1,618	673	42%	-	-	
Rubavu	4,265	1,338	31%	4,265	1,338	31%
Ruhango	4,786	1,888	39%	4,786	1,888	39%
Rulindo	2,470	1,115	45%	-	-	
Rusizi	5,649	2,848	50%	-	-	
Rutsiro	2,156	935	43%	-	-	
Rwamagana	3,671	1,592	43%	-	-	
Managing authority						
Public/government	119,582	55,036	46%	55,975	25,473	46%
Private-for-profit	7,214	4,644	64%	640	278	43%
Private-not-for-profit*	16,144	6,852	42%	7,808	2,515	32%
Location						
Urban	91,511	44,391	49%	38,262	17,250	45%
Rural	51,429	22,141	43%	26,161	11,016	42%

* Includes NGO and faith-based or Mission facilities

Table 3.4.1A: Percentage of women with expected major direct obstetric complications treated in all facilities and EmONC facilities, by region (EmONC Indicator 4 - Met Need), Rwanda EmONC, 2021

	Expected births[1]	Expected Complications[2]	All Facilities		EmONC Facilities	
			Number of women with direct complications treated in all facilities	Met need	Number of women with direct complications treated in EmONC Facilities	Met need
National	411,993	61,799	26,785	43%	6,527	11%
Region						
Bugesera	15,834	2,375	816	34%	274	12%
Burera	13,194	1,979	559	28%	0	0%
Gakenke	12,742	1,911	243	13%	117	6%
Gasabo	22,096	3,314	1620	49%	258	8%
Gatsibo	17,099	2,565	1007	39%	0	0%
Gicumbi	14,930	2,239	593	26%	0	0%
Gisagara	12,340	1,851	1647	89%	635	34%
Huye	12,336	1,850	1418	77%	542	29%
Kamonyi	13,763	2,064	727	35%	0	0%
Karongi	12,281	1,842	479	26%	0	0%
Kayonza	13,580	2,037	1670	82%	177	9%
Kicukiro	12,051	1,808	1239	69%	0	0%
Kirehe	13,599	2,040	854	42%	58	3%
Muhanga	11,915	1,787	936	52%	373	21%
Musanze	14,391	2,159	2239	104%	1577	73%
Ngoma	13,273	1,991	703	35%	0	0%
Ngororero	13,270	1,990	361	18%	296	15%
Nyabihu	11,088	1,663	154	9%	82	5%
Nyagatare	20,617	3,093	876	28%	52	2%
Nyamagabe	12,474	1,871	343	18%	0	0%
Nyamasheke	15,496	2,324	545	23%	233	10%
Nyanza	11,741	1,761	760	43%	238	14%
Nyarugenge	9,979	1,497	505	34%	335	22%
Nyaruguru	11,207	1,681	549	33%	0	0%
Rubavu	15,470	2,320	301	13%	231	10%
Ruhango	11,852	1,778	1465	82%	1049	59%
Rulindo	11,646	1,747	372	21%	0	0%
Rusizi	16,169	2,425	2036	84%	0	0%
Rutsiro	12,625	1,894	312	16%	0	0%
Rwamagana	12,937	1,941	1456	75%	0	0%

Table 3.4.2A: Percentage of women expected to experience major direct obstetric complications (+ PAC cases) who are treated in all and EmONC facilities, by region (EmONC Indicator 4 - Met Need with PAC), Rwanda EmONC, 2021

	Expected births[1]	Expected complications[2]	All Facilities		EmONC Facilities		All Facilities		EmONC Facilities	
			Number of women with direct complications treated in all facilities	Met Need	Number of women with direct complications treated in EmONC facilities	Met Need	Number of women with direct complications (+PAC) treated in all facilities	Met Need	Number of women with direct complications (+PAC) treated in EmONC facilities	Met Need
National	411,993	61,799	26,785	43%	6,527	11%	42,874	69%	12,173	20%
Region										
Bugesera	15,834	2,375	816	34%	274	12%	1964	83%	1191	50%
Burera	13,194	1,979	559	28%	0	0%	950	48%	-	0%
Gakenke	12,742	1,911	243	13%	117	6%	524	27%	395	21%
Gasabo	22,096	3,314	1620	49%	258	8%	3334	101%	-	0%
Gatsibo	17,099	2,565	1007	39%	0	0%	1376	54%	258	10%
Gicumbi	14,930	2,239	593	26%	0	0%	907	41%	-	0%
Gisagara	12,340	1,851	1647	89%	635	34%	2012	109%	847	46%
Huye	12,336	1,850	1418	77%	542	29%	2283	123%	660	36%
Kamonyi	13,763	2,064	727	35%	0	0%	1360	66%	-	0%
Karongi	12,281	1,842	479	26%	0	0%	1052	57%	-	0%
Kayonza	13,580	2,037	1670	82%	177	9%	2461	121%	178	9%
Kicukiro	12,051	1,808	1239	69%	0	0%	1803	100%	-	0%
Kirehe	13,599	2,040	854	42%	58	3%	1504	74%	194	10%
Muhanga	11,915	1,787	936	52%	373	21%	1071	60%	436	24%
Musanze	14,391	2,159	2239	104%	1577	73%	3040	141%	2378	110%
Ngoma	13,273	1,991	703	35%	0	0%	895	45%	-	0%
Ngororero	13,270	1,990	361	18%	296	15%	770	39%	697	35%
Nyabihu	11,088	1,663	154	9%	82	5%	344	21%	191	11%
Nyagatare	20,617	3,093	876	28%	52	2%	1650	53%	495	16%
Nyamagabe	12,474	1,871	343	18%	0	0%	456	24%	-	0%
Nyamasheke	15,496	2,324	545	23%	233	10%	962	41%	233	10%
Nyanza	11,741	1,761	760	43%	238	14%	878	50%	351	20%
Nyarugenge	9,979	1,497	505	34%	335	22%	1745	117%	1292	86%
Nyaruguru	11,207	1,681	549	33%	0	0%	723	43%	-	0%
Rubavu	15,470	2,320	301	13%	231	10%	961	41%	856	37%
Ruhango	11,852	1,778	1465	82%	1049	59%	1962	110%	1521	86%
Rulindo	11,646	1,747	372	21%	0	0%	908	52%	-	0%
Rusizi	16,169	2,425	2036	84%	0	0%	2274	94%	-	0%
Rutsiro	12,625	1,894	312	16%	0	0%	412	22%	-	0%
Rwamagana	12,937	1,941	1456	75%	0	0%	2293	118%	-	0%

[1] Expected births are calculated as (population) * (crude birth rate)
[2] Expected complications are calculated as 15% of the number of expected births

Table 3.5.1A: Percentage of all expected births by caesarean delivery in all facilities and in EmONC facilities, by region (EmONC Indicator 5), Rwanda EmONC, 2021

	Expected births[1]	All Facilities		EmONC Facilities	
		Number of cesareans	Percent of expected births by cesarean	Number of cesareans	Percent of expected births by cesarean
National	411,993	66,716	16%	28,266	7%
Region					
Bugesera	15,834	1,563	10%	1,563	10%
Burera	13,194	689	5%	-	0%
Gakenke	12,742	1,729	14%	1,729	14%
Gasabo	22,096	8,462	38%	-	0%
Gatsibo	17,099	2,244	13%	1,411	8%
Gicumbi	14,930	2,483	17%	-	0%
Gisagara	12,340	1,895	15%	1,708	14%
Huye	12,336	3,192	26%	1,454	12%
Kamonyi	13,763	1,037	8%	-	0%
Karongi	12,281	2,358	19%	-	0%
Kayonza	13,580	2,298	17%	929	7%
Kicukiro	12,051	3,473	29%	-	0%
Kirehe	13,599	3,145	23%	-	0%
Muhanga	11,915	2,522	21%	2,522	21%
Musanze	14,391	2,456	17%	2,456	17%
Ngoma	13,273	1,488	11%	-	0%
Ngororero	13,270	1,475	11%	1,475	11%
Nyabihu	11,088	1,338	12%	647	6%
Nyagatare	20,617	2,263	11%	2,263	11%
Nyamagabe	12,474	1,382	11%	-	0%
Nyamasheke	15,496	1,784	12%	951	6%
Nyanza	11,741	2,124	18%	2,124	18%
Nyarugenge	9,979	4,927	49%	3,808	38%
Nyaruguru	11,207	673	6%	-	0%
Rubavu	15,470	1,338	9%	1,338	9%
Ruhango	11,852	1,888	16%	1,888	16%
Rulindo	11,646	1,115	10%	-	0%
Rusizi	16,169	2,848	18%	-	0%
Rutsiro	12,625	935	7%	-	0%
Rwamagana	12,937	1,592	12%	-	0%

1. Expected births are calculated as (population) * (crude birth rate)

Table 43.6.2A: Percent distribution of facilities according to facility DOCFR by facility type, managing authority, and location, Rwanda EmONC, 2021

	Number of facilities reporting maternal complications and deaths	DOCFR			
		<1.0%	1.0%-2.9%	3.0%-4.9%	5.0%+
National	53	36%	28%	13%	23%
Facility Type					
Teaching hospital	3	0%	0%	33%	67%
Referral Hospital	3	33%	67%	0%	0%
Provincial hospital	2	100%	0%	0%	0%
District Hospital	26	50%	27%	8%	15%
Health Centre	18	17%	33%	22%	28%
Poly clinic/Clinic	1	0%	0%	0%	100%
Health posts	0	0%	0%	0%	0%
Managing authority					
Public/government	45	38%	27%	13%	22%
Private-for-profit	1	0%	0%	0%	100%
Private-not-for-profit*	7	29%	43%	14%	14%
Location					
Urban	22	45%	32%	5%	18%
Rural	31	29%	26%	19%	26%

Table 3.7.1A: Stillbirth and very early neonatal death rates in all facilities, by district, facility type, managing authority, and, location, Rwanda EmONC, 2021

	Number of institutional deliveries	Number of stillbirths (fresh stillbirth)	Number of stillbirths (macerated)	Number of stillbirths (Total)	Stillbirth rate (per 1000 deliveries)	Number of live births	Number of Very Early Neonatal deaths (> 2.5kgs and 1st 24 hours)	Number of Fresh (intrapartum) stillbirth and Very Early Neonatal deaths (> 2.5kgs and 1st 24 hours)	Intrapartum (fresh) and Very Early Neonatal death rate (per 1000 live births)
National	293,964	2,057	1,871	3,983	13.5	295,029	440	2,497	8.5
Region									
Bugesera	12,641	20	50	70	5.5	13,035	9	29	2.3
Burera	6,139	44	24	70	11.4	6,320	13	57	9.3
Gakenke	6,226	49	73	122	19.6	6,174	1	50	8.0
Gasabo	23,643	146	202	350	14.8	23,242	11	157	6.6
Gatsibo	13,980	115	74	189	13.5	14,007	6	121	8.7
Gicumbi	9,886	65	76	141	14.3	9,855	10	75	7.6
Gisagara	10,267	102	66	169	16.5	10,399	22	124	12.1
Huye	9,813	109	114	223	22.7	9,505	82	191	19.5
Kamonyi	6,538	35	53	88	13.5	6,550	5	40	6.1
Karongi	7,375	65	56	121	16.4	7,436	27	92	12.5
Kayonza	10,728	105	35	142	13.2	10,951	1	106	9.9
Kicukiro	11,302	79	36	141	12.5	11,254	27	106	9.4
Kirehe	11,452	43	30	77	6.7	11,541	4	47	4.1
Muhanga	8,183	38	39	77	9.4	8,212	5	43	5.3
Musanze	10,778	81	114	195	18.1	10,679	0	81	7.5
Ngoma	8,370	35	49	86	10.3	8,455	2	37	4.4
Ngororero	7,485	64	88	153	20.4	7,497	65	129	17.2
Nyabihu	7,579	39	61	108	14.2	7,573	23	62	8.2
Nyagatare	14,957	141	16	157	10.5	15,138	5	146	9.8
Nyamagabe	7,382	80	42	123	16.7	7,312	0	80	10.8
Nyamasheke	9,176	42	61	105	11.4	9,187	20	62	6.8
Nyanza	7,227	53	69	122	16.9	7,430	7	60	8.3
Nyarugenge	13,181	94	102	196	14.9	13,178	11	105	8.0
Nyaruguru	6,785	63	38	101	14.9	6,830	5	68	10.0
Rubavu	11,154	60	79	140	12.6	11,160	32	92	8.2
Ruhango	7,911	54	19	73	9.2	7,941	10	64	8.1
Rulindo	6,170	30	34	64	10.4	6,199	4	34	5.5
Rusizi	12,453	95	70	165	13.2	12,501	0	95	7.6
Rutsiro	6,257	53	57	112	17.9	6,299	29	82	13.1
Rwamagana	8,926	58	44	103	11.5	9,169	4	62	6.9
Facility type									
Teaching hospital	7,577	66	98	164	21.6	7,289	9	75	9.9
Referral Hospital	10,845	119	163	282	26.0	10,760	3	122	11.2
Provincial hospital	8,805	106	69	175	19.9	8,932	26	132	15.0
District Hospital	107,780	1365	1095	2,486	23.1	107,311	300	1,665	15.4
Health Centre	152,736	375	419	815	5.3	154,483	101	476	3.1
Poly clinic/Clinic	3,574	18	24	42	11.8	3,581	1	19	5.3
Health posts	2,647	8	3	19		2,673	0	8	3.0
Managing Authority									
Public/government	244,508	1789	1606	3,448	14.1	245,002	374	2,163	8.8
Private-for-profit	8,136	19	35	54	6.6	8,232	3	22	2.7
Private-not-for-profit*	41,320	249	230	481	11.6	41,795	63	312	7.6
Location									
Urban	126,878	1018	1,009	2,062	16.3	126,615	179	1,197	9.4
Rural	167,086	1039	862	1,921	11.5	168,414	261	1,300	7.8

* Inlcudes NGO and faith-based or mission health facilities

Table 3.7.2A: Stillbirth and very early neonatal death rates in EmONC facilities, by district, facility type, managing authority, and, location, Rwanda EmONC, 2021

	Number of institutional deliveries	Number of stillbirths (fresh stillbirth)	Number of stillbirths (macerated)	Number of stillbirths (Total)	Stillbirth rate (per 1000 deliveries)	Number of live births	Number of Very Early Neonatal deaths (> 2.5kgs and 1st 24 hours)	Number of Fresh (intrapartum) stillbirth and Very Early Neonatal deaths (> 2.5kgs and 1st 24 hours)	Intrapartum (fresh) and Very Early Neonatal death rate (per 1000 live births)
National	64,423	787	716	1,504	23.3	63,963	256	153	2.4
Region									
Bugesera	5,250	12	17	29	5.5	5,535	8	3	0.6
Burera	-			0		0	0		0.0
Gakenke	3,847	44	64	108	28.1	3,780	6	1	0.3
Gasabo	-			0		0	0		0.0
Gatsibo	2,984	81	42	123	41.2	2,882	0		0.0
Gicumbi	-			0		0	0	0	0.0
Gisagara	3,956	90	50	140	35.4	3,946	13	13	3.3
Huye	2,723	23	50	73	26.8	2,394	4	4	1.5
Kamonyi	-			0		0	0	0	0.0
Karongi	-			0		0	0		0.0
Kayonza	2,061	28	13	41	19.9	2,059	0		0.0
Kicukiro	-			0		0	0		0.0
Kirehe	1,054	4	3	7	6.6	1,051	2	1	0.9
Muhanga	4,211	32	35	67	15.9	4,218	7	4	0.9
Musanze	5,039	66	101	167	33.1	4,929	8	0	0.0
Ngoma	-			0		0	0		0.0
Ngororero	3,476	43	75	119	34.2	3,462	76	47	13.5
Nyabihu	1,514	10	20	30	19.8	1,525	33	16	10.6
Nyagatare	5,079	113	0	113	22.2	5,066	0	0	0.0
Nyamagabe	-			0		0	0		0.0
Nyamasheke	1,843	19	17	36	19.5	1,821	18	16	8.7
Nyanza	3,799	38	54	92	24.2	3,943	0	0	0.0
Nyarugenge	8,536	89	95	184	21.6	8,473	25	11	1.3
Nyaruguru	-			0		0	0		0.0
Rubavu	4,265	47	66	113	26.5	4,188	45	27	6.3
Ruhango	4,786	48	14	62	13.0	4,691	11	10	2.1
Rulindo	-			0		0	0		0.0
Rusizi	-			0		0	0		0.0
Rutsiro	-			0		0	0		0.0
Rwamagana	-			0		0	0		0.0
Facility type									
Teaching hospital	4,877	40	75	166	34.0	4,568	7	5	1.0
Referral Hospital	5,039	66	101	282	56.0	4,929	8	0	0.0
Provincial hospital	4,312	48	17	175	40.6	4,296	24	22	5.1
District Hospital	47,861	627	513	2,486	51.9	47,818	214	124	2.6
Health Centre	1,694	4	3	815	481.1	1,715	2	1	0.6
Poly clinic/Clinic	640	2	7	42	65.6	637	1	1	1.6
Health posts	0	0	0	19		0	0	0	0.0
Managing Authority									
Public/government	55,975	742	650	3,450	61.6	55,304	240	148	2.6
Private-for-profit	640	2	7	54	84.4	637	1	1	1.6
Private-not-for-profit*	7,808	43	59	481	61.6	8,022	15	4	0.5
Location									
Urban	38,262	418	411	2,064	53.9	38,109	96	48	1.3
Rural	26,161	369	305	1,921	73.4	25,854	160	105	4.0

* Inlcudes NGO and faith-based or mission health facilities

Table 3.8.1A: Percentage of maternal deaths due to indirect causes in all facilities and EmONC facilities, by district (EmONC Indicator 8), Rwanda EmONC, 2021

	All Facilities	EmONC Facilities				
	Number of maternal deaths due to indirect causes[1]	All maternal deaths[2]	Percent of all maternal deaths due to indirect cause	Number of maternal deaths due to indirect causes[1]	All maternal deaths[2]	Percent of all maternal deaths due to indirect cause
National	59	297	20%	43	164	26%
Region						
Bugesera	1	6	17%	0	5	0%
Burera	0	4	0%	0	0	0%
Gakenke	1	5	20%	1	3	33%
Gasabo	0	5	0%	0	0	0%
Gatsibo	0	6	0%	0	4	0%
Gicumbi	0	6	0%	0	0	0%
Gisagara	0	5	0%	0	5	0%
Huye	7	34	21%	7	33	21%
Kamonyi	0	2	0%	0	0	0%
Karongi	0	5	0%	0	0	0%
Kayonza	0	10	0%	0	1	0%
Kicukiro	7	39	18%	0	0	0%
Kirehe	1	7	14%	0	0	0%
Muhanga	1	11	9%	1	9	11%
Musanze	2	13	15%	2	11	18%
Ngoma	1	6	17%	0	0	0%
Ngororero	0	10	0%	0	7	0%
Nyabihu	0	7	0%	0	6	0%
Nyagatare	0	6	0%	0	3	0%
Nyamagabe	1	3	33%	0	0	0%
Nyamasheke	2	12	17%	1	8	13%
Nyanza	0	3	0%	0	1	0%
Nyarugenge	28	60	47%	28	60	47%
Nyaruguru	0	0	0%	0	0	0%
Rubavu	2	5	40%	2	5	40%
Ruhango	1	5	20%	1	3	33%
Rulindo	0	1	0%	0	0	0%
Rusizi	2	11	18%	0	0	0%
Rutsiro	0	4	0%	0	0	0%
Rwamagana	2	6	33%	0	0	0%

[1] Includes maternal deaths due to malaria, anemia, HIV-AIDS related, hepatitis and other indirect causes.
[2] Includes all recorded maternal deaths in facilities regardless of cause (also includes maternal deaths due to unknown causes)

Table 4.1.1A: Percent of facilities that performed each EmONC signal function in the last 3 months, by region, type of facility, managing authority, and location, Rwanda EmONC 2021

	Total number of facilities that attend deliveries	EmONC Signal Function							
		Parenteral Antibiotics	Parenteral Uterotonics	Parenteral Anticonvulsants	Manual Removal of Placenta	Removal of Retained Products	Assisted Vaginal Delivery	Surgery / Cesarean	Blood Transfusion
		%	%	%	%	%	%	%	%
National	444	99	99	64	54	51	6	13	12
Region									
Bugesera	17	100	100	88	76	35	12	76	6
Burera	16	94	100	19	6	56	0	69	6
Gakenke	9	100	100	56	100	67	22	89	22
Gasabo	15	100	100	87	93	73	13	80	33
Gatsibo	20	100	100	55	35	65	5	75	10
Gicumbi	16	94	100	69	25	38	0	94	13
Gisagara	16	100	100	69	56	38	13	94	19
Huye	12	100	100	75	58	75	8	58	17
Kamonyi	10	100	100	80	70	10	0	90	10
Karongi	14	100	93	36	36	71	0	86	21
Kayonza	14	100	100	64	36	36	14	79	14
Kicukiro	12	100	100	75	58	50	0	92	25
Kirehe	17	100	100	29	41	76	6	88	6
Muhanga	13	100	100	100	38	23	8	77	8
Musanze	14	100	100	100	71	57	7	100	7
Ngoma	13	100	100	69	46	38	0	77	8
Ngororero	15	100	100	53	27	33	13	93	13
Nyabihu	15	93	100	53	53	53	7	60	13
Nyagatare	20	100	95	30	35	85	5	75	5
Nyamagabe	16	94	100	88	100	100	6	100	13
Nyamasheke	18	94	100	33	44	56	6	78	11
Nyanza	13	100	100	85	77	15	8	85	8
Nyarugenge	11	100	100	73	73	64	18	73	36
Nyaruguru	15	100	100	80	80	33	0	93	7
Rubavu	15	100	100	47	47	40	13	73	13
Ruhango	13	100	100	92	31	46	15	85	15
Rulindo	16	94	100	81	100	25	0	88	13
Rusizi	19	100	100	79	47	47	0	79	11
Rutsiro	13	100	77	31	54	69	0	69	8
Rwamagana	17	100	100	59	41	29	0	59	6
Type of facility									
Teaching hospital	4	100	100	100	100	75	50	100	75
Referral hospital	3	100	100	100	100	100	33	100	100
Provincial hospital	4	100	100	100	75	75	50	100	100
District Hospital	37	100	100	95	92	95	51	100	97
Health Centre	381	98	99	60	50	46	1	1	1
Poly clinic/Clinic	6	100	100	67	100	100	33	83	83
Health posts	9	100	100	44	0	0	0	0	0
Managing Authority									
Public/Government	366	98	99	65	54	48	6	11	11
Private, for-profit	10	100	100	70	80	80	30	70	50
Private not-for-profit*	68	100	97	59	50	63	4	10	10
Location									
Urban	99	99	100	78	78	68	12	28	26
Rural	345	99	99	60	47	46	5	8	8

* Includes NGO, faith-based or mission health facilities

Table 4.1.3A: Percent of facilities that performed each EmNeC signal function in the last 3 months, by region, type of facility, managing authority, and location, Rwanda EmONC, 2021

	Total number of facilities that do deliveries	EmNeC Signal Function						
		Newborn resuscitation with bag and mask	Antenatal corticosteroids	Antibiotics for pPROM	Antibiotics for neonatal sepsis	KMC for small babies	Safe administration of Oxygen	IV Fluids
		%	%	%	%	%	%	%
National	444	81	72	87	31	39	16	28
Region								
Bugesera	17	76	65	59	24	12	6	18
Burera	16	69	75	81	6	38	6	6
Gakenke	9	89	89	89	33	33	22	22
Gasabo	15	80	80	93	53	40	33	27
Gatsibo	20	75	45	85	15	10	20	15
Gicumbi	16	94	75	81	31	38	13	31
Gisagara	16	94	81	88	19	69	19	25
Huye	12	58	83	83	50	67	17	17
Kamonyi	10	90	100	70	40	20	10	10
Karongi	14	86	57	86	29	43	21	64
Kayonza	14	79	86	93	14	29	14	14
Kicukiro	12	92	75	83	33	33	25	33
Kirehe	17	88	88	94	29	65	18	29
Muhanga	13	77	77	100	54	38	8	54
Musanze	14	100	100	100	21	14	7	7
Ngoma	13	77	77	100	8	46	15	38
Ngororero	15	93	53	93	53	40	20	20
Nyabihu	15	60	67	93	33	47	13	13
Nyagatare	20	75	40	85	5	5	5	5
Nyamagabe	16	100	88	94	56	19	19	50
Nyamasheke	18	78	39	56	22	78	11	28
Nyanza	13	85	85	85	15	85	8	23
Nyarugenge	11	73	64	91	55	27	45	55
Nyaruguru	15	93	93	100	27	53	7	20
Rubavu	15	73	47	100	47	47	20	27
Ruhango	13	85	92	100	31	46	15	31
Rulindo	16	88	94	94	31	13	13	13
Rusizi	19	79	79	84	74	32	11	79
Rutsiro	13	69	62	92	23	54	8	69
Rwamagana	17	59	53	82	12	41	29	12
Type of facility								
Teaching hospital	4	100	100	100	100	100	100	100
Referral hospital	3	100	100	100	100	100	100	100
Provincial hospital	4	100	100	100	100	100	100	100
District Hospital	37	100	100	100	100	100	100	100
Health Centre	381	80	69	86	21	31	4	19
Poly clinic/Clinic	6	67	100	100	100	17	100	50
Health posts	9	22	33	89	33	33	0	0
Managing Authority								
Public/ Government	366	81	72	87	28	37	14	24
Private, for-profit	10	80	90	100	90	40	90	50
Private not-for-profit*	68	79	71	88	37	47	15	47
Location								
Urban	99	81	75	90	49	52	31	40
Rural	345	81	71	87	26	35	11	25

* Includes NGO, faith-based or mission health facilities

Table 4.4.1A: Percentage of Hospitals with a health worker (cadre) that performed the signal function in the last 3 months, Rwanda EmONC, 2021

Signal Function	Number of facilities that attended deliveries	Number of facilities that provided the SF in the last 3 months	What health worker provided the signal function in the last 3 months?																	
			Medical doctor (general practitioner)		Pediatrician		Neonatologist		Ob/gyn		General Surgeon		Clinical Officer		Midwife		Nurse		Lab Technician		Other (Anesthetist)	
	n	n	%		%		%		%		%		%		%		%		%		%	
EmOC Signal Functions																						
Parenteral antibiotics	48	48	73	35					27	13			2	1	79	38	54	26			0	0
Parenteral uterotonics	48	46	61	28					33	15			4	2	91	42	65	30			0	0
Parenteral anticonvulsants	48	44	73	32					34	15			11	5	98	43	64	28			0	0
Manual removal of placenta	48	44	84	37					41	18	7	3	5	2	93	41	57	25	0	0	0	0
Removal of retained products	48	24	83	20					46	11			0	0	83	20	38	9	0	0	0	0
Assisted vaginal delivery	48	48	98	47					58	28	6	3			96	46	78	37	0	0	2	1
Cesarean section	48	48	98	47					22	11											0	0
Blood transfusion	48	46	50	23																		
EmNeC Signal Functions																						
Resuscitation of newborn with bag and mask	48	48	63	30	19	9	10	5	17	8					98	46	81	38	0	0	0	0
Corticosteriods	48	48	50	24	6	3	4	2	15	7					98	46	75	35	0	0	0	0
Antibiotics for pPROM	48	48	50	24	0	0	2	1	13	6					100	47	71	33	0	0	0	0
Injectable antibiotics for neonatal sepsis	48	48	50	24	8	4	15	7	6	3					90	42	88	41	0	0	0	0
Kangaroo mother care (KMC)	48	48	29	14	10	5	13	6	8	4					88	41	90	42	0	0	0	0
Safe administration of Oxygen	48	48	52	25	17	8	17	8	13	6					94	44	90	42	0	0	19	9
IV fluids	48	48	42	20	15	7	17	8	2	1					92	44	88	42	0	0	13	6

Cells that are shaded indicate that the health worker category was not a response option.

Table 4.4.2A: Percentage of Health Centers/clinics with a health worker (cadre) that performed the signal function in the last 3 months, Rwanda EmONC, 2021

Signal Function	Number of facilities that attended deliveries	Number of facilities that provided the SF in the last 3 months	What health worker provided the signal function in the last 3 months?									
			Medical doctor (general practitioner)	Pediatrician	Neonato logist	Ob/ gyn	General Surgeon	Clinical officer	Midwife	Nurse	Lab Technician	Other (Anesthetist)
	n	n	%	%	%	%	%	%	%	%	%	%
EmOC Signal Functions												
Parenteral antibiotics												
Parenteral uterotonics	396	391	2			1		0	15	14		0
Parenteral anticonvulsants	396	238	2			0.4		0.8	94	91		0
Manual removal of placenta	396	195	4			3		1	93	88		0
Removal of retained products	396	182	4			2	1	1	58	52		1
Assisted vaginal delivery	396	4	75			50		0	100	75		0
Cesarean section*	396	8	75			75	25					0
Blood transfusion*	396	7	57			29			86	86	0	0
EmNeC Signal Functions												
Resuscitation of newborn with bag and mask	396	311	2	0	0	1		0	78	85		1
Corticosteriods	396	272	2	0	0	1		0	93	90		0
Antibiotics for pPROM	396	340	2	0	0	1		0	92	89		0
Injectable antibiotics for neonatal sepsis	396	89	6	1	0	2		0	90	92		0
Kangaroo mother care (KMC)	396	124	1	1	0	1		0	89	90		0
Safe administration of Oxygen*	396	21	29	10	0	10		0	95	81		5
IV fluids*	396	77	4	3	0	1		0	86	92		1

Cells that are shaded indicate that the health worker category was not a response option.
* Health centers/Clinics are not expected to perform these SFs except few

Table 4.5.2A: Percent distribution of causes of maternal deaths, by type of facility and managing authority, Rwanda EmONC, 2021

	National	Facility Type	Managing Authority							
		Teaching hospital	Referral Hospital	Provincial hospital	District Hospital	Health Centre	Poly clinic/ Clinic	Government/ public	Private-for-profit	Private-not-for -profit*
	n=297	n=122	n=19	n=14	n=102	n=38	n=2	n=270	n=3	n=24
Direct causes	75%	66%	84%	57%	81%	87%	100%	74%	67%	83%
APH	1%	0%	0%	0%	2%	5%	0%	1%	0%	0%
PPH/Retained placenta	27%	23%	37%	14%	31%	26%	100%	25%	67%	50%
Obstructed/ prolonged labor	1%	0%	0%	0%	0%	8%	0%	1%	0%	0%
Ruptured uterus	8%	3%	11%	7%	15%	3%	0%	8%	0%	8%
Postpartum sepsis	5%	7%	11%	7%	3%	3%	0%	5%	0%	13%
Severe pre-eclampsia / eclampsia	9%	9%	5%	0%	10%	13%	0%	9%	0%	8%
Complications of abortion	3%	5%	0%	7%	3%	0%	0%	4%	0%	0%
Ectopic pregnancy	0.3%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Other direct causes	20%	19%	21%	21%	17%	29%	0%	21%	0%	4%
Indirect causes	20%	34%	16%	14%	10%	8%	0%	21%	0%	13%
Malaria	2%	2%	5%	0%	1%	0%	0%	2%	0%	0%
HIV/AIDS - related	1%	0%	0%	0%	2%	0%	0%	1%	0%	0%
Anemia	0.3%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Hepatitis	1%	2%	0%	0%	2%	0%	0%	1%	0%	4%
Other indirect causes	16%	29%	11%	14%	7%	3%	0%	17%	0%	8%
Unknown/unspecified causes	5%	0%	0%	29%	9%	5%	0%	5%	33%	4%
Number of maternal deaths	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

* Includes NGO and faith-based or mission health facilities

Table 5.1.1A: Percentage of facilities providing selected services, by region, and facility type, managing authority, and location, Rwanda EmONC, 2021

	Focused Antenatal Care	Post natal care	Cervical screening (Pap smear or VIA single visit appraoch)	Contraceptive counseling and services	Diagnosis & treatment for STIs	Adolescent/ youth responsive services	Rapid HIV testing	Local Anesthesia	Blood typing services	Post-abortion care	Safe-abortion care	1st trimester services only (<12 weeks)	1st and 2nd trimester services (>13 weeks)	Manual/ electric vacuum aspiration	Dilatation and Evacuation (D&E)	Dilatation and sharp curettage (D&C)	Medical abortion (mifepriston and misoprostol)	Mmisoprostol alone
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
National	89	96	64	87	97	92	99	95	77	72	13	22	18	37	22	20	19	32
Region																		
Bugesera	100	100	71	94	100	88	100	100	76	88	29	29	6	18	6	12	35	53
Burera	94	100	94	88	81	94	100	94	100	38	19	6	6	13	6	13	19	6
Gakenke	78	100	22	89	89	89	100	100	100	89	33	0	0	78	33	33	33	33
Gasabo	93	93	100	100	100	80	100	100	73	73	13	27	13	47	7	13	33	53
Gatsibo	100	90	90	90	95	95	95	95	75	100	10	35	5	60	40	40	15	30
Gicumbi	88	100	100	100	100	100	100	100	75	88	6	6	6	19	6	6	6	6
Gisagara	88	94	6	81	100	69	100	100	94	75	6	13	13	31	6	0	19	31
Huye	92	92	25	100	92	83	100	100	100	83	17	25	0	42	42	42	17	50
Kamonyi	90	90	100	90	100	100	100	100	100	100	0	0	0	50	10	0	10	20
Karongi	43	100	36	36	93	79	100	100	93	43	21	21	21	43	21	21	29	57
Kayonza	93	100	100	93	100	100	100	100	50	79	29	21	14	43	21	21	29	21
Kicukiro	83	92	75	83	100	75	92	92	67	42	17	25	25	33	33	25	33	33
Kirehe	100	94	82	100	100	94	100	100	71	88	0	6	6	59	29	24	12	18
Muhanga	92	100	100	100	100	100	92	77	15	69	0	46	46	38	23	15	8	31
Musanze	93	100	100	100	100	100	100	100	100	71	7	7	0	29	29	29	14	50
Ngoma	85	92	77	69	100	100	100	100	46	46	8	8	8	23	8	0	8	8
Ngororero	80	100	53	87	100	93	100	100	93	40	27	20	27	27	27	27	27	13
Nyabihu	100	100	20	100	100	93	100	100	100	67	13	40	40	40	47	40	33	47
Nyagatare	90	100	100	90	100	100	100	100	80	90	5	5	5	55	40	35	5	50
Nyamagabe	88	81	38	88	100	81	100	94	94	69	13	56	56	75	44	50	25	88
Nyamasheke	67	100	39	61	100	94	100	100	94	89	6	33	33	17	11	11	11	11
Nyanza	92	100	15	100	100	92	100	69	77	54	8	15	15	15	8	0	8	8
Nyarugenge	91	91	82	91	91	82	91	91	73	64	45	45	45	55	45	27	36	36
Nyaruguru	100	93	7	93	93	100	100	100	100	47	7	47	47	13	7	7	13	13
Rubavu	100	100	87	100	100	93	100	100	93	47	7	13	7	33	33	33	27	33
Ruhango	100	100	100	85	92	100	100	92	15	85	23	46	46	31	23	23	15	38
Rulindo	88	94	6	94	100	94	100	100	94	94	13	6	6	38	0	0	13	13
Rusizi	95	100	84	84	100	95	100	89	53	100	5	37	37	37	11	11	5	16
Rutsiro	69	100	15	38	92	100	100	54	69	31	0	8	8	38	38	38	23	46
Rwamagana	88	88	82	82	88	82	88	88	29	71	12	6	0	18	12	6	18	47
Facility Type																		
Teaching hospital	50	100	100	100	100	50	100	100	100	75	75	0	25	50	75	75	75	75
Referral hospital	0	67	100	100	100	67	100	100	100	100	100	100	67	100	100	67	100	100
Provincial hospital	75	100	75	100	75	100	100	100	100	100	75	50	50	100	50	50	100	100
District Hospital	51	86	81	89	97	70	95	92	92	97	65	62	62	97	54	43	84	97
Health Centre	94	98	64	87	98	96	100	96	75	69	5	17	13	29	17	16	10	24
maternity/ Clinic	67	67	50	100	83	33	83	83	83	100	50	67	50	83	67	33	67	83
Health posts	78	78	0	67	78	44	78	78	56	22	0	0	0	22	22	22	0	11
Managing Authority																		
Government/ Public	90	96	66	91	98	92	99	96	77	73	13	22	17	35	22	20	20	32
Private, For Profit	80	80	70	100	90	60	90	90	90	70	30	40	30	80	50	30	40	70
Private-For -Not-Profit*	87	100	56	62	94	94	99	90	71	63	6	22	21	38	16	18	10	26
Location																		
Urban	85	93	75	91	97	84	97	95	73	65	92	30	24	52	34	30	33	44
Rural	90	97	61	86	97	94	99	95	78	74	85	20	16	32	18	17	14	28

* Includes faith-based or mission health facilities

Table 5.3.2A: Percent of facilities that charge women separately for specific items and have waiver systems for the poor, by region, facility type, managing authority, and location, Rwanda EmONC, 2021

	Women charged separately for Bed (%)	Women charged separately for Food for mother (%)	Women charged separately for Blood Transfusion (%)	Formal system waived for poor women (%)	In formal system waived for poor women (%)
National	17	14	3	29	16
District					
Bugesera	6	0	0	12	53
Burera	0	100	0	0	0
Gakenke	11	11	0	11	0
Gasabo	40	33	7	33	20
Gatsibo	0	0	0	30	43
Gicumbi	6	44	6	13	29
Gisagara	6	0	0	13	43
Huye	25	0	8	33	13
Kamonyi	10	0	10	10	0
Karongi	14	0	7	36	0
Kayonza	7	0	0	43	25
Kicukiro	25	17	8	25	44
Kirehe	6	0	0	18	7
Muhanga	8	31	8	23	0
Musanze	7	0	7	0	0
Ngoma	15	0	0	46	43
Ngororero	33	20	0	87	50
Nyabihu	67	40	0	80	33
Nyagatare	15	0	0	65	29
Nyamagabe	19	0	0	13	0
Nyamasheke	50	22	11	22	0
Nyanza	0	8	0	0	0
Nyarugenge	36	36	27	27	25
Nyaruguru	7	0	0	27	9
Rubavu	47	27	0	80	67
Ruhango	8	8	0	15	9
Rulindo	13	0	0	0	6
Rusizi	21	16	0	21	0
Rutsiro	0	0	0	8	0
Rwamagana	6	0	0	53	38
Facility Type					
Teaching hospital	25	75	25	50	0
Referral hospital	100	0	67	33	0
Provincial hospital	75	25	25	0	25
District Hospital	43	14	16	54	24
Health Centre	11	12	0	27	15
Poly clinic/Clinic	100	67	50	17	20
Health posts	33	22	0	33	33
Managing Authority					
Government/Public	15	13	2	8	18
Private, For Profit	80	60	40	50	20
Private-For -Not-Profit**	16	13	1	28	4
Location					
Urban	32	53	11	31	25
Rural	13	61	0.6	28	14

* Mean cost calculated for those facilities that charge (exclude those with no cost, item not available, and respondent doesn't know)

** Includes NGO and faith-based or mission health facilities

Table 5.3.3A: Mean cost to patient for selected services, and waived system for poor women, by district, facility type, managing authority, and location, Rwanda EmONC, 2021

	Among facilities that offer the service or item, the mean cost to the patient (Birr)*												
	Admission fee	Normal labor/ delivery	CS delivery	Surgical abortion (1st trimester)	Medical abortion (1st trimester)	Surgical abortion (2nd trimester)	Medical abortion (2nd trimester)	Neonatal special care unit (per day)	Gloves	IV fluids	Prescription of oxytocin (inj.)	Prescription of antibiotic	Prescription of magnesium sulfate (inj.)
National	454	624	3098	2579	730	1089	216	1586	372	597	360	488	553
District													
Bugesera	578	886	6900	5000	2500	6900	1073	3000	1001	661	334	1380	413
Burera	.	254	3000	3000	.	.	.	.	550	1500	600	500	900
Gakenke	.	.	.	.	.	.	.	.	.	.	.	.	.
Gasabo	1080	547	.	3000	220	.	220	.	1125	901	327	453	795
Gatsibo	.	1500	4100	9000	.	2250	0	1656	295	.	.	.	1512
Gicumbi	300	343	800	220	220	220	220	.	343	670	345	.	795
Gisagara	227	345	1080	.	.	.	.	.	221	838	.	61	936
Huye	308	398	.	.	.	.	.	.	210	598	.	117	.
Kamonyi	220	2520	.	420	420	0	0	.	102	61	476	209	595
Karongi	1080	383	.	.	.	.	.	.	102	623	328	211	.
Kayonza	.	220	.	.	.	0	0	.	350	670	180	2100	.
Kicukiro	250	1268	1980	1300	900	.	.	480	442	281	339	921	798
Kirehe	210	710	.	.	.	0	0	.	172	687	.	.	.
Muhanga	383	949	.	.	.	.	.	.	220	492	220	235	220
Musanze	.	.	.	.	.	.	.	.	163	594	283	124	525
Ngoma	200	550	.	.	.	.	.	.	.	.	.	.	.
Ngororero	567	1074	1080	300	121	.	.	480	123	410	206	148	184
Nyabihu	610	656	.	.	.	.	.	.	152	409	220	220	256
Nyagatare	5000	673	8000	.	.	0	0	.	105	792	285	.	932
Nyamagabe	240	200	.	.	.	.	.	.	.	.	.	.	.
Nyamasheke	188	396	11	.	.	0	0	900	228	842	.	1080	1080
Nyanza	296	496	.	.	.	.	.	.	105	535	140	.	985
Nyarugenge	2653	1957	5000	2000	.	.	.	.	216	536	499	227	990
Nyaruguru	238	500	.	.	.	.	.	.	134	387	216	46	760
Rubavu	215	215	.	.	.	.	110	.	264	.	792	200	200
Ruhango	220	220	.	.	.	0	0	.	438	435	220	220	220
Rulindo	213	.	.	.	.	.	.	.	.	.	.	.	.
Rusizi	220	220	.	.	.	0	0	.	.	.	.	.	.
Rutsiro	1973	2180	.	.	.	.	.	.	172	594	.	.	126
Rwamagana	210	1008	4140	1553	.	.	.	3000	348	955	772	329	242
Facility Type													
Teaching hospital	.	900	1980	1300	900	.	.	480	6	48	.	.	.
Referral hospital	.	.	.	.	.	.	.	.	.	.	.	.	.
Provincial hospital	.	1635	4140	1553	.	0	0	3000	142	604	.	1080	1080
District Hospital	2493	1880	3646	3717	1311	2271	600	1509	302	686	429	792	728
Health Centre	258	474	940	320	287	73	100	.	358	577	347	421	502
Poly clinic/Clinic	4059	4126	.	.	.	.	0	.	1440	887	460	459	887
Health posts	220	390	.	.	.	.	.	.	123	404	262	465	168
Managing Authority													
Government/ Public	392	597	3026	2310	376	726	69	1404	326	562	355	432	542
Private, For Profit	4059	4126	.	.	.	.	0	0	1440	887	460	459	887
Private-For -Not-Profit**	609	631	3455	5000	2500	3450	1500	1950	389	703	328	1155	391
Location													
Urban	917	883	4338	2571	1207	2300	805	1845	400	696	467	648	762
Rural	346	561	1857	2588	254	787	59	1068	353	544	297	412	433

* Mean cost calculated for those facilities that charge (exclude those with no cost, item not available, and respondent doesn't know)

** Includes NGO and faith-based or mission health facilities

Table 5.4.1A: Percent of facilities having different policies related to maternal and newborn service delivery by district, facility type, managing authority, and location, Rwanda EmONC, 2021

	Number of facilities	Frequent staff rotation for		Allow a woman to have a companion of her chioce during			Ever been certified by any mother-baby friendly birthing-facility initiative	Family register of birth of a baby in a government Vital Statistics and Civil Registration
		Maternal care	Newborn care	Labor	Delivery	Abortion		
	n	%	%	%	%	%	%	%
National	444	77	70	96	92	41	46	98
District								
Bugesera	17	100	94	94	94	71	53	94
Burera	16	94	75	100	100	56	100	100
Gakenke	9	67	67	100	44	0	22	100
Gasabo	15	80	73	100	100	47	60	100
Gatsibo	20	25	20	70	70	35	45	100
Gicumbi	16	100	100	94	63	44	81	100
Gisagara	16	75	75	100	100	44	81	100
Huye	12	83	83	92	92	42	67	100
Kamonyi	10	100	60	90	100	50	50	100
Karongi	14	93	93	100	100	43	86	100
Kayonza	14	71	43	86	79	36	79	100
Kicukiro	12	75	83	92	83	50	75	100
Kirehe	17	76	76	100	100	12	6	94
Muhanga	13	85	85	92	100	46	8	92
Musanze	14	71	93	100	50	36	50	71
Ngoma	13	85	77	92	100	15	23	100
Ngororero	15	93	53	100	100	40	7	93
Nyabihu	15	93	67	100	100	53	13	100
Nyagatare	20	35	25	85	85	30	45	100
Nyamagabe	16	25	25	100	100	94	0	100
Nyamasheke	18	94	100	100	100	28	67	100
Nyanza	13	54	38	100	100	31	69	100
Nyarugenge	11	82	64	91	82	55	36	100
Nyaruguru	15	67	67	100	100	60	53	100
Rubavu	15	87	47	100	100	40	13	100
Ruhango	13	100	100	100	100	15	15	92
Rulindo	16	69	63	94	100	50	44	100
Rusizi	19	89	89	100	100	32	32	100
Rutsiro	13	100	100	100	100	62	85	100
Rwamagana	17	88	88	100	100	24	24	88
Facility Type								
Teaching hospital	4	75	75	100	100	75	100	100
Referral hospital	3	67	67	100	100	100	67	100
Provincial hospital	4	75	100	100	100	75	50	100
District Hospital	37	76	68	97	95	73	41	100
Health Centre	381	77	70	95	91	37	46	97
Poly clinic/Clinic	6	83	67	100	100	83	33	100
Health posts	9	89	78	100	100	22	56	100
Managing Authority								
Government/Public	366	78	70	95	91	42	45	97
Private, For Profit	10	60	50	100	100	50	50	100
Private-For -Not-Profit*	68	79	74	99	97	37	50	99
Location								
Urban	99	81	73	96	93	51	46	98
Rural	345	77	69	95	92	39	46	97

* Includes NGO and faith-based or mission health facilities

Table 6.1.1A: Recommended and actual number of public/government health facilities to population by district, Rwanda EmONC , 2021

	Catchment Population	Number of public facilities recommended				Actual number of facilities			Surplus/(Gaps)				
	n	Teaching/ Referral hospitals	Provincial hospitals	District hospitals	Health centers	Teaching/ Referral hospitals	Provincial hospitals	District hospitals	Health centers	Teaching/ Referral hospitals	Provincial hospitals	District hospitals	Health centers
National	12,955,768	9	13	51	563	7	4	37	381	(2)	(9)	(14)	(182)
District													
Bugesera	497,930	0.3	0.5	2.0	22	0	0	1	15	(0)	(0)	(1)	(7)
Burera	414,896	0.3	0.4	1.6	18	0	0	1	15	(0)	(0)	(1)	(3)
Gakenke	400,677	0.3	0.4	1.6	17	0	0	2	7	(0)	(0)	0	(10)
Gasabo	694,839	0.5	0.7	2.7	30	1	0	3	10	1	(1)	0	(20)
Gatsibo	537,689	0.4	0.5	2.1	23	0	0	2	18	(0)	(1)	(0)	(5)
Gicumbi	469,487	0.3	0.5	1.8	20	0	0	1	15	(0)	(0)	(1)	(5)
Gisagara	388,062	0.3	0.4	1.5	17	0	0	2	14	(0)	(0)	0	(3)
Huye	387,913	0.3	0.4	1.5	17	1	0	1	10	1	(0)	(1)	(7)
Kamonyi	432,805	0.3	0.4	1.7	19	0	0	1	9	(0)	(0)	(1)	(10)
Karongi	386,202	0.3	0.4	1.5	17	1	0	2	11	1	(0)	0	(6)
Kayonza	427,042	0.3	0.4	1.7	19	0	0	2	12	(0)	(0)	0	(7)
Kicukiro	378,973	0.3	0.4	1.5	16	1	0	1	9	1	(0)	(0)	(7)
Kirehe	427,639	0.3	0.4	1.7	19	0	0	1	16	(0)	(0)	(1)	(3)
Muhanga	374,692	0.2	0.4	1.5	16	0	0	1	12	(0)	(0)	(0)	(4)
Musanze	452,551	0.3	0.5	1.8	20	1	0	0	13	1	(0)	(2)	(7)
Ngoma	417,395	0.3	0.4	1.6	18	1	0	0	12	1	(0)	(2)	(6)
Ngororero	417,295	0.3	0.4	1.6	18	0	0	2	12	(0)	(0)	0	(6)
Nyabihu	348,688	0.2	0.3	1.4	15	0	0	1	10	(0)	(0)	(0)	(5)
Nyagatare	648,332	0.4	0.6	2.5	28	0	0	1	19	(0)	(1)	(2)	(9)
Nyamagabe	392,252	0.3	0.4	1.5	17	0	0	2	14	(0)	(0)	0	(3)
Nyamasheke	487,293	0.3	0.5	1.9	21	0	1	1	16	(0)	1	(1)	(5)
Nyanza	369,217	0.2	0.4	1.4	16	0	0	1	12	(0)	(0)	(0)	(4)
Nyarugenge	313,812	0.2	0.3	1.2	14	1	0	1	6	1	(0)	(0)	(8)
Nyaruguru	352,407	0.2	0.4	1.4	15	0	0	1	14	(0)	(0)	(0)	(1)
Rubavu	486,478	0.3	0.5	1.9	21	0	0	1	13	(0)	(0)	(1)	(8)
Ruhango	372,689	0.2	0.4	1.5	16	0	1	1	11	(0)	1	(0)	(5)
Rulindo	366,233	0.2	0.4	1.4	16	0	1	1	14	(0)	1	(0)	(2)
Rusizi	508,456	0.3	0.5	2.0	22	0	0	2	17	(0)	(1)	0	(5)
Rutsiro	397,006	0.3	0.4	1.6	17	0	0	1	12	(0)	(0)	(1)	(5)
Rwamagana	406,816	0.3	0.4	1.6	18	0	1	0	13	(0)	1	(2)	(5)

Table 6.2.1A: Average number of beds per facility, and number and ratio of maternity beds to 1000 deliveries, by region, facility type, and managing authority, Rwanda EmONC , 2021

	Total number of facilities	All beds (in all departments)	Average number of beds per facility	Number of annual institutional deliveries	Number of beds for obstetric and gynecology patients	Ratio of obstetric/ gyne beds to 1000 deliveries 1
National	444	18,459	42	293,964	7,201	24
District						
Bugesera	17	693	41	12,641	253	20
Burera	16	562	35	6,139	365	59
Gakenke	9	488	54	6,226	183	29
Gasabo	15	884	59	23,643	431	18
Gatsibo	20	700	35	13,980	314	22
Gicumbi	16	739	46	9,886	265	27
Gisagara	16	594	37	10,267	248	24
Huye	12	648	54	9,813	211	22
Kamonyi	10	393	39	6,538	154	24
Karongi	14	796	57	7,375	242	33
Kayonza	14	645	46	10,728	287	27
Kicukiro	12	820	68	11,302	273	24
Kirehe	17	608	36	11,452	266	23
Muhanga	13	632	49	8,183	196	24
Musanze	14	608	43	10,778	182	17
Ngoma	13	417	32	8,370	215	26
Ngororero	15	562	37	7,485	203	27
Nyabihu	15	389	26	7,579	163	22
Nyagatare	20	550	28	14,957	242	16
Nyamagabe	16	721	45	7,382	254	34
Nyamasheke	18	884	49	9,176	243	26
Nyanza	13	483	37	7,227	175	24
Nyarugenge	11	862	78	13,181	387	29
Nyaruguru	15	316	21	6,785	123	18
Rubavu	15	622	41	11,154	249	22
Ruhango	13	455	35	7,911	199	25
Rulindo	16	511	32	6,170	188	30
Rusizi	19	834	44	12,453	318	26
Rutsiro	13	457	35	6,257	152	24
Rwamagana	17	586	34	8,926	220	25
Facility Type						
Teaching hospital	4	1,348	337	7,577	345	46
Referral hospital	3	668	223	10,845	210	19
Provincial hospital	4	775	194	8,805	209	24
District Hospital	37	6,201	168	107,780	2,111	20
Health Centre	381	9,140	24	152,736	4,130	27
Poly clinic/Clinic	6	231	39	3,574	137	38
Health posts	9	96	11	2,647	59	22
Managing Authority						
Government/Public	366	14,727	40	244,508	5,745	23
Private, For Profit	10	532	53	8,136	339	42
Private-For -Not-Profit*	68	3,200	47	41,320	1,117	27
Location						
Urban	99	7,346	74	126,878	2,570	20
Rural	345	11,113	32	167,086	4,631	28

* Includes NGO and faith-based or mission health facilities Deliveries from the period of April 2020 to March 2021
[1] According to the Essential elements of obstetric care at first referral level (WHO, 1991) there should be 24 beds per 1000 deliveries in the maternity ward (for both prenatal and postnatal patients). The labour and delivery room should have 6-8 beds. Overall, therefore, the standard would be approximately 30-32 beds for every 1000 deliveries at a facility that would be considered 'first referral level.' This is the equivalent to a district level hospital for about 100,000 population.

Table 6.3.1A: Percent of facilities with separate room or space for selected maternal services, by district, facility type, managing authority, and location, Rwanda EmONC, 2021

	Number of facilities	ANC	Labor and delivery together	Labor Room	Delivery Room	Pregnancy complication	Postnatal Room	General OT*	Og/Gy Operating theater*	Laboratory and Blood bank together*	Separate Laboratory	Separate Blood Bank*
National	444	93	66	96	96	11	96	98	94	67	97	60
District												
Bugesera	17	100	94	100	100	12	94	100	100	100	94	100
Burera	16	94	31	63	69	13	100	100	100	100	94	0
Gakenke	9	78	22	100	100	0	100	100	50	50	100	0
Gasabo	15	93	73	100	100	27	93	100	100	75	87	25
Gatsibo	20	100	50	70	70	10	100	100	100	50	100	50
Gicumbi	16	94	69	94	94	19	100	100	100	100	94	100
Gisagara	16	88	81	100	100	0	100	100	100	100	100	100
Huye	12	83	58	100	100	8	100	100	50	100	100	100
Kamonyi	10	90	100	100	100	10	100	100	100	0	100	0
Karongi	14	93	93	100	100	29	100	100	100	100	86	67
Kayonza	14	100	36	93	93	21	93	100	50	100	100	100
Kicukiro	12	83	83	92	100	17	100	100	100	50	100	50
Kirehe	17	94	88	100	100	18	100	100	100	100	100	100
Muhanga	13	100	92	100	100	8	100	100	100	100	100	100
Musanze	14	93	100	100	100	7	100	100	100	100	100	100
Ngoma	13	100	69	92	100	15	85	100	100	100	100	0
Ngororero	15	93	67	100	100	13	100	100	100	100	100	50
Nyabihu	15	100	73	93	93	13	80	100	100	100	87	0
Nyagatare	20	90	35	95	95	5	100	100	100	0	100	100
Nyamagabe	16	88	6	100	100	0	100	50	100	50	100	0
Nyamasheke	18	100	100	100	100	11	100	100	100	50	100	100
Nyanza	13	92	92	100	100	0	100	100	100	100	100	100
Nyarugenge	11	91	91	100	100	27	91	100	100	50	91	50
Nyaruguru	15	93	53	100	100	0	93	100	100	0	93	100
Rubavu	15	100	47	100	100	33	100	100	100	0	100	100
Ruhango	13	92	85	100	100	8	92	100	100	100	100	100
Rulindo	16	88	0	100	100	0	100	100	100	0	94	0
Rusizi	19	95	68	100	100	0	95	100	100	0	100	50
Rutsiro	13	85	85	85	85	15	77	100	100	100	92	100
Rwamagana	17	88	76	100	100	6	88	100	100	0	100	100
Facility type												
Teaching hospital	4	75	75	100	100	100	100	100	100	50	75	75
Referral hospital	3	67	100	100	100	67	100	100	100	100	100	67
Provincial hospital	4	50	50	100	100	25	100	100	100	25	100	75
District Hospital	37	51	49	100	100	54	100	97	92	70	86	57
Health Centre	381	98	67	95	96	6	97				98	
Poly clinic/Clinic	6	67	83	100	100	33	83				100	
Health posts	9	100	100	89	89	0	67				100	
Managing authority												
Public/ government	366	93	66	95	96	10	96	97	95	62	98	62
Private-for-profit	10	80	60	100	100	40	90	100	100	100	80	0
Private-not-for-profit1	68	93	71	96	96	13	97	100	86	86	97	71
Location												
Urban	99	89	75	99	100	20	98	100	96	67	96	67
Rural	345	94	64	94	95	9	96	96	92	67	97	54

ANC = Antenatal Care unit; OT = Operating theaterNICU = NICU = neonatal intensive care unit.
[1] Includes NGO, faith-based, or mission facilities.
* Only hospitals are included (n=48)

Table 6.3.2A: Percent of facilities with separate room or space for selected newborn services, by district, facility type, managing authority, and location, Rwanda EmONC, 2021

	Newborn corner/Neonatal care unit attached to delivery/ potpartum ward	Newborn corner/ Neonatal care unit	Neonatal special care unit*	Neonatal intesive care unit (NICU)*	Pediatric Ward
National	29	16	69	69	25
District					
Bugesera	41	6	100	100	18
Burera	88	6	100	100	50
Gakenke	22	33	50	50	22
Gasabo	33	33	100	75	33
Gatsibo	10	15	100	50	10
Gicumbi	75	44	100	0	56
Gisagara	31	25	100	100	94
Huye	50	33	100	100	42
Kamonyi	70	30	100	0	10
Karongi	7	7	33	67	36
Kayonza	0	14	100	100	21
Kicukiro	67	25	100	100	50
Kirehe	12	18	100	100	6
Muhanga	8	8	0	0	8
Musanze	86	43	100	0	7
Ngoma	8	0	100	0	8
Ngororero	33	20	50	50	13
Nyabihu	27	20	0	100	7
Nyagatare	0	5	0	100	5
Nyamagabe	0	0	0	100	13
Nyamasheke	17	11	100	100	11
Nyanza	8	8	100	100	62
Nyarugenge	36	45	100	100	45
Nyaruguru	47	7	100	100	53
Rubavu	20	20	0	100	13
Ruhango	23	15	50	50	15
Rulindo	38	13	50	0	13
Rusizi	21	5	0	50	11
Rutsiro	0	0	0	100	38
Rwamagana	12	6	100	0	6
Facility type					
Teaching hospital	50	100	100	100	100
Referral hospital	100	67	100	0	100
Provincial hospital	50	100	75	25	100
District Hospital	54	73	62	76	100
Health Centre	25	8			15
Poly clinic/Clinic	33	50			67
Health posts	22	11			
Managing authority					
Public/government	31	16	74	64	24
Private-for-profit	20	60	100	50	60
Private-not-for-profit[1]	18	9	29	100	24
Location					
Urban	37	29	79	67	36%
Rural	26	12	58	71	22%

ANC = Antenatal Care unit; OT = Operating theater NICU = NICU = neonatal intensive care unit.
[1] Includes NGO, faith-based, or mission facilities.
* Only hospitals are included (n=48)

Table 6.4.2A: Percentage of facilities with functioning electricity in selected maternal health services areas, among those facilities with a separate room for the service, of the facility, by district, facility type, and managing authority, Rwanda EmONC, 2021

	ANC	Labor and delivery together	Labor Room	Delivery Room	Pregnancy complication	Postnatal Room	General OT	Og/Gy Operating theater	Laboratory and Blood bank together	Separate Laboratory	Separate Blood Bank
	%	%	%	%	%	%	%	%	%	%	%
National	98	99	99.5	99.8	100	99	100	100	100	98	98
District											
Bugesera	100	100	100	100	100	100	100	100	100	87.5	100
Burera	100	100	100	100	100	94	100	100	100	100	
Gakenke	100	100	100	100	100	100	100	100	100	100	
Gasabo	100	91	100	100	100	100	100	100	100	100	50
Gatsibo	100	100	100	100	100	100	100	100	100	100	100
Gicumbi	93	100	100	100	100	100	100	100	100	100	100
Gisagara	100	100	100	100	100	100	100	100	100	100	100
Huye	100	100	92	100	100	100	100	100	100	100	100
Kamonyi	89	100	100	100	100	100	100	100	100	100	
Karongi	100	100	100	100	100	100	100	100	100	100	100
Kayonza	100	100	100	100	100	100	100	100	100	93	100
Kicukiro	90	100	100	100	100	100	100	100	100	100	100
Kirehe	88	93	94	94	100	94	100	100	100	94	100
Muhanga	92	100	100	100	100	92	100	100	100	92	100
Musanze	100	100	100	100	100	100	100	100	100	100	100
Ngoma	92	89	100	100	100	100	100	100	100	92	
Ngororero	100	100	100	100	100	100	100	100	100	100	100
Nyabihu	100	91	100	100	100	100	100	100	100	100	
Nyagatare	100	100	100	100	100	100	100	100	100	100	100
Nyamagabe	100	100	100	100	100	100	100	100	100	100	
Nyamasheke	100	100	100	100	100	100	100	100	100	100	100
Nyanza	100	100	100	100	100	100	100	100	100	100	100
Nyarugenge	100	100	100	100	100	100	100	100	100	100	100
Nyaruguru	100	100	100	100	100	100	100	100	100	100	100
Rubavu	100	100	100	100	100	100	100	100	100	100	100
Ruhango	100	100	100	100	100	100	100	100	100	100	100
Rulindo	100	100	100	100	100	100	100	100	100	100	
Rusizi	100	100	100	100	100	100	100	100	100	100	100
Rutsiro	100	100	100	100	100	100	100	100	100	100	100
Rwamagana	100	13	100	100	100	100	100	100	100	94	100
Facility Type											
Teaching hospital	100	100	100	100	100	100	100	100	100	100	100
Referral hospital	100	100	100	100	100	100	100	100	100	100	100
Provincial hospital	100	100	100	100	100	100	100	100	100	100	100
District Hospital	100	94	100	100	100	100	100	100	100	97	100
Health Centre	98	99	99	99.8	100	99	100	100	100	99	
Poly clinic/Clinic	100	100	100	100	100	100	100	100	100	100	
Health posts	100	89	100	100		100				89	
Managing Authority											
Government/ Public	98	98	99	100	100	99	100	100	100	98	100
Private, For Profit	100	100	100	100	100	100	100	100	100	100	0
Private-For -Not-Profit*	98	100	100	100	100	98	100	100	100	100	100
Location											
Urban	99	99	100	100	100	100	100	100	100	99	94
Rural	98	99	99	100	100	99	100	100	100	98	100

* Includes NGO and faith-based or mission health facilities
[1] No electricity = no grid and no other source of electricity

Table 6.4.3A: Percentage of facilities with functioning electricity in newborn areas of the facility, among those facilities with a separate room of newborn areas, by district, facility type, and managing authority, Rwanda EmONC, 2021

	Newborn corner/Neonatal care unit attached to delivery/postpartum ward	Newborn corner/ Neonatal care unit	Neonatal special care unit	Neonatal Intensive Care Unit (NICU)	Pediatric Ward
	%	%	%	%	%
National	98	100	100	100	100
District					
Bugesera	100	100	100	100	100
Burera	93	100	100	100	100
Gakenke	100	100	100	100	100
Gasabo	100	100	100	100	100
Gatsibo	100	100	100	100	100
Gicumbi	100	100	100	100	100
Gisagara	100	100	100	100	100
Huye	100	100	100	100	100
Kamonyi	100	100	100	100	100
Karongi	100	100	100	100	100
Kayonza		100	100	100	100
Kicukiro	100	100	100	100	100
Kirehe	100	100	100	100	100
Muhanga	100	100	100	100	100
Musanze	100	100	100	100	100
Ngoma	100	100	100	100	100
Ngororero	80	100	100	100	100
Nyabihu	100	100	100	100	100
Nyagatare		100	100	100	100
Nyamagabe		100	100	100	100
Nyamasheke	100	100	100	100	100
Nyanza	100	100	100	100	100
Nyarugenge	100	100	100	100	100
Nyaruguru	100	100	100	100	100
Rubavu	100	100	100	100	100
Ruhango	100	100	100	100	100
Rulindo	100	100	100	100	100
Rusizi	100	100	100	100	100
Rutsiro		100	100	100	100
Rwamagana	100	100	100	100	100
Facility Type					
Teaching hospital	100	100	100	100	100
Referral hospital	100	100	100		100
Provincial hospital	100	100	100	100	100
District Hospital	100	100	100	100	100
Health Centre	98	100	100		100
Poly clinic/Clinic	100	100	100	100	100
Health posts	100	100			
Managing Authority					
Government/Public	99	100	100	100	100
Private, For Profit	100	100	100	100	100
Private-For -Not-Profit*	92	100	100	100	100
Location					
Urban	100	100	100	100	100
Rural	98	100	100	100	100

* Includes NGO and faith-based or mission health facilities
[1] No electricity = no grid and no other source of electricity

Table 6.5.1A: Percent distribution of facilities according to their primary source of water, and mean number of days without water among facilities with source, by district, facility type, and managing authority, Rwanda EmONC, 2021

	Total number of facilities	No water	Piped water	Hand pump	River	Other1	Number of facilities with water source	Water onsite/ within compound	Within 500 meters	Beyond 500 meters	Had severe shortage of water at a time in last year
		%	%	%	%	%		%	%	%	%
National	444	3%	95%	0%	2%	1%	431	86%	14%	1%	28%
Districts											
Bugesera	17	6%	94%	0%	0%	0%	16	94%	6%	0%	56%
Burera	16	13%	88%	0%	0%	0%	14	100%	0%	0%	36%
Gakenke	9	0%	100%	0%	0%	0%	9	100%	0%	0%	11%
Gasabo	15	0%	100%	0%	0%	0%	15	93%	7%	0%	20%
Gatsibo	20	0%	100%	0%	0%	0%	20	70%	25%	5%	10%
Gicumbi	16	0%	100%	0%	0%	0%	16	94%	6%	0%	25%
Gisagara	16	6%	88%	0%	0%	6%	15	27%	73%	0%	53%
Huye	12	0%	100%	0%	0%	0%	12	67%	33%	0%	42%
Kamonyi	10	0%	100%	0%	0%	0%	10	100%	0%	0%	20%
Karongi	14	0%	100%	0%	0%	0%	14	100%	0%	0%	36%
Kayonza	14	7%	93%	0%	0%	0%	13	62%	38%	0%	23%
Kicukiro	12	0%	100%	0%	0%	0%	12	92%	8%	0%	25%
Kirehe	17	6%	94%	0%	0%	0%	16	94%	6%	0%	19%
Muhanga	13	8%	77%	0%	15%	0%	12	100%	0%	0%	33%
Musanze	14	0%	100%	0%	0%	0%	14	100%	0%	0%	14%
Ngoma	13	8%	92%	0%	0%	0%	12	92%	8%	0%	17%
Ngororero	15	0%	93%	0%	7%	0%	15	100%	0%	0%	27%
Nyabihu	15	0%	93%	0%	7%	0%	15	100%	0%	0%	13%
Nyagatare	20	5%	95%	0%	0%	0%	19	79%	21%	0%	37%
Nyamagabe	16	0%	100%	0%	0%	0%	16	100%	0%	0%	19%
Nyamasheke	18	0%	100%	0%	0%	0%	18	100%	0%	0%	44%
Nyanza	13	0%	92%	0%	0%	8%	13	15%	85%	0%	31%
Nyarugenge	11	0%	100%	0%	0%	0%	11	100%	0%	0%	27%
Nyaruguru	15	7%	87%	0%	7%	0%	14	43%	50%	7%	36%
Rubavu	15	0%	100%	0%	0%	0%	15	100%	0%	0%	13%
Ruhango	13	23%	69%	8%	0%	0%	10	100%	0%	0%	10%
Rulindo	16	0%	100%	0%	0%	0%	16	100%	0%	0%	31%
Rusizi	19	0%	95%	0%	5%	0%	19	100%	0%	0%	37%
Rutsiro	13	0%	100%	0%	0%	0%	13	100%	0%	0%	31%
Rwamagana	17	0%	88%	0%	6%	6%	17	59%	35%	6%	35%
Facility Type											
Teaching hospital	4	0%	100%	0%	0%	0%	4	100%	0%	0%	0%
Referral hospital	3	0%	100%	0%	0%	0%	3	100%	0%	0%	0%
Provincial hospital	4	0%	100%	0%	0%	0%	4	100%	0%	0%	25%
District Hospital	37	0%	100%	0%	0%	0%	37	84%	14%	3%	16%
Health Centre	381	3%	94%	0%	2%	1%	369	86%	14%	1%	30%
Poly clinic/Clinic	6	0%	100%	0%	0%	0%	6	100%	0%	0%	17%
Health posts	9	11%	78%	0%	11%	0%	8	63%	38%	0%	25%
Managing Authority											
Government/Public	366	3%	95%	0%	1%	1%	356	84%	15%	1%	28%
Private, For Profit	10	0%	100%	0%	0%	0%	10	100%	0%	0%	20%
Private-For -Not-Profit*	68	4%	90%	1%	3%	1%	65	94%	6%	0%	32%
Location											
Urban	99	2%	97%	1%	0%	0%	97	92%	8%	0%	24%
Rural	345	3%	94%	0%	2%	1%	334	84%	15%	1%	30%

[1] Other sources include [tanker]
* Includes faith-based or mission health facilities

Table 6.5.1bA: List of facilities with no water source, by district, facility type, and managing authority, Rwanda EmONC, 2021

| District type (No=0)	Facility namee	Facility	Operating agency	Had water?
1. | Bugesera	Batima_Mbuganzeli_HP	Health post	Public/Government	0 |
2. | Kayonza	Nyakabungo_CS	Health center	Public/Government	0 |
3. | Kirehe	Gashongora_CS	Health center	Public/Government	0 |
4. | Ngoma	Rukira_CS	Health center	Public/Government	0 |
5. | Nyagatare	Nyarurema_CS	Health center	Private not-for-profit	0 |
6. | Burera	Bungwe_burera_CS	Health center	Private not-for-profit	0 |
7. | Burera	Butaro_CS	Health center	Private not-for-profit	0 |
8. | Gisagara	Kigembe_CS	Health center	Public/Government	0 |
9. | Muhanga	Mata_CS	Health center	Public/Government	0 |
10. | Nyaruguru	Munini_nyaruguru_CS	Health center	Public/Government	0 |
11. | Ruhango	Gishweru_CS	Health center	Public/Government	0 |
12. | Ruhango	Gitwe_CS	Health center	Public/Government	0 |
13.| Ruhango	Karambi_ruhango_CS	Health center	Public/Government	0 |

Table 6.5.2A: Percentage of facilities with functioning water source in selected maternal health service areas of the facility, by region, facility type, and managing authority, Rwanda EmONC, 2021

	ANC	Labor and delivery together	Labor Room	Delivery Room	Pregnancy complication	Postnatal Room	General OT	Og/Gy Operating theater	Laboratory and Blood bank together	Separate Laboratory	Separate Blood Bank
	%	%	%	%	%	%	%	%	%	%	%
National	78	89	85	91	90	79	100	100	100	95	100
District											
Bugesera	65	87.5	76	82	67	63	100	100	100	94	100
Burera	80	60	90	91	100	81	100	100	100	100	0
Gakenke	100	100	100	100	0	100	100	100	100	100	0
Gasabo	100	91	93	93	100	79	100	100	100	92	100
Gatsibo	80	100	64	79	100	80	100	100	100	95	100
Gicumbi	87	82	80	87	100	81	100	100	100	93	100
Gisagara	86	92	88	88	0	81	100	100	100	94	100
Huye	90	86	83	92	100	75	100	100	100	92	100
Kamonyi	56	70	60	70	0	40	100	100	0	80	0
Karongi	69	92	86	100	100	79	100	100	100	92	100
Kayonza	71	80	77	100	100	77	100	100	100	93	100
Kicukiro	80	90	82	92	100	92	100	100	100	100	100
Kirehe	63	73	76	76	100	71	100	100	100	82	100
Muhanga	77	83	77	77	0	77	100	100	100	92	100
Musanze	100	100	100	93	0	100	100	100	100	100	100
Ngoma	54	67	75	77	100	82	100	100	100	77	0
Ngororero	93	100	100	100	50	87	100	100	100	100	100
Nyabihu	100	91	100	100	100	100	100	100	100	100	100
Nyagatare	72	100	79	100	100	50	100	100	0	90	100
Nyamagabe	79	100	100	100	0	75	100	100	100	100	0
Nyamasheke	72	100	89	100	100	83	100	100	100	100	100
Nyanza	100	100	100	100	0	100	100	100	100	100	100
Nyarugenge	100	100	100	100	100	100	100	100	100	100	100
Nyaruguru	71	88	73	87	0	71	100	100	0	93	100
Rubavu	93	100	100	100	100	80	100	100	0	100	100
Ruhango	58	73	77	77	100	67	100	100	100	77	100
Rulindo	100	0	100	100	0	100	100	100	0	100	0
Rusizi	61	92	58	79	0	78	100	100	0	100	100
Rutsiro	27	91	82	91	100	60	100	100	100	100	100
Rwamagana	80	100	88	88	100	87	100	100	0	100	100
Facility Type											
Teaching hospital	100	100	100	100	100	100	100	100	100	100	100
Referral hospital	100	100	100	100	50	100	100	100	100	100	100
Provincial hospital	100	100	100	100	100	100	100	100	100	100	100
District Hospital	95	94	95	92	90	92	100	100	100	97	100
Health Centre	77	89	83	90	95	77	100	100		94	
Poly clinic/Clinic	100	100	100	100	100	100	100	100	100	100	100
Health posts	89	78	88	88		100				100	
Managing Authority											
Government/Public	80	90	86	90	90	80	100	100	100	94	100
Private, For Profit	88	100	100	100	100	100	100	100	100	100	100
Private-For -Not-Profit*	67	85	77	91	89	71	100	100	100	97	100
Location											
Urban	90	96	31	94	95	89	100	100	100	98	100
Rural	75	87	11	90	88	77	100	100	100	94	100

Note: Cells marked with a " - " indicate that no facilities reported having the specified area; for example, no private sector health centers reported having a blood bank
* Includes NGO and faith-based or mission health facilities

Table 6.5.3A: Percentage of facilities with functioning water source in new born care areas of the facility, by region, facility type, and managing authority, and location, Rwanda EmONC , 2021

	Newborn corner/ Neonatal care unit attached to delivery/ postpartum ward	Newborn corner/ Neonatal care unit	Neonatal special care unit	Neonatal Intensive Care unit (NICU)	Pediatric Ward
	%	%	%	%	%
National	87	93	97	100	87
Region					
Bugesera	71	100	100	100	100
Burera	93	100	100	100	88
Gakenke	100	100	100	100	100
Gasabo	80	100	100	100	100
Gatsibo	100	100	100	100	50
Gicumbi	83	100	100	0	78
Gisagara	100	75	100	100	80
Huye	100	100	100	100	80
Kamonyi	0	0	0	0	0
Karongi	100	100	100	100	100
Kayonza	0	100	100	100	67
Kicukiro	100	100	100	100	100
Kirehe	100	100	100	100	100
Muhanga	100	100	0	0	100
Musanze	100	100	100	0	100
Ngoma	100	0	100	0	100
Ngororero	80	100	100	100	100
Nyabihu	100	100	0	100	100
Nyagatare	0	100	0	100	100
Nyamagabe	0	0	0	100	100
Nyamasheke	100	100	100	100	100
Nyanza	100	100	100	100	100
Nyarugenge	100	80	100	100	100
Nyaruguru	86	100	100	100	88
Rubavu	100	100	0	100	100
Ruhango	100	100	100	100	100
Rulindo	100	100	100	0	100
Rusizi	75	100	0	100	100
Rutsiro	0	0	0	100	40
Rwamagana	100	100	0	0	100
Facility Type					
Teaching hospital	100	100	100	100	100
Referral hospital	100	100	100	100	100
Provincial hospital	100	100	100	100	100
District Hospital	95	96	96	100	95
Health Centre	84	90	100		80
Polyclinic/Clinic	100	67	100	100	100
Health posts	100	100			
Managing Authority					
Government/Public	88	93	97	100	89
Private, For Profit	100	83	100	100	100
Private-For -Not-Profit*	83	100	100	100	75
Location					
Urban	95	97	100	100	90
Rural	84	91	93	100	75

* Includes faith-based or mission health facilities

Table 6.5.4A: Percent of facilities with toilets for patients and staff, by region and facility type, and managing authority, and location, Rwanda EmONC, 2021

	Total number of facilities	Availability		Toilet/latrine for patients in functioning order										
		No functioning toilet for anyone	Toilets for staff and patients, separate	Flush or pour flush	VIP	Pit Latrine with Slab	Pit Latrine without Slab	Composting toilet	Flush or pour flush	VIP	Pit Latrine with Slab	Pit Latrine without Slab	Composting toilet	Other
	n	%	%	%	%	%	%	%	%	%	%	%	%	%
National	444	0.5	99.5	91	3	4	2	1	32	6	35	19	7	1
Region														
Bugesera	17	0	100	88	0	0	0	12	59	0	24	0	18	0
Burera	16	6	94	53	0	47	0	0	20	0	80	0	0	0
Gakenke	9	0	100	100	0	0	0	0	0	0	0	100	0	0
Gasabo	15	0	100	93	0	7	0	0	67	7	20	7	0	0
Gatsibo	20	0	100	100	0	0	0	0	30	0	50	15	0	5
Gicumbi	16	0	100	88	0	13	0	0	19	0	81	0	0	0
Gisagara	16	0	100	100	0	0	0	0	38	0	56	6	0	0
Huye	12	0	100	100	0	0	0	0	42	0	50	8	0	0
Kamonyi	10	0	100	100	0	0	0	0	10	10	70	10	0	0
Karongi	14	0	100	100	0	0	0	0	57	0	0	0	43	0
Kayonza	14	0	100	93	7	0	0	0	14	7	29	29	0	21
Kicukiro	12	0	100	92	0	8	0	0	83	0	17	0	0	0
Kirehe	17	0	100	94	6	0	0	0	12	0	82	0	6	0
Muhanga	13	0	100	100	0	0	0	0	15	0	85	0	0	0
Musanze	14	0	100	100	0	0	0	0	31	0	62	8	0	0
Ngoma	13	0	100	77	23	0	0	0	0	23	62	8	8	0
Ngororero	15	0	100	100	0	0	0	0	27	60	0	0	7	7
Nyabihu	15	0	100	93	7	0	0	0	67	33	0	0	0	0
Nyagatare	20	0	100	75	0	15	10	0	25	0	35	35	5	0
Nyamagabe	16	0	100	100	0	0	0	0	19	0	0	81	0	0
Nyamasheke	18	0	100	100	0	0	0	0	61	0	0	0	39	0
Nyanza	13	0	100	54	0	0	46	0	23	0	15	62	0	0
Nyarugenge	11	0	100	100	0	0	0	0	73	0	9	18	0	0
Nyaruguru	15	0	100	100	0	0	0	0	13	0	47	40	0	0
Rubavu	15	0	100	87	13	0	0	0	80	20	0	0	0	0
Ruhango	13	0	100	77	15	0	8	0	8	8	69	8	0	8
Rulindo	16	0	100	100	0	0	0	0	0	0	0	100	0	0
Rusizi	19	0	100	95	0	0	0	5	26	0	47	16	11	0
Rutsiro	13	8	92	100	0	0	0	0	25	8	0	0	67	0
Rwamagana	17	0	100	76	12	12	0	0	18	6	53	24	0	0
Facility Type														
Teaching hospital	4	0	100	100	0	0	0	0	100	0	0	0	0	0
Referral hospital	3	0	100	100	0	0	0	0	33	33	0	33	0	0
Provincial hospital	4	0	100	100	0	0	0	0	50	25	0	25	0	0
District Hospital	37	0	100	100	0	0	0	0	51	8	16	19	0	5
Health Centre	381	0.5	99.5	90	3	4	2	1	28	5	39	19	8	1
Polyclinic/ Clinic	6	0	100	100	0	0	0	0	100	0	0	0	0	0
Health posts	9	0	100	78	11	11	0	0	33	11	22	11	11	11
Managing Authority														
Government/ Public	366	0	100	91	2	4	2	1	33	6	37	18	4	1
Private, For Profit	10	0	100	100	0	0	0	0	80	0	20	0	0	0
Private-For -Not-Profit*	68	3	97	86	5	5	3	2	23	5	26	23	23	2
Location														
Urban	99	0	100	94	1	3	2	0	58	4	20	15	1	1
Rural	345	0.6	99.4	90	3	4	2	1	25	6	39	20	8	1

* Includes NGO and faith-based or mission health facilities

Table 6.6.1A: Percent of facility with HMIS and other HMIS related services, by district, facility type, managing authority, and location, Rwanda EmONC, 2021

	Number of facilities	System in-place to collect MNH^ services data	Compile and reports of MNH services	Reporting MNH service data on:	Routinely calculate indicators for Institutional delivery	Routinely calculate institutional adolescent birth rate	Routinely calculate Institutional C/S rate	Routinely calculate Institutional still birth rate	Routinely calculate Institutional low birth weight	Person responsible for MNH services data
				Weekly						
	n	%	%	%	%	%	%	%	%	%
National	444	93	100	100	94	77	17	61	70	97
Region										
Bugesera	17	94	100	100	100	88	19	81	88	100
Burera	16	100	100	100	100	100	13	19	100	100
Gakenke	9	100	100	100	89	78	22	78	78	100
Gasabo	15	93	100	100	100	100	50	79	93	100
Gatsibo	20	100	100	100	100	100	30	100	100	100
Gicumbi	16	100	100	100	100	100	13	25	69	100
Gisagara	16	100	100	100	94	38	19	38	38	88
Huye	12	75	100	100	100	78	33	100	100	100
Kamonyi	10	80	100	100	100	100	13	100	88	100
Karongi	14	100	100	100	100	86	21	36	36	100
Kayonza	14	86	100	100	92	92	42	92	92	100
Kicukiro	12	92	100	100	100	82	27	64	73	100
Kirehe	17	100	100	100	35	24	6	29	24	100
Muhanga	13	69	100	100	89	67	22	44	44	89
Musanze	14	93	100	100	100	54	8	54	54	100
Ngoma	13	100	100	100	77	69	8	54	62	100
Ngororero	15	100	100	100	93	87	20	73	67	100
Nyabihu	15	100	100	100	80	67	13	53	60	87
Nyagatare	20	95	100	100	95	79	11	63	58	100
Nyamagabe	16	100	100	100	100	100	13	75	100	75
Nyamasheke	18	100	100	100	100	83	11	50	44	100
Nyanza	13	92	100	100	100	83	8	67	83	92
Nyarugenge	11	91	100	100	90	70	40	70	80	90
Nyaruguru	15	100	100	100	100	53	7	67	60	93
Rubavu	15	100	100	100	100	60	20	80	93	100
Ruhango	13	62	100	100	100	88	13	25	75	100
Rulindo	16	100	100	100	94	75	13	81	81	100
Rusizi	19	84	100	100	100	63	13	44	81	100
Rutsiro	13	100	100	100	100	62	8	77	69	92
Rwamagana	17	76	100	100	92	85	8	23	38	100
Facility Type										
Teaching hospital	4	100	100	100	100	100	100	100	100	100
Referral hospital	3	100	100	100	100	100	100	100	100	100
Provincial hospital	4	100	100	100	100	75	100	100	100	100
District Hospital	37	97	100	100	100	97	100	97	97	100
Health Centre	381	93	100	100	93	75	6	55	67	97
Poly clinic/Clinic	6	100	100	100	83	50	83	83	83	100
Health posts	9	56	100	100	80	60	0	60	40	80
Managing Authority										
Government/Public	366	93	100	100	94	77	17	61	70	96
Private, For Profit	10	90	100	100	89	67	78	78	89	100
Private-For -Not-Profit*	68	93	100	100	95	73	11	56	70	98
Location										
Urban	99	92	100	100	99	86	36	74	86	96
Rural	345	94	100	100	92	74	12	57	66	97

* Includes faith-based or mission health facilities
^ MNH - Maternal and Newborn Health

Table 6.6.2A: Percent of facility with HMIS in-place and abortion-related service data use for decision making, by district, facility type, managing authority, and location, Rwanda EmONC, 2021

	Number of facilities	Facility routinely collect information for planning/ decision making on:			
		1st trimester post-abortion care	2nd trimester post-abortion care	1st trimester safe-abortion care	2nd trimester safe-abortion care
	n	%	%	%	%
National	444	31	29	12	11
Region					
Bugesera	17	35	24	6	6
Burera	16	13	13	6	6
Gakenke	9	11	22	0	0
Gasabo	15	40	33	13	0
Gatsibo	20	65	40	0	0
Gicumbi	16	6	6	6	6
Gisagara	16	31	31	13	13
Huye	12	58	50	42	25
Kamonyi	10	50	40	0	0
Karongi	14	29	29	21	21
Kayonza	14	36	29	14	14
Kicukiro	12	8	8	8	8
Kirehe	17	6	6	6	6
Muhanga	13	54	54	0	0
Musanze	14	7	7	7	0
Ngoma	13	0	0	0	0
Ngororero	15	40	40	13	13
Nyabihu	15	67	67	13	13
Nyagatare	20	30	30	10	10
Nyamagabe	16	69	69	69	69
Nyamasheke	18	17	17	0	0
Nyanza	13	0	0	0	0
Nyarugenge	11	36	36	45	36
Nyaruguru	15	53	47	40	40
Rubavu	15	13	20	13	7
Ruhango	13	54	54	8	8
Rulindo	16	6	6	6	6
Rusizi	19	63	63	5	5
Rutsiro	13	15	8	0	0
Rwamagana	17	12	6	6	6
Facility Type					
Teaching hospital	4	50	50	50	50
Referral hospital	3	33	33	67	33
Provincial hospital	4	75	75	50	50
District Hospital	37	73	73	54	49
Health Centre	381	27	23	6	6
Poly clinic/Clinic	6	67	67	67	33
Health posts	9	11	11	0	0
Managing Authority					
Government/Public	366	32	29	13	11
Private, For Profit	10	40	40	40	20
Private-For -Not-Profit*	68	25	24	4	4
Location					
Urban	99	36	32	23	18
Rural	345	30	28	9	8

* Includes faith-based or mission health facilities
^ MNH - Maternal and Newborn Health

Table 7.3.1A: Percentage of total health workers on leave, providing delivery services, and trained in EmONC, by type of facility and cadre of health worker, Rwanda EmONC, 2021

Health worker cadre	Hospitals	Health Centers/Clinics								
	Currently employed	on extended leave	providing obstetric and newborn care	trained in BEmONC	trained in CEmONC	currently employed	on extended leave	providing obstetric and newborn care	trained in BEmONC	trained in CEmONC
	Total	%	%	%	%	Total	%	%	%	%
Medical doctor	604	4%	39%	36%	40%	20	0%	80%	75%	75%
Obstetrician/ Gynecologist	75	8%	74%	82%	86%	15	0%	60%	56%	56%
General surgeon	58	3%	11%	33%	33%	2	0%	50%	0%	100%
Pediatrician	72	7%	37%	44%	48%	7	0%	29%	50%	50%
Neonatologist	12	8%	55%	33%	17%	0	0%	0%	0%	0%
Midwife	979	8%	73%	63%	34%	466	5%	74%	59%	17%
Nurse	3941	3%	21%	27%	14%	3145	3%	62%	36%	9%
Anesthesiologist (MD)	60	7%	9%	20%	20%	12	0%	17%	0%	0%
Nurse anesthetist	257	4%	26%	2%	2%	9	11%	63%	80%	80%
Laboratory technician	496	4%	6%	17%	17%	752	4%	3%	0%	0%

Table 7.8.1A: Percentage of health facilities that provide other essential services or procedures, by health worker cadre, Rwanda EmONC, 2021

	% of facilities with cadre present	Number of facilities with cadre present	Focused ANC	Normal delivery	Fill out and use Partograph	Post-abortion care	Immediate newborn care	PMTCT	FP counseling	Temporary FP methods	Long acting reversible FP methods (IUDs, implants)	Tubal ligation	Vasectomy	Post-abortion contraception
	%	n	%	%	%	%	%	%	%	%	%	%	%	%
Hospitals (n=48)														
Medical doctor	98%	47	34%	84%	32%	77%	66%	52%	75%	45%	61%	80%	75%	61%
Obstetrician/ Gynecologist	58%	28	33%	70%	37%	81%	59%	37%	70%	56%	70%	96%	89%	59%
General surgeon	33%	16	6%	13%	13%	19%	25%	13%	19%	13%	13%	31%	38%	19%
Pediatrician	56%	27	4%	16%	4%	12%	40%	16%	24%	8%	4%	8%	8%	8%
Neonatologist	10%	5	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%
Midwife	100%	48	69%	100%	100%	96%	100%	96%	98%	91%	89%	9%	7%	80%
Nurse	100%	48	60%	91%	89%	87%	89%	91%	93%	84%	78%	4%	2%	73%
Health Centers/ Clinics (n=396)														
Medical doctor	2%	9	56%	100%	67%	100%	89%	89%	100%	56%	67%	33%	22%	67%
Obstetrician/ Gynecologist	1%	5	60%	100%	60%	100%	60%	60%	100%	40%	80%	80%	60%	60%
General surgeon	0.5%	2	0%	50%	50%	50%	50%	50%	50%	0%	0%	50%	0%	50%
Pediatrician	1%	4	0%	0%	0%	25%	25%	25%	25%	25%	25%	0%	0%	25%
Neonatologist	0%	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Midwife	92%	363	99%	100%	100%	69%	99%	98%	93%	78%	75%	2%	0.3%	54%
Nurse	98%	390	99%	99%	99%	69%	99%	98%	93%	77%	74%	1%	0%	51%

Table 8.1.1A: Percentage of facilities with a supply of medicines, with registers and sources of drugs and supplies, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=6)	Health posts (n=9)	Total (n=444)
	%	%	%	%	%	%	%	%
Among all facilities								
Facility has pharmacy/ supply of medicines	100%	100%	100%	100%	100%	83%	100%	99.8%
Among facilities with a pharmacy/supply of medicine	(n=4)	(n=3)	(n=4)	(n=37)	(n=381)	(n=5)	(n=9)	(n=443)
Drug inventory register exists	100%	100%	100%	100%	99%	100%	78%	99%
Drug inventory register exists and is up-to-date	100%	100%	100%	97%	98%	100%	100%	98%
Primary source of medicine for facility	(n=4)	(n=3)	(n=4)	(n=37)	(n=381)	(n=5)	(n=9)	(n=443)
Government	100%	100%	100%	100%	98%	20%	100%	98%
Private pharmacy	0%	0%	0%	0%	1%	80%	0%	1%
NGO / Mission	0%	0%	0%	0%	1%	0%	0%	1%
Primary source for gloves, syringes and medical supplies	(n=4)	(n=3)	(n=4)	(n=37)	(n=381)	(n=5)	(n=9)	(n=443)
Government supplier	100%	100%	100%	97%	99%	20%	100%	98%
Private pharmacy	0%	0%	0%	3%	0%	80%	0%	1%
NGO / Mission	0%	0%	0%	0%	1%	0%	0%	1%

Table 8.1.4A: Percentage of facilities reporting a stock out in the last 3 months, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=5)	Health posts (n=9)	Total (n=443)
	%	%	%	%	%	%	%	%
Gentamicin (injection)	0%	0%	25%	14%	13%	20%	22%	13%
Magnesium sulfate	0%	0%	25%	11%	13%	20%	0%	13%
Oxytocin	0%	0%	25%	14%	12%	20%	0%	12%
Misoprostol	0%	0%	25%	11%	10%	20%	0%	10%
Combipak	25%	0%	0%	5%	6%	0%	0%	6%
Ketamine	0%	0%	25%	14%	5%	20%	0%	6%
Corticosteroid	0%	33%	25%	8%	10%	20%	0%	10%
Contraceptives (any)	0%	0%	25%	22%	15%	20%	22%	16%
ARVs	0%	0%	50%	14%	13%	20%	11%	13%
MVA equipment	0%	0%	25%	11%	10%	20%	0%	10%

Table 8.1.5A: Percentage of facilities that reported an interruption in the safe oxygen supply in the last 12 months, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=5)	Health posts (n=9)	Total (n=443)
	%	%	%	%	%	%	%	%
In labor and delivery	0.0%	0.0%	0.0%	8.1%	0.3%	0.0%		0.9%
In the neonatal ward	0.0%	0.0%	0.0%	8.1%	0.3%	20.0%		1.1%
In the pediatric ward	0.0%	0.0%	0.0%	5.4%	0.0%	0.0%		0.5%

Table 8.2.1A: Percentage of facilities that have drugs related to the signal functions and emergencies, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=5)	Health posts (n=9)	Total (n=443)
	%	%	%	%	%	%	%	%
Antibiotics (Any)	100%	100%	100%	100%	100%	100%	100%	100%
Amoxicillin (oral)	100%	100%	100%	100%	98%	40%	100%	98%
Amoxicillin (injection)	25%	0%	25%	24%	3%	0%	0%	5%
Ampicillin (injection)	100%	100%	100%	100%	98%	100%	89%	98%
Cephazoline sodium	75%	0%	25%	22%	1%	20%	0%	4%
Cefixime	75%	67%	25%	16%	2%	40%	0%	5%
Ceftriaxone	100%	100%	100%	97%	39%	100%	44%	46%
Cefotaxime injection (for newborn)	100%	100%	100%	95%	4%	80%	0%	15%
Clindamycin	100%	0%	0%	14%	1%	20%	0%	3%
Cloxacillin sodium	100%	100%	100%	97%	72%	40%	78%	75%
Erythromicin	100%	100%	100%	100%	97%	20%	100%	97%
Oral flucloxacillin (for newborn)	50%	0%	25%	14%	9%	20%	0%	10%
Gentamicin (injection)	100%	100%	100%	100%	86%	100%	56%	87%
Metronidazole (injection)	100%	100%	100%	95%	19%	100%	22%	28%
Penicillin G (Benzyl)	100%	100%	50%	73%	55%	20%	56%	56%
Procaine benzylpenicillin (procaine penicillin G)	50%	67%	50%	46%	48%	20%	67%	48%
Trimethoprim/ sulfamethoxazole	75%	33%	75%	70%	48%	40%	33%	50%
Tetracycline eye ointment/ drops	100%	100%	100%	100%	98%	80%	100%	98%
Anticonvulsants (Any)	100%	100%	100%	100%	93%	100%	89%	93%
Magnesium Sulfate - 50% Concentration (Injection)	100%	100%	100%	97%	91%	100%	78%	92%
Magnesium Sulfate - Concentration other than 50% (Injection)	25%	33%	75%	32%	14%	60%	33%	17%
Diazepam (Injection)	100%	100%	100%	97%	94%	100%	89%	94%
Phenobarbital (Injection)	100%	100%	100%	100%	57%	100%	44%	62%
Phenytoin (Diphenylhydantoin)	100%	100%	75%	92%	22%	80%	0%	30%
Antihypertensives (Any)	100%	100%	100%	100%	100%	100%	78%	99%
Hydralazine	100%	100%	100%	78%	7%	80%	0%	16%
Labetalol	50%	0%	0%	19%	2%	40%	0%	4%
Methyldopa	100%	67%	100%	86%	56%	20%	0%	58%
Nifedipine	100%	100%	100%	100%	96%	80%	86%	96%
Oxytocics and prostaglandins	100%	100%	100%	100%	98%	100%	100%	99%
Ergometrine	0%	0%	25%	5%	1%	20%	0%	2%
Methylergometrine	0%	0%	0%	3%	0%	0%	0%	0.5%
Misoprostol	100%	100%	100%	100%	34%	100%	11%	41%
Mifepristone	25%	33%	75%	43%	0%	20%	0%	5%
Combipack	50%	0%	50%	5%	1%	0%	0%	2%
Oxytocin	100%	100%	100%	100%	100%	100%	100%	100%
Prostaglandin E2 (Dinoprostone)	0%	0%	0%	3%	0%	20%	0%	1%
Drugs used in emergencies	100%	100%	100%	100%	100%	100%	100%	100%
Adrenaline (Epinephrine)	100%	100%	100%	100%	71%	100%	44%	74%
Aminophylline	100%	100%	100%	100%	83%	80%	67%	85%
Atropine	100%	100%	75%	97%	19%	100%	11%	28%
Calcium Gluconate	100%	100%	100%	89%	71%	80%	44%	73%
Digoxin	75%	0%	25%	38%	2%	20%	0%	6%
Diphenhydramine	50%	0%	0%	11%	1%	20%	0%	2%
Ephedrine	75%	100%	100%	92%	1%	100%	0%	12%
Frusemide	100%	100%	100%	100%	51%	100%	0%	55%
Hydrocortisone	100%	100%	100%	95%	83%	100%	89%	84%
Naloxone	100%	100%	75%	81%	1%	80%	0%	11%
Nitroglycerine	50%	0%	25%	8%	1%	20%	0%	2%
Promethazine	75%	67%	100%	78%	93%	80%	100%	91%

Table 8.2.2A: Percentage of facilities that have anaesthetics and other drugs, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=5)	Health posts (n=9)	Total (n=443)
	%	%	%	%	%	%	%	%
Anesthetics (any)	100%	100%	100%	100%	98%	100%	100%	99%
Halothane	100%	100%	75%	86%	0%	60%	0%	10%
Ketamine	100%	100%	100%	97%	1%	100%	0%	13%
Lignocaine/ Lidocaine 2% or 1%	100%	100%	100%	100%	99%	100%	100%	99%
Analgesics (any)	100%	100%	100%	100%	100%	100%	100%	100%
Acetylsalicylic acid	100%	100%	100%	92%	97%	20%	100%	96%
Ibuprofen	100%	100%	100%	100%	100%	60%	100%	100%
Indomethacin	75%	67%	50%	49%	76%	20%	67%	72%
Morphine	100%	100%	100%	95%	4%	80%	0%	15%
Paracetamol	100%	100%	100%	100%	100%	100%	100%	100%
Pethidine	75%	100%	100%	89%	2%	100%	0%	12%
Steroids (any)	100%	100%	100%	100%	100%	100%	100%	100%
Betamethasone	100%	100%	75%	86%	53%	20%	44%	56%
Dexamethasone	100%	100%	100%	100%	90%	100%	89%	91%
Prednisone	100%	67%	50%	49%	29%	20%	0%	31%
Prednisolone corticosteroid	100%	67%	100%	84%	67%	20%	67%	69%
IV Fluids (any)	100%	100%	100%	100%	100%	100%	100%	100%
Dextrose	100%	100%	75%	73%	34%	80%	0%	39%
Dextran	25%	0%	0%	14%	1%	0%	0%	2%
Glucose 5%	100%	100%	100%	97%	97%	100%	100%	97%
Glucose 10%	100%	100%	100%	95%	24%	80%	11%	33%
Glucose 40 or 50%%	100%	100%	100%	92%	21%	100%	0%	29%
Normal saline	100%	100%	100%	97%	100%	100%	100%	100%
Ringer's lactate	75%	100%	100%	97%	100%	100%	100%	99%
Antimalarials (any)	100%	100%	100%	100%	100%	80%	100%	100%
Artemisium-based combinaision therapy (ACT)	100%	100%	100%	100%	97%	75%	100%	97%
Quinine Dihydrochloride	100%	100%	50%	100%	94%	100%	56%	93%
Antiretrovirals (any)	100%	100%	100%	100%	100%	80%	89%	99.5%
Nevirapine (for mother)	50%	0%	50%	24%	24%	50%	29%	24%
Nevirapine (for newborn)	100%	100%	50%	100%	98%	100%	86%	98%
Post-HIV exposure prophylactic treatment	100%	100%	100%	100%	96%	75%	71%	96%
Combined ARVs for mother	100%	100%	100%	100%	98%	75%	29%	97%

Table 8.4.1A: Percentage of facilities that have the indicated guidelines in the maternity ward1, by type of facility, Rwanda EmONC, 2021

Guidelines or protocols	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=6)	Health posts (n=9)	Total (n=444)
	%	%	%	%	%	%	%	%
Antenatal care	100%	67%	75%	65%	96%	83%	89%	93%
Integrated management of pregnancy, childbirth, postpartum and newborn care (focus on routine care)	100%	100%	100%	97%	96%	83%	89%	96%
Management of obstetric complications	100%	100%	100%	100%	77%	100%	67%	80%
Care for preterm or low birth weight babies, including kangaroo mother care	100%	100%	100%	97%	62%	83%	78%	67%
Neonatal resuscitation	100%	100%	100%	100%	86%	100%	89%	88%
Treatment of infections in young infants	100%	100%	100%	92%	58%	100%	78%	63%
Prevention of mother-to-child transmission of HIV (PMTCT) (maternal and newborn dosing)	100%	100%	100%	100%	96%	100%	78%	96%
Referral and counter-referral	100%	67%	100%	92%	77%	83%	67%	78%
Infection prevention for HIV/AIDS (universal precautions)	100%	100%	100%	92%	91%	100%	67%	91%
Safe abortion	75%	100%	50%	59%	7%	67%	0%	14%
Post Abortion Care (PAC)	100%	100%	100%	97%	55%	100%	22%	59%
Contraceptive counseling and services	100%	100%	100%	92%	80%	100%	89%	82%

Table 8.4.2A: Percentage of facilities with basic equipment and supplies in the maternity area, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=6)	Health posts (n=9)	Total (n=444)
	%	%	%	%	%	%	%	%
Equipments								
Ultrasound	100%	100%	100%	100%	23%	100%	0%	32%
Blood Pressure cuff	100%	100%	100%	100%	98%	100%	100%	99%
Stethoscope (for adult)	100%	100%	100%	100%	99%	100%	100%	99%
Fetal Stethoscope	75%	100%	75%	100%	92%	100%	100%	93%
Doppler	100%	100%	100%	89%	56%	100%	33%	60%
Clinical thermometer	50%	33%	25%	24%	11%	33%	11%	13%
Low reading thermometer	100%	67%	25%	78%	61%	67%	44%	63%
Supplies								
Kidney basins	100%	100%	100%	100%	94%	100%	100%	95%
Sponge bowls	100%	100%	100%	86%	68%	83%	100%	71%
Scissors	100%	100%	75%	100%	99%	100%	100%	99%
Needles and Syringes (10-20cc)	100%	100%	100%	100%	94%	100%	100%	95%
Syringes (1ml, 2ml, 5ml, 10ml)	100%	100%	100%	100%	100%	100%	100%	100%
Needles (23-25 gauge)	100%	100%	100%	86%	73%	100%	78%	75%
Suture needles/suture materials	100%	100%	100%	100%	99%	100%	100%	99.5%
Catheter for IV line (16-18)	100%	100%	100%	100%	99%	100%	100%	99%
IV Infusion stand(s)	100%	100%	100%	100%	98%	100%	100%	98%
Urinary catheters	100%	100%	100%	100%	98%	100%	89%	98%
IV cannula 24gauge	100%	100%	100%	100%	74%	100%	100%	78%
Dipstick for protein in urine analysis	100%	100%	100%	95%	88%	83%	100%	89%
Blood sugar/glucose dipsticks	100%	100%	100%	100%	91%	83%	100%	92%
Dipsticks for bacteriuria/ urinary tract infections	100%	67%	100%	95%	83%	83%	100%	85%
Adult ventilator bag and mask	100%	100%	100%	95%	52%	100%	56%	58%
Dressing forceps	100%	100%	100%	97%	94%	83%	100%	94%
Partograph form	100%	100%	100%	100%	100%	100%	100%	100%
Watch or clock with second hand that can be easily seen	100%	100%	100%	89%	87%	100%	89%	88%
Measuring tape	100%	100%	100%	100%	99%	100%	100%	99.5%
Obstetric wheel (for measuring gestational age)	100%	100%	100%	95%	92%	100%	89%	92%
Tubing for oxygen administration	100%	100%	100%	100%	6%	83%	0%	17%
Pulse oximeter	100%	100%	100%	97%	33%	100%	0%	41%
Apnea monitor	75%	0%	75%	32%	6%	67%	0%	10%
HIV Rapid test kit	100%	100%	100%	100%	100%	100%	100%	100%

Table 8.4.3A: Percentage of facilities with items for cervical / perineal repair pack and equipment for other procedures in the maternity area, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=6)	Health posts (n=9)	Total (n=444)
	%	%	%	%	%	%	%	%
Vacuum extraction / forceps delivery								
Vacuum extractor with different size cups	100%	100%	75%	81%	13%	67%	0%	21%
Obstetric forceps, outlet	75%	100%	50%	54%	11%	17%	0%	16%
Obstetric forceps, mid-cavity	50%	100%	75%	41%	6%	17%	0%	11%
Obstetric forceps, breech	75%	100%	75%	46%	6%	17%	0%	11%
Uterine evacuation								
Electric vacuum aspiration machine	100%	100%	100%	84%	24%	100%	11%	32%
Vaginal speculum (Sims)	100%	100%	100%	92%	75%	100%	56%	77%
Sponge (ring) forceps or uterine packing forceps	100%	100%	75%	89%	55%	100%	56%	60%
Dissecting forceps, serrated jaws 250 mm s/s	100%	100%	75%	73%	46%	100%	44%	50%
Towel clip	100%	100%	50%	81%	32%	83%	44%	38%
Ovum forceps, 240mm, S/S	50%	100%	100%	73%	30%	100%	33%	36%
Uterine forceps, 3x4 teeth, curved, S/S	100%	100%	50%	73%	22%	100%	33%	29%
Uterine forceps, 241mm, S/S	100%	100%	75%	78%	18%	83%	33%	26%
Uterine dilators, sizes 13-27 (French)	100%	100%	100%	86%	10%	100%	0%	20%
Sharp uterine curettes, size 0 or 00	100%	100%	25%	76%	6%	83%	0%	14%
Blunt uterine curettes, size 0 or 00	75%	100%	0%	59%	5%	67%	0%	11%
Uterine sound	100%	100%	50%	65%	18%	33%	0%	23%
Manual vacuum aspiration								
Complete manual vacuum aspiration set	100%	100%	100%	89%	38%	67%	0%	43%
Vacuum aspirators/syringes	100%	100%	100%	92%	32%	67%	0%	39%
Silicone lubricant (for lubricating O-ring)	100%	67%	100%	57%	11%	67%	0%	17%
Other oil (for lubricating O-ring)	100%	100%	100%	54%	12%	50%	11%	18%
Flexible cannula, 4 – 6 mm	100%	67%	75%	73%	18%	67%	11%	25%
Flexible cannula, 7-12 mm	100%	67%	75%	68%	18%	67%	22%	24%
Flexible cannula, 14 mm	100%	67%	50%	59%	15%	50%	22%	21%

Table 8.4.5A: Percentage of facilities with items for delivery sets, dressing instrument sets, and gynaecological and craniotomy equipment in the maternity area, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=6)	Health posts (n=9)	Total (n=444)
	%	%	%	%	%	%	%	%
Delivery Set/Pack								
Complete delivery set (%Yes)	100%	100%	100%	97%	100%	100%	100%	99.6%
Median number of delivery set/pack	12	11	7	12	4	8	3	4
Supplies for Delivery								
Disposable latex gloves (short)	100%	100%	100%	97%	99%	100%	89%	99%
Long gloves	100%	100%	100%	95%	64%	83%	56%	68%
Plastic sheeting	100%	100%	100%	97%	83%	100%	67%	84%
Gauze swabs	100%	100%	100%	100%	100%	100%	100%	100%
Cloths or towels for drying baby	100%	100%	100%	100%	97%	100%	100%	97%
Dressing Instrument Set								
Gallipot bowl or jar s/s	100%	100%	100%	97%	76%	83%	67%	78%
Dissecting forceps Lane's 1x2 teeth 140 mm	100%	100%	100%	81%	63%	83%	78%	66%
Needle holder, Mayo hegar's 180 mm s/s	100%	100%	100%	100%	91%	100%	89%	92%
Scissors, sharp point straight 120 mm s/s	100%	100%	100%	97%	86%	100%	89%	88%
Scissors flat s/s curved 180 mm	75%	100%	100%	92%	77%	83%	78%	78%
Sponge (ring) forceps	100%	100%	100%	81%	59%	83%	44%	61%
Artery forceps, mosquito 130 mm straight s/s	100%	100%	100%	78%	54%	67%	44%	57%
Gynecological Equipment								
Vaginal speculum, Sims	100%	100%	100%	95%	74%	100%	67%	76%
Vaginal speculum, Cusco, virgin size 75x17 mm	100%	100%	75%	86%	60%	67%	11%	62%
Cuscos speculum, Cusco, adult sized	100%	100%	100%	86%	69%	83%	11%	70%
Uterine sound, graduated, 305 mm s/s	100%	100%	75%	70%	24%	67%	0%	29%
Tenaculum single tooth/ mutli teeth	100%	100%	75%	78%	40%	67%	56%	45%
Scissors, straight, sharp 145 mm s/s	100%	100%	100%	92%	65%	83%	11%	67%
Craniotomy Equipment*								
Decapitation hook s/s	75%	33%	50%	3%		17%		14%
Craniotomy forceps s/s	75%	33%	25%	14%		17%		19%
Embryotomy scissors	75%	67%	50%	14%		17%		22%
Perforator	75%	0%	50%	8%		17%		16%

[1] For hospitals, the maternity area was likely to be a specific room and these questions were related to the items available in that specific room. Health centers may not have had a specific room devoted to a maternity and these questions were therefore related to whether the facility, in general, had the items available.

* Only hospitals and specialized clinics were included

Table 8.5.1A: Percentage of facilities with equipment and supplies for neonatal care, by type of facility, Rwanda EmONC, 2021

	Teaching Hospital (n=4)	Referral Hospital (n=3)	Provincial Hospital (n=4)	District hospital (n=37)	Health Centre (n=381)	Poly clinic/ Clinic (n=6)	Health posts (n=9)	Total (n=444)
	%	%	%	%	%	%	%	%
Supplies and equipment needed for newborn								
Baby weighing scale	100%	100%	100%	100%	95%	100%	89%	96%
Cord ties / clips	100%	100%	75%	97%	95%	100%	89%	95%
Thermometer for newborn	100%	100%	75%	89%	75%	100%	89%	77%
Caps or hats to prevent heat loss	75%	67%	50%	81%	56%	100%	67%	59%
Towels/blanket or cloth for newborn	100%	67%	100%	81%	75%	100%	67%	76%
Neonatal Resuscitation Pack								
Neonatal resuscitating table	100%	100%	50%	100%	84%	100%	78%	85%
Mucus extractor/simple suction	100%	100%	100%	89%	73%	100%	56%	75%
Neonatal face masks (size 0)	100%	100%	100%	89%	75%	100%	89%	77%
Neonatal face masks (size 1)	100%	100%	100%	95%	77%	100%	78%	79%
Neonatal size ambu (ventilatory bag)	75%	100%	100%	89%	63%	83%	67%	66%
Suction catheter 10, 12 Ch	100%	100%	100%	92%	43%	100%	22%	49%
Infant laryngoscope with spare bulb & batteries	100%	0%	0%	27%	2%	83%	0%	6%
Endotracheal tubes 3.5, 3.0mm	100%	33%	0%	43%	1%	83%	0%	7%
Disposable uncuffed tracheal tubes (sizes 2.0 to 3.5)	100%	0%	0%	30%	1%	67%	0%	5%
Suction apparatus (operated by foot or electric)	100%	67%	75%	92%	30%	100%	11%	37%
Mucus trap for suction	100%	67%	75%	86%	38%	67%	33%	43%
Equipment for resuscitation within reach or a minute away	75%	100%	100%	92%	88%	100%	89%	88%
Decontamination supplies for bag and mask	75%	100%	100%	84%	83%	100%	56%	83%
Small and sick newborns								
Register for sick babies	100%	67%	100%	95%	17%	67%	0%	26%
Daily patient chart	100%	100%	75%	86%	14%	50%	11%	22%
IV fluid (neonatal giving) set/Umbilical catheter	100%	100%	50%	81%	14%	83%	11%	22%
Syringes (0.5, 1.0ml)	100%	100%	75%	78%	56%	100%	22%	58%
Radiant warmer	100%	100%	100%	95%	61%	100%	78%	66%
Incubator	100%	100%	100%	100%	5%	83%	11%	16%
Designated space or beds for KMC	100%	100%	100%	86%	5%	50%	0%	15%
KMC register	75%	100%	75%	89%	4%	33%	0%	13%
Nasogastric feeding tube #4	100%	100%	100%	97%	8%	83%	0%	19%
Cup and spoon for infant feeding	50%	100%	75%	73%	3%	33%	0%	11%
Small Cup for breast milk expression	75%	100%	75%	70%	3%	50%	11%	11%
Icterometer/Bilirubinometer	50%	33%	25%	65%	1%	67%	0%	8%
Fluorescent tubes for phototherapy to treat Jaunice	100%	100%	100%	89%	1%	83%	0%	11%
Average number of incubators available per facility	10	5	5	6	0.1	2	0.1	1

Table 9.1.5A: Percent of caesareans reviewed who were referred from another facility and other selected variables by type of caesarean, infection status and indication, Rwanda EmONC, 2021

	n	%
Woman was referred from another facility		
Yes	127	76.1
No	35	21.0
No information	5	3.0
Time lapse, diagnosis of cesarean to surgery		
30 minutes or less	30	18.0
31 minutes to 1 hour	3	1.8
>1 - 2 hours	16	9.6
>2 - 3 hours	1	0.6
>3 - 5 hours	2	1.2
>5 hours	3	1.8
No information	112	67.1
Days woman was hospitalized		
0 - 3 days	114	68.3
4 - 8 days	39	23.4
9 - 12 days	2	1.2
13+ days	1	0.6
No information	11	6.6
Mean hospital stay (days)	0.14	
Average time in hospital (in days)		
By type of cesarean		
Emergency cesarean	85	54.5
Elective cesarean	64	41.0
No information	7	4.5
By indication		
Breech with footling	12	7.7
Cephalo-pelvic disproportion	1	0.6
Cord prolapse	2	1.3
Failed induction	9	5.8
Failed trial of labor	2	1.3
Failure to progress	7	4.5
Fetal distress	23	14.7
Malpresentation (transverse, oblique, brow)	6	3.8
Maternal distress	1	0.6
Maternal medical disease	2	1.3
Multiple gestation	4	2.6
No information	5	3.2
Obstructed labor	5	3.2
Other (specify by writing in cell)	11	7.1
Placenta abruption	1	0.6
Placenta previa	1	0.6
Previous CS scar	52	33.3
Prolonged labor	6	3.8
Psycho-social / maternal / family request	3	1.9
Severe pre-eclampsia / eclampsia	3	1.9

Table 9.1.6A: Percent distribution of caesareans reviewed according to cadre performing surgery, providing anaesthesia, and type of anaesthesia used, by managing authority Rwanda EmONC, 2021

	All cesareans reviewed	Cesareans reviewed in government/public	Cesareans reviewed in private-for-profit	Cesareans reviewed in private-not-for-profit*
	%	%	%	%
Clinician who performed the surgery				
General surgeon	5%	6%	0%	5%
Obstetrician/gynecologist	14%	11%	43%	0%
General practioner	81%	83%	57%	95%
Clinician who provided the anesthesia				
Anesthesiologist	32%	35%	43%	0%
Anesthetist	62%	60%	43%	100%
Same person who performed the sugery	5%	5%	14%	0%
Other	0%	0%	0%	0%
Type of anesthesia used				
General	2%	2%	0%	5%
Spinal/Epidural	93%	94%	100%	80%
Ketamine only	0%	0%	0%	0%
No information	4%	3%	0%	15%

* Includes NGO, faith-based or mission health facilities

Table 9.2.2A: Percent of reviewed PAC cases in which status on admission and after admission was recorded, by facility type and managing authority, Rwanda EmONC, 2021

	Number of PAC cases	Hospitals	Health Centers/ Clinics*	Public/ government	Private-for-profit	Private-not-for-profit**
	(n=336)	(n=135)	(n=201)	(n=277)	(n=18)	(n=41)
	%	%	%	%	%	%
Woman referred (% yes)	47	93	15	49	0	51
Vital signs checked on admission (% yes)						
Pretreatment blood pressure (systolic : diastolic) - % recorded	69	87	57	70	61	71
Pretreatment pulse (beats per minute – BPM) - % recorded	67	87	54	67	67	71
Body temperature - % recorded	71	89	58	71	67	71
Bleeding	n=336	n=135	n=201	n=277	n=18	n=41
Severe	5	9	2	5	6	5
Moderate	54	61	49	58	39	32
Light	7	12	4	5	22	12
No information	35	19	45	32	33	51
Estimate of blood loss - Average (ml)	232	248	200	226	200	275
Infection	2	2	1	1	6	5
Signs of injury/trauma to the:	n=336	n=135	n=201	n=277	n=18	n=41
a. Cervix	1	1	1	1	0	0
b. Vaginal area	1	1	1	0	17	0
c. Uterine perforation	0	0	0	0	0	0
Signs of / reported use of mifepristone and/or misoprostol to induce abortion	10	16	6	10	11	12
Anemia	2	4	1	1	6	7
Acute renal failure	0	0	0	0	0	0
Hypovolemic shock	1	1	2	1	6	0
Disseminated intravascular coagulation	0	0	0	0	0	0
Assessment of type of abortion						
Unsafe induced abortion	5	5	4	4	0	10
Spontaneous abortion	62	83	48	63	61	59
Unable to determine	4	3	4	3	6	7
No information	29	9	43	30	33	24
Vital signs checked after admission (% yes)						
Blood pressure	69	87	57	70	61	71
Pulse	67	87	54	67	67	71
Body temperature	71	89	58	71	67	71
Bleeding	65	82	53	64	61	73

* Includes ...
** Includes NGO, faith-based or mission health facilities

Table 9.2.4A Percent of reviewed PAC cases in which modes of treatment were recorded, by facility type and managing authority, Rwanda EmONC, 2021

	Number of PAC cases	Hospitals	Health Centers/ clinics	Public/ government	Private-for-profit	Private-not-for-profit*
	(n=336)	(n=135)	(n=201)	(n=277)	(n=18)	(n=44)
	%	%	%	%	%	%
Treatment (% recorded yes)						
IV set up and fluids given	64	80	53	64	61	61
Ultrasound performed	37	77	9	35	67	32
Hemoglobin or hematocrit recorded	27	53	10	26	44	29
Blood transfusion	4	9	1	4	0	5
Fluid intake/output chart documented	24	41	12	26	6	12
Antibiotics provided (IM, IV or oral) for prophylaxis	63	70	58	66	39	54
Antibiotics provided for therapeutic reasons	54	61	49	56	50	39
Duration of stay prior to uterine evacuation recorded	96	94	98	97	100	93
Mifepristone + misoprostol given (for IUFD)	7	11	4	7	11	5
Only misoprostol given	45	76	24	47	44	32
Manual vacuum aspiration performed	30	41	22	28	50	34
Electric vacuum aspiration performed	5	7	3	4	17	2
Dilatation and curettage (D&C)	0	0	1	0	6	0
Dilatation and evacuation (D&E)	0	1	0	0	0	0
Laparotomy	0	0	0	0	0	0
Analgesic/anesthesia given						
a. General	3	3	3	2	28	2
b. Local/cervical block	15	25	8	16	22	7
c. Oral analgesic for pain management, e.g. NSAIDs	63	69	58	65	39	54

* Includes NGO, faith-based or mission health facilities

Table 9.2.5A: Percent of reviewed PAC cases in which predischarge status were recorded, by facility type and managing authority, Rwanda EmONC, 2021

	Number of PAC cases	Hospitals	Health Centers/ clinics	Public/ government	Private-for-profit	Private- not-for-profit*
	(n=336)	(n=135)	(n=201)	(n=277)	(n=18)	(n=44)
	%	%	%	%	%	%
Predischarge status (% recorded yes)						
Contraceptive counseling provided	65	69	62	65	39	73
Referred elsewhere for contraceptive counselling and provision	18	20	16	16	17	32
Discharged with contraceptive method of choice	26	22	28	30	6	5
Type of method provided						
Oral contraceptives	6	4	7	7	0	0
Injection	5	3	6	6	0	0
IUD	0	0	1	0	0	0
Condoms	2	1	3	2	6	5
Implant	8	8	8	10	0	0
Other	3	1	4	3	17	0
Not method /no information	75	83	70	72	78	95
Performed STI or HIV test	69	83	59	68	61	76
Screened for gender-based violence	9	12	6	8	0	15
Screened for cervical cancer	14	15	13	14	0	17
Duration of hospital stay (Average number of nights)	1	2	1	1	1	2
Survival status						
Alive	89	94	86	91	72	85
Died	0	0	0	0	0	0
No information	11	6	14	9	28	15

* Includes NGO, faith-based or mission health facilities

Table 10.1.2A: Percent distribution of facilities according to distance to nearest facility that provided obstetric surgery, by district and location, Rwanda EmONC, 2021

	Hospitals		Health centres/clinics[1]					
	Number of hospitals that provided surgery in the last 3 months	Number of hospitals that did not provide surgery in the last 3 months	Number of health centers/ clinics that provided surgery in the last 3 months	Number of health centers/clinics that did not provide surgery in the last 3 months	Among facilities that did not provide surgery, distance to nearest facility that provided surgery in the last 3 months			
					≤25 kms	26-50 kms	>50 kms	Don't know/ missing
National	48	0	8	388	54	28	6	11
District								
Bugesera	1	0	0	16	25	63	13	0
Burera	1	0	0	15	0	0	0	100
Gakenke	2	0	0	7	57	43	0	0
Gasabo	4	0	1	10	60	30	0	10
Gatsibo	2	0	0	18	67	22	0	11
Gicumbi	1	0	1	14	21	43	0	36
Gisagara	2	0	1	13	54	23	0	23
Huye	2	0	0	10	80	20	0	0
Kamonyi	1	0	0	9	44	44	0	11
Karongi	3	0	0	11	64	27	0	9
Kayonza	2	0	0	12	50	33	0	17
Kicukiro	2	0	1	9	67	22	0	11
Kirehe	1	0	0	16	44	50	6	0
Muhanga	1	0	0	12	67	0	17	17
Musanze	1	0	0	13	69	23	8	0
Ngoma	1	0	0	12	58	33	8	0
Ngororero	2	0	0	13	54	23	8	15
Nyabihu	1	0	1	13	54	23	23	0
Nyagatare	1	0	0	19	63	32	5	0
Nyamagabe	2	0	0	14	64	7	29	0
Nyamasheke	2	0	0	16	69	25	6	0
Nyanza	1	0	0	12	25	50	0	25
Nyarugenge	2	0	2	7	71	0	0	29
Nyaruguru	1	0	0	14	64	36	0	0
Rubavu	1	0	1	13	69	15	8	8
Ruhango	2	0	0	11	91	9	0	0
Rulindo	2	0	0	14	79	21	0	0
Rusizi	2	0	0	17	41	35	24	0
Rutsiro	1	0	0	12	33	50	17	0
Rwamagana	1	0	0	16	56	31	6	6
Location								
Urban	24	0	4	71	76	11	0	13
Rural	24	0	4	317	50	32	8	10

Table 10.1.3A: Percent distribution of facilities according to time to nearest facility that provided obstetric surgery, by district and location, Rwanda EmONC, 2021

	Hospitals		Health centres/clinics[1]					
	Number of facilities that provided surgery in the last 3 months	Number of hospitals that did not provide surgery in the last 3 months	Number of facilities that provided surgery in the last 3 months	Number of health centers/ clinics that did not provide surgery in the last 3 months	Among facilities that did not provide surgery, distance to nearest facility that provided surgery in the last 3 months			
					<30 min	30-59 min	≥1 hour	Don't know/ missing
National	48	0	8	388	31	35	20	14
Region								
Bugesera	1	0	0	16	25	56	19	0
Burera	1	0	0	15	27	0	0	73
Gakenke	2	0	0	7	29	43	14	14
Gasabo	4	0	1	10	30	50	10	10
Gatsibo	2	0	0	18	39	50	6	6
Gicumbi	1	0	1	14	14	36	21	29
Gisagara	2	0	1	13	38	38	15	8
Huye	2	0	0	10	50	50	0	0
Kamonyi	1	0	0	9	11	44	33	11
Karongi	3	0	0	11	36	18	36	9
Kayonza	2	0	0	12	25	58	0	17
Kicukiro	2	0	1	9	33	33	0	33
Kirehe	1	0	0	16	13	31	50	6
Muhanga	1	0	0	12	42	8	8	42
Musanze	1	0	0	13	69	31	0	0
Ngoma	1	0	0	12	25	50	25	0
Ngororero	2	0	0	13	38	31	15	15
Nyabihu	1	0	1	13	31	38	31	0
Nyagatare	1	0	0	19	53	37	11	0
Nyamagabe	2	0	0	14	36	29	36	0
Nyamasheke	2	0	0	16	38	13	50	0
Nyanza	1	0	0	12	8	50	8	33
Nyarugenge	2	0	2	7	29	29	14	29
Nyaruguru	1	0	0	14	36	36	29	0
Rubavu	1	0	1	13	15	31	38	15
Ruhango	2	0	0	11	9	18	18	55
Rulindo	2	0	0	14	29	64	7	0
Rusizi	2	0	0	17	18	12	35	35
Rutsiro	1	0	0	12	17	33	50	0
Rwamagana	1	0	0	16	50	31	13	6
Location								
Urban	24	0	4	71	54	21	7	18
Rural	24	0		317	26	38	23	13

[1] Includes Polyclinic and health posts

Table 10.1.4A: Percent distribution of facilities according to distance to nearest facility that has special newborn care unit, by district and location, Rwanda EmONC, 2021

	Hospitals			Health centres/clinics[1]		
	Number of facilities with a special newborn care unit	Number of facilities that did not have special newborn care unit	Among facilities that did not have special newborn care unit, distance to nearest facility with special newborn care unit	Number of facilities with a special newborn care unit	Number of facilities that did not have special newborn care unit	Among facilities that did not have special newborn care unit, distance to nearest facility with special newborn care unit
			≤25 kms			≤25 kms
National	33	15	100%	2	394	100%
Region						
Bugesera	1	0		0	16	100%
Burera	1	0		0	15	100%
Gakenke	1	1	100%	0	7	100%
Gasabo	4	0		1	10	100%
Gatsibo	2	0		0	18	100%
Gicumbi	1	0		1	14	100%
Gisagara	2	0		0	14	100%
Huye	2	0		0	10	100%
Kamonyi	1	0		0	9	100%
Karongi	1	2	100%	0	11	100%
Kayonza	2	0		0	12	100%
Kicukiro	2	0		0	10	100%
Kirehe	1	0		0	16	100%
Muhanga	0	1	100%	0	12	100%
Musanze	1	0		0	13	100%
Ngoma	1	0		0	12	100%
Ngororero	1	1	100%	0	13	100%
Nyabihu	0	1	100%	0	14	100%
Nyagatare	0	1	100%	0	19	100%
Nyamagabe	0	2	100%	0	14	100%
Nyamasheke	2	0		0	16	100%
Nyanza	1	0		0	12	100%
Nyarugenge	2	0		0	9	100%
Nyaruguru	1	0		0	14	100%
Rubavu	0	1	100%	0	14	100%
Ruhango	1	1	100%	0	11	100%
Rulindo	1	1	100%	0	14	100%
Rusizi	0	2	100%	0	17	100%
Rutsiro	0	1	100%	0	12	100%
Rwamagana	1	0		0	16	100%
Location						
Urban	19	5	100%	1	74	100%
Rural	14	10	100%	1	320	100%

[1] Includes Polyclinic and health posts

Table 10.1.5A: Percent distribution of facilities according to time to nearest facility that had special newborn care unit, by district and location, Rwanda EmONC, 2021

	Hospitals					Health centres/clinics[1]					
	Number of facilities with a special newborn care unit	Number of facilities that did not have special newborn care unit	Among facilities that did not have special newborn care unit, time to nearest facility with special newborn care unit			Number of facilities with a special newborn care unit	Number of facilities that did not have special newborn care unit	Among facilities that did not have special newborn care unit, time to nearest facility with special newborn care unit			
			<30 min	30-59 min	Don't know/ missing			<30 min	30-59 min	≥1 hour	Don't know/ missing
National	33	15	87	7	7	2	394	31	35	21	14
Region											
Bugesera	1	0				0	16	25	56	19	0
Burera	1	0				0	15	27	0	0	73
Gakenke	1	1	100	0	0	0	7	29	57	14	0
Gasabo	4	0				1	10	30	50	10	10
Gatsibo	2	0				0	18	39	50	6	6
Gicumbi	1	0				1	14	14	36	21	29
Gisagara	2	0				0	14	36	43	14	7
Huye	2	0				0	10	50	50	0	0
Kamonyi	1	0				0	9	11	44	33	11
Karongi	1	2	100	0	0	0	11	36	18	36	9
Kayonza	2	0				0	12	25	58	0	17
Kicukiro	2	0				0	10	30	30	0	40
Kirehe	1	0				0	16	13	31	56	0
Muhanga	0	1	100	0	0	0	12	33	8	8	50
Musanze	1	0				0	13	69	31	0	0
Ngoma	1	0				0	12	25	50	25	0
Ngororero	1	1	100	0	0	0	13	38	31	15	15
Nyabihu	0	1	100	0	0	0	14	29	36	36	0
Nyagatare	0	1	100	0	0	0	19	53	37	11	0
Nyamagabe	0	2	100	0	0	0	14	36	29	36	0
Nyamasheke	2	0				0	16	31	19	50	0
Nyanza	1	0				0	12	8	50	8	33
Nyarugenge	2	0				0	9	44	11	11	33
Nyaruguru	1	0				0	14	29	43	29	0
Rubavu	0	1	100	0	0	0	14	21	29	36	14
Ruhango	1	1	0	0	100	0	11	18	18	18	45
Rulindo	1	1	0	100	0	0	14	29	64	7	0
Rusizi	0	2	100	0	0	0	17	18	12	35	35
Rutsiro	0	1	100	0	0	0	12	17	33	50	0
Rwamagana	1	0				0	16	50	31	13	6
Location											
Urban	19	5	100	0	0	1	74	54	19	7	20
Rural	14	10	80	10	10	1	320	25	38	24	13

[1] Includes Polyclinic and health posts

Table 10.2.2A: Percent distribution of facilities according to strength of cell phone signal at facility, and among facilities with a signal, percent with staff with cell phone, that used their cell phone for work, and that have a policy to reimburse costs, by district, facility type, managing authority, and location, Rwanda EmONC, 2021

	Number of facilities	Cell phone signal				Among facilities with cell phone signal, percent where:
		Very dependable signal	Somewhat dependable signal	Not very dependable signal	No cell phone signal	Facility has policy to reimburse staff for use of air time for work[1]
National	444	52	17	11	20	48
District						
Bugesera	17	71	6	18	6	43
Burera	16	88	13	0	0	0
Gakenke	9	100	0	0	0	11
Gasabo	15	33	13	47	7	50
Gatsibo	20	5	25	20	50	17
Gicumbi	16	94	6	0	0	40
Gisagara	16	75	0	25	0	20
Huye	12	75	0	17	8	57
Kamonyi	10	20	20	60	0	25
Karongi	14	21	7	0	71	67
Kayonza	14	14	14	7	64	25
Kicukiro	12	50	17	25	8	83
Kirehe	17	76	18	6	0	31
Muhanga	13	85	15	0	0	71
Musanze	14	100	0	0	0	15
Ngoma	13	69	15	0	15	45
Ngororero	15	33	60	0	7	100
Nyabihu	15	13	87	0	0	67
Nyagatare	20	15	15	30	40	50
Nyamagabe	16	56	0	0	44	88
Nyamasheke	18	0	39	0	61	100
Nyanza	13	77	0	0	23	100
Nyarugenge	11	64	18	9	9	38
Nyaruguru	15	87	0	0	13	75
Rubavu	15	20	47	33	0	90
Ruhango	13	77	0	15	8	83
Rulindo	16	75	25	0	0	7
Rusizi	19	58	11	0	32	71
Rutsiro	13	0	8	0	92	100
Rwamagana	17	53	12	18	18	20
Facility type						
Teaching hospital	4	75	0	25	0	33
Referral hospital	3	100	0	0	0	33
Provincial hospital	4	75	25	0	0	33
District Hospital	37	49	19	16	16	57
Health Centre	381	53	16	10	21	47
Poly clinic/Clinic	6	0	33	67	0	50
Health posts	9	22	44	0	33	60
Managing authority						
Public/government	366	54	18	11	18	49
Private-for-profit	10	20	20	60	0	33
Private-not-for-profit[2]	68	49	12	4	35	45
Location						
Urban	99	55	14	18	13	57
Rural	345	51	18	9	22	45

[1] Calculated only among those facilities reporting that staff use their own airtime.
[2] Includes NGO, faith-based, or mission facilities.

Table 10.3.1A: Percentage of facilities with functional transport, by district, facility type, and managing authority, Rwanda EmONC, 2021

	Total number of facilities	Motor vehicle ambulance		Other types of motor vehicle (non-ambulance)		Stretcher	Other non-motorized
		Available & functional	Available Needs repair	Available Functional	Available Needs repair	Available Functional	Available Functional
	n	%	%	%	%	%	%
National	444	36	15	9	3	51	2
District							
Bugesera	17	47	6	6	0	53	6
Burera	16	25	19	13	13	50	0
Gakenke	9	22	22	0	0	44	0
Gasabo	15	33	7	13	0	40	7
Gatsibo	20	25	10	0	0	50	0
Gicumbi	16	25	25	19	6	88	6
Gisagara	16	63	25	6	0	69	0
Huye	12	58	33	17	8	58	8
Kamonyi	10	40	10	30	0	50	30
Karongi	14	36	21	29	21	36	0
Kayonza	14	29	0	14	14	43	0
Kicukiro	12	50	8	0	0	33	0
Kirehe	17	47	29	12	6	71	0
Muhanga	13	38	8	15	8	15	0
Musanze	14	29	7	7	7	50	0
Ngoma	13	62	54	0	0	46	0
Ngororero	15	27	13	7	0	93	0
Nyabihu	15	53	0	7	0	60	0
Nyagatare	20	50	10	10	5	35	0
Nyamagabe	16	31	6	6	0	44	0
Nyamasheke	18	22	11	6	0	56	0
Nyanza	13	38	8	23	0	31	0
Nyarugenge	11	18	9	0	0	73	0
Nyaruguru	15	40	13	13	7	60	0
Rubavu	15	40	0	13	0	60	0
Ruhango	13	38	38	15	8	15	0
Rulindo	16	25	13	0	0	63	0
Rusizi	19	16	11	5	0	42	5
Rutsiro	13	23	8	0	0	23	0
Rwamagana	17	41	18	6	0	59	6
Facility Type							
Teaching hospital	4	100	75	25	0	75	0
Referral hospital	3	100	67	33	33	100	0
Provincial hospital	4	100	100	0	0	75	0
District Hospital	37	92	57	30	11	54	3
Health Centre	381	29	9	7	3	50	2
Poly clinic/Clinic	6	50	0	17	0	67	0
Health posts	9	22	0	11	0	22	11
Managing Authority							
Government/Public	366	34	14	9	3	52	2
Private, For Profit	10	50	10	30	0	60	10
Private-For -Not-Profit*	68	46	19	9	4	43	1
Location							
Urban	99	40	15	12	5	54	2
Rural	345	35	14	9	3	50	2

* Includes NGO and faith-based or mission health facilities

1 No electricity = no grid and no other source of electricity

Table 10.3.3A: Percent of facilities with their own functional motorized transport that had access to resources for fuel and maintenance, and reason for not having resources, by district, facility type, managing authority, and location, Rwanda EmONC, 2021

	Number of facilities with their own functional motorized transport[1]	Facility had routine preventive maintenance schedule	Sufficient fuel available today to transport women and newborns if needed	Sufficient funds available today if maintenance needed	Who is reposible for ensuring vehicle(s) are in working order?				
					Facility director	Facility administrator	District health office	Other personnel	No one
National	180	84	82	73	31	48	2	12	2
District									
Bugesera	9	78	89	89	33	44	0	0	22
Burera	5	60	60	0	40	60	0	0	0
Gakenke	2	100	100	100	0	100	0	0	0
Gasabo	6	67	83	50	50	50	0	0	0
Gatsibo	5	80	100	100	0	40	0	60	0
Gicumbi	4	100	100	75	0	100	0	0	0
Gisagara	11	91	64	91	36	27	0	36	0
Huye	8	75	88	75	25	50	0	25	0
Kamonyi	5	60	80	80	40	40	0	0	0
Karongi	6	83	100	100	17	67	0	17	0
Kayonza	6	100	100	100	17	83	0	0	0
Kicukiro	6	67	67	100	0	67	0	17	17
Kirehe	8	100	100	75	75	13	0	13	0
Muhanga	7	57	57	29	43	14	0	0	0
Musanze	5	100	60	60	0	100	0	0	0
Ngoma	8	100	100	88	63	38	0	0	0
Ngororero	4	100	100	50	25	50	25	0	0
Nyabihu	8	88	63	63	0	88	0	0	0
Nyagatare	11	91	100	73	27	45	9	18	0
Nyamagabe	5	100	80	80	40	0	0	60	0
Nyamasheke	5	60	60	40	40	40	0	0	0
Nyanza	7	100	86	100	71	29	0	0	0
Nyarugenge	2	50	50	50	0	100	0	0	0
Nyaruguru	7	86	57	86	29	43	0	14	0
Rubavu	6	100	83	100	0	67	0	17	17
Ruhango	5	80	80	60	80	0	0	0	0
Rulindo	4	50	50	50	0	50	0	0	0
Rusizi	4	100	100	25	25	50	25	0	0
Rutsiro	3	100	100	0	67	33	0	0	0
Rwamagana	8	88	88	88	25	50	0	25	0
Facility type									
Teaching hospital	4	100	100	75	0	50	0	50	0
Referral hospital	3	100	100	100	0	100	0	0	0
Provincial hospital	4	75	75	75	0	75	0	0	0
District Hospital	36	89	89	81	14	72	0	11	3
Health Centre	127	84	80	70	39	39	2	12	2
Poly clinic/Clinic	3	67	67	100	33	67	0	0	0
Health posts	3	33	33	33	0	33	0	0	33
Managing authority									
Public/government	140	86	83	76	28	52	1	12	3
Private-for-profit	6	67	67	67	17	67	0	17	0
Private-not-for-profit[3]	34	82	79	59	47	26	6	9	0
Location									
Urban	44	80	82	82	23	57	0	11	7
Rural	136	86	82	70	34	45	2	12	1

Appendix B: Minimum required drugs, equipment, and supplies for determining readiness to perform the signal functions

Signal Function	Minimum Required Drugs, Equipment, and Supplies
Antibiotics	Hospitals/MCH specialty centres: Ampicillin AND (metronidazole OR clindamycin) AND gentamicin -OR- Ceftriaxone AND (clindamycin OR metronidazole) AND gentamicin NOTE: Chloramphenicol was not asked about in the questionnaire, so a third possible combination is not included here. Health centres/clinics: Ampicillin AND gentamicin -OR- Ceftriaxone AND gentamicin NOTE: Ceftazidime was not asked about in the questionnaire, so a third possible combination is not included here.
Oxytocics	Oxytocin-OR-Ergometrine (injection)
Anticonvulsants	Magnesium sulphate (any concentration)-OR-Diazepam
Manual removal of placenta	Long sleeve gloves (elbow length OR disposal exam gloves)
Removal of retained products	MVA/EVA equipment: [Complete MVA kit OR (electric aspirator AND dilators) OR (vacuum aspirator AND lubricant AND various sized cannulae)] AND local anaesthesia -OR-D&C equipment: (Sharp curettes OR blunt curettes) AND uterine dilators AND local anaesthesia
Assisted vaginal delivery	Functioning vacuum extractor AND different size cups-OR-Forceps
Resuscitate newborn with bag and mask	Ambu bag and masks (0 or 1) AND suction equipment (mucus extractor OR suction aspirator OR mucus trap)
Obstetric surgery/ caesarean	Functioning anaesthesia machine AND (halothane OR ketamine) -OR- Regional anaesthesia (ligno/lido 4% OR bipuvicaine) -AND- Functioning oxygen cylinders AND operating table AND functioning adjustable light
Blood transfusion	All facilities: Reagents for blood typing/cross matching AND functioning refrigerator for blood bank Facilities that indicated their source of blood is not the central blood supply (therefore it must be direct donation or a facility blood bank): Items listed above AND empty blood bags AND microscope AND blood tests for Hep B, Hep C, HIV, and syphilis
Antibiotics for preterm premature rupture of membranes (pPROM)	Ampicillin (injection) -OR- Erythromycin AND (ampicillin OR gentamicin)
Antibiotics for neonatal infections	Gentamicin AND (ampicillin (injection) OR benzylpenicillin) AND amoxicillin (oral)
Kangaroo mother care (KMC)	KMC guidelines AND bed for KMC (designated for KMC OR for postpartum recovery)
Antenatal corticosteroids	Betamethasone -OR-Dexamethasone
Administer oxygen to newborns	Oxygen source (in maternity OR neonatal corner)
Administer IV fluids to newborns	IV giving set for newborn OR IV infusion stand -AND-Syringes (0.5/1.0) AND IV cannula (24 gauge) AND IV fluid (normal saline)

Sources:

1. World Health Organization (WHO). 2010. Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies. World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland (Tel.: +41 22 791 3264; fax: +41 22 791 4857; e-mail: bookorders@who.int). ISBN 978 92 4 156405 2

2. WHO, UNFPA, UNICEF, AMDD. Monitoring emergency obstetric care: a handbook. Geneva: World Health Organization; 2009

3. Minsitry of Health (MoH). July 2015. Essential Packages of Health Services. Kigali, Rwanda.

4. Minsitry of Health (MoH). February 2019. Service Packages for Upgraded Health Centers. Kigali, Rwanda.

Appendix C. List of data collectors

List of data collectors and supervisors

#	Supervisors	#	Data Collectors
1	Uwera Eufrance	1	Nirere Alice
2	Niyonkuru Godefroid	2	Ingabire Vestine
3	Ndayizeye Eric	3	Mutesi Yvonne
4	Ishimwe Alpha	4	Kiraaka Fred
		5	Kubwimana Diane
		6	Nyirantama Donathile
		7	Niyomuhire Diane
		8	Esther Uwizeye
		9	Ganumuhoza Rachel
		10	Niyomahirwe Julienne
		11	Umuhoza Chantal
		12	Uwimana Clarisse
		13	Niyokwizerwa Clemence
		14	Muronda Shalfa
		15	Kansime Yvonne
		16	Benegusenga Francine
		17	Mukamazimpaka Vivine
		18	Nsengiyumva Martin
		19	Muhirwa Samuel
		20	Nyiragasigwa Joyce
		21	Manishimwe Zawadi
		22	Mukansabiyumva Devotha
		23	Niyomugabo Patrick
		24	Imanishimwe Alphonsine
		25	Gasana Ingabire Vanny
		26	Nyirahavugimana Chesie
		27	Haganimana Jerome
		28	Niyomwungeri Samuel
		29	Habimana Patrick
		30	Ineza Yvette
		31	Ngororano Samuel
		32	Hafashimana Oreste
		33	Ingabire Claudine
		34	Uwizeye Samuel
		35	Tuyizere Simon Bertrand
		36	Uwamariya Jeannette
		37	Itangishaka Fabrice
		38	Habimana Jean De Dieu
		39	Grace Uwacu Buntu Hirwa

Appendix D. List of facilities surveyed

#	Province	District	Sub-District	Health facility	Type of health facility
1	East	Bugesera	Nyamata	Batima (Mbuganzeli) HP	Health Post
2	East	Bugesera	Nyamata	Gakurazo CS	Health Centre
3	East	Bugesera	Nyamata	Gashora CS	Health Centre
4	East	Bugesera	Nyamata	Gihinga CS	Health Centre
5	East	Bugesera	Nyamata	Juru CS	Health Centre
6	East	Bugesera	Nyamata	Kamabuye CS	Health Centre
7	East	Bugesera	Nyamata	Mareba CS	Health Centre
8	East	Bugesera	Nyamata	Mayange (bugesera) CS	Health Centre
9	East	Bugesera	Nyamata	Mwogo CS	Health Centre
10	East	Bugesera	Nyamata	Ngeruka CS	Health Centre
11	East	Bugesera	Nyamata	Ntarama CS	Health Centre
12	East	Bugesera	Nyamata	Nyamata CS	Health Centre
13	East	Bugesera	Nyamata	Nyamata DH	District Hospital
14	East	Bugesera	Nyamata	Nyarugenge CS	Health Centre
15	East	Bugesera	Nyamata	Nzangwa CS	Health Centre
16	East	Bugesera	Nyamata	Rilima CS	Health Centre
17	East	Bugesera	Nyamata	Ruhuha CS	Health Centre
18	East	Gatsibo	Kiziguro	Bugarura CS	Health Centre
19	East	Gatsibo	Ngarama	Camp Nyabiheke CS	Health Centre
20	East	Gatsibo	Kiziguro	Gakenke CS	Health Centre
21	East	Gatsibo	Kiziguro	Gasange CS	Health Centre
22	East	Gatsibo	Kiziguro	Gitoki CS	Health Centre
23	East	Gatsibo	Ngarama	Gituza CS	Health Centre
24	East	Gatsibo	Kiziguro	Humure CS	Health Centre
25	East	Gatsibo	Kiziguro	Kabarore CS	Health Centre
26	East	Gatsibo	Ngarama	Kageyo (gatsibo) CS	Health Centre
27	East	Gatsibo	Kiziguro	Kibondo CS	Health Centre
28	East	Gatsibo	Kiziguro	Kiziguro (gatsibo) CS	Health Centre
29	East	Gatsibo	Kiziguro	Kiziguro DH	District Hospital
30	East	Gatsibo	Kiziguro	Muhura CS	Health Centre
31	East	Gatsibo	Ngarama	Ngarama CS	Health Centre
32	East	Gatsibo	Ngarama	Ngarama DH	District Hospital
33	East	Gatsibo	Ngarama	Nyagahanga CS	Health Centre
34	East	Gatsibo	Ngarama	Nyagihanga CS	Health Centre
35	East	Gatsibo	Kiziguro	Rugarama (gatsibo) CS	Health Centre
36	East	Gatsibo	Kiziguro	Rwembogo CS	Health Centre
37	East	Gatsibo	Kiziguro	Rwimitereri CS	Health Centre
38	East	Kayonza	Gahini	Buhabwa CS	Health Centre
39	East	Kayonza	Rwinkwavu	Cyarubare CS	Health Centre
40	East	Kayonza	Gahini	Gahini CS	Health Centre
41	East	Kayonza	Gahini	Gahini DH	District Hospital
42	East	Kayonza	Rwinkwavu	Kabarondo (kayonza) CS	Health Centre
43	East	Kayonza	Gahini	Mukarange CS	Health Centre
44	East	Kayonza	Rwinkwavu	Ndego CS	Health Centre

45	East	Kayonza	Gahini	Nyakabungo CS	Health Centre
46	East	Kayonza	Rwinkwavu	Nyamirama CS	Health Centre
47	East	Kayonza	Gahini	Rukara CS	Health Centre
48	East	Kayonza	Rwinkwavu	Ruramira CS	Health Centre
49	East	Kayonza	Rwinkwavu	Rwinkwavu CS	Health Centre
50	East	Kayonza	Rwinkwavu	Rwinkwavu DH	District Hospital
51	East	Kayonza	Gahini	Ryamanyoni CS	Health Centre
52	East	Kirehe	Kirehe	Bukora CS	Health Centre
53	East	Kirehe	Kirehe	Gahara CS	Health Centre
54	East	Kirehe	Kirehe	Gashongora CS	Health Centre
55	East	Kirehe	Kirehe	Kabuye (kirehe) CS	Health Centre
56	East	Kirehe	Kirehe	Kigarama CS	Health Centre
57	East	Kirehe	Kirehe	Kirehe CS	Health Centre
58	East	Kirehe	Kirehe	Kirehe DH	District Hospital
59	East	Kirehe	Kirehe	Mahama CS	Health Centre
60	East	Kirehe	Kirehe	Mahama Refugee Camp CS	Health Centre
61	East	Kirehe	Kirehe	Mahama Refugee Camp II CS	Health Centre
62	East	Kirehe	Kirehe	Mulindi (kirehe) CS	Health Centre
63	East	Kirehe	Kirehe	Musaza CS	Health Centre
64	East	Kirehe	Kirehe	Mushikiri CS	Health Centre
65	East	Kirehe	Kirehe	Nasho CS	Health Centre
66	East	Kirehe	Kirehe	Nyarubuye (kirehe) CS	Health Centre
67	East	Kirehe	Kirehe	Rusumo CS	Health Centre
68	East	Kirehe	Kirehe	Rwantonde CS	Health Centre
69	East	Ngoma	Kibungo	Gituku CS	Health Centre
70	East	Ngoma	Kibungo	Jarama CS	Health Centre
71	East	Ngoma	Kibungo	Kibungo CS	Health Centre
72	East	Ngoma	Kibungo	Kibungo RH	Regional Hospital
73	East	Ngoma	Kibungo	Kirwa CS	Health Centre
74	East	Ngoma	Kibungo	Mutenderi CS	Health Centre
75	East	Ngoma	Kibungo	Nyange CS	Health Centre
76	East	Ngoma	Kibungo	Remera (Ngoma) CS	Health Centre
77	East	Ngoma	Kibungo	Rukira CS	Health Centre
78	East	Ngoma	Kibungo	Rukoma Sake CS	Health Centre
79	East	Ngoma	Kibungo	Rukumberi CS	Health Centre
80	East	Ngoma	Kibungo	Sangaza CS	Health Centre
81	East	Ngoma	Kibungo	Zaza CS	Health Centre
82	East	Nyagatare	Nyagatare	Bugaragara CS	Health Centre
83	East	Nyagatare	Nyagatare	Cyabayaga CS	Health Centre
84	East	Nyagatare	Gatunda	Cyondo CS	Health Centre
85	East	Nyagatare	Gatunda	Kabuga (karama Nyagatare) CS	Health Centre
86	East	Nyagatare	Nyagatare	Karangazi CS	Health Centre
87	East	Nyagatare	Nyagatare	Katabagemu CS	Health Centre
88	East	Nyagatare	Nyagatare	Matimba CS	Health Centre
89	East	Nyagatare	Gatunda	Mimuri CS	Health Centre
90	East	Nyagatare	Gatunda	Muhambo CS	Health Centre

91	East	Nyagatare	Nyagatare	Ndama (nyagatare) CS	Health Centre
92	East	Nyagatare	Nyagatare	Ntoma CS	Health Centre
93	East	Nyagatare	Gatunda	Nyagahita CS	Health Centre
94	East	Nyagatare	Nyagatare	Nyagatare CS	Health Centre
95	East	Nyagatare	Nyagatare	Nyagatare DH	District Hospital
96	East	Nyagatare	Nyagatare	Nyakigando (Nyagatare) CS	Health Centre
97	East	Nyagatare	Gatunda	Nyarurema CS	Health Centre
98	East	Nyagatare	Nyagatare	Rukomo CS	Health Centre
99	East	Nyagatare	Nyagatare	Rurenge CS	Health Centre
100	East	Nyagatare	Nyagatare	Rwempasha CS	Health Centre
101	East	Nyagatare	Nyagatare	Tabagwe CS	Health Centre
102	East	Rwamagana	Rwamagana	Avega Rwamagana CS	Health Centre
103	East	Rwamagana	Rwamagana	Fumbwe PS	Health Post
104	East	Rwamagana	Rwamagana	Gahengeri CS	Health Centre
105	East	Rwamagana	Rwamagana	Karenge CS	Health Centre
106	East	Rwamagana	Rwamagana	Munyaga CS	Health Centre
107	East	Rwamagana	Rwamagana	Munyiginya CS	Health Centre
108	East	Rwamagana	Rwamagana	Murehe HP	Health Post
109	East	Rwamagana	Rwamagana	Musha (rwamagana) CS	Health Centre
110	East	Rwamagana	Rwamagana	Muyumbu CS	Health Centre
111	East	Rwamagana	Rwamagana	NTUNGA HP	Health Post
112	East	Rwamagana	Rwamagana	Nyagasambu CS	Health Centre
113	East	Rwamagana	Rwamagana	Nyakaliro CS	Health Centre
114	East	Rwamagana	Rwamagana	Nzige CS	Health Centre
115	East	Rwamagana	Rwamagana	Rubona (rwamagana) CS	Health Centre
116	East	Rwamagana	Rwamagana	Ruhunda CS	Health Centre
117	East	Rwamagana	Rwamagana	Rwamagana CS	Health Centre
118	East	Rwamagana	Rwamagana	Rwamagana PH	Provincial Hospital
119	Kigali City	Gasabo	Kibagabaga	Bumbogo (ex-Gikomero I) CS	Health Centre
120	Kigali City	Gasabo	Kibagabaga	Gikomero II CS	Health Centre
121	Kigali City	Gasabo	Kibagabaga	Hopital Croix du Sud	District Hospital
122	Kigali City	Gasabo	Kibagabaga	Kabuye CS	Health Centre
123	Kigali City	Gasabo	Kibagabaga	Kacyiru DH	District Hospital
124	Kigali City	Gasabo	Kibagabaga	Kagugu CS	Health Centre
125	Kigali City	Gasabo	Kibagabaga	Kayanga CS	Health Centre
126	Kigali City	Gasabo	Kibagabaga	Kibagabaga DH	District Hospital
127	Kigali City	Gasabo	Kibagabaga	King Faisal Hospital HNR	HNR
128	Kigali City	Gasabo	Kibagabaga	Kinyinya CS	Health Centre
129	Kigali City	Gasabo	Kibagabaga	Nduba CS	Health Centre
130	Kigali City	Gasabo	Kibagabaga	Nyacyonga CS	Health Centre
131	Kigali City	Gasabo	Kibagabaga	Polyfame CLIN	Clinic
132	Kigali City	Gasabo	Kibagabaga	Remera (Gasabo) CS	Health Centre
133	Kigali City	Gasabo	Kibagabaga	Rubungo CS	Health Centre
134	Kigali City	Kicukiro	Masaka	Bethsaida CS	Health Centre
135	Kigali City	Kicukiro	Masaka	Busanza CS	Health Centre
136	Kigali City	Kicukiro	Masaka	Dream Medical Center Hospital	Health Centre

137	Kigali City	Kicukiro	Masaka	Gahanga CS	Health Centre
138	Kigali City	Kicukiro	Masaka	Gatenga CS	Health Centre
139	Kigali City	Kicukiro	Masaka	Gikondo CS	Health Centre
140	Kigali City	Kicukiro	Masaka	Kabuga (kicukiro) CS	Health Centre
141	Kigali City	Kicukiro	Masaka	Kicukiro CS	Health Centre
142	Kigali City	Kicukiro	Masaka	Masaka CS	Health Centre
143	Kigali City	Kicukiro	Masaka	Masaka DH	District Hospital
144	Kigali City	Kicukiro	Masaka	Nyarugunga CS	Health Centre
145	Kigali City	Kicukiro	Masaka	Rwanda Military Hospital	Military Hospital
146	Kigali City	Nyarugenge	Muhima	Bien Naitre CLIN	Clinic
147	Kigali City	Nyarugenge	Nyarugenge	CHK(CHUK) HNR	CHU
148	Kigali City	Nyarugenge	Muhima	Cor-unum CS	Health Centre
149	Kigali City	Nyarugenge	Nyarugenge	Kabusunzu CS	Health Centre
150	Kigali City	Nyarugenge	Muhima	Muhima DH	District Hospital
151	Kigali City	Nyarugenge	Nyarugenge	Mwendo (nyarugenge) CS	Health Centre
152	Kigali City	Nyarugenge	Nyarugenge	Nyarurenzi CS	Health Centre
153	Kigali City	Nyarugenge	Nyarugenge	Nzove CS	Health Centre
154	Kigali City	Nyarugenge	Nyarugenge	Polyclin Saint Jean CLIN	Clinic
155	Kigali City	Nyarugenge	Muhima	Polyclinique Medico Sociale	Clinic
156	Kigali City	Nyarugenge	Nyarugenge	Rugarama (nyarugenge) CS	Health Centre
157	North	Burera	Butaro	Bungwe (burera) CS	Health Centre
158	North	Burera	Butaro	Butaro CS	Health Centre
159	North	Burera	Butaro	Butaro DH	District Hospital
160	North	Burera	Butaro	Cyanika (burera) CS	Health Centre
161	North	Burera	Butaro	Gahunga CS	Health Centre
162	North	Burera	Butaro	Gitare CS	Health Centre
163	North	Burera	Butaro	Kinyababa CS	Health Centre
164	North	Burera	Butaro	Kirambo (burera) CS	Health Centre
165	North	Burera	Butaro	Mucaca CS	Health Centre
166	North	Burera	Butaro	Ndongozi CS	Health Centre
167	North	Burera	Butaro	Nyamugali CS	Health Centre
168	North	Burera	Butaro	Rugarama CS	Health Centre
169	North	Burera	Butaro	Ruhombo CS	Health Centre
170	North	Burera	Butaro	Ruhunde CS	Health Centre
171	North	Burera	Butaro	Rusasa CS	Health Centre
172	North	Burera	Butaro	Rwerere CS	Health Centre
173	North	Gakenke	Nemba	Bushoka CS	Health Centre
174	North	Gakenke	Nemba	Cyabingo CS	Health Centre
175	North	Gakenke	Nemba	Kamubuga CS	Health Centre
176	North	Gakenke	Nemba	Mataba CS	Health Centre
177	North	Gakenke	Nemba	Nemba CS	Health Centre
178	North	Gakenke	Nemba	Nemba DH	District Hospital
179	North	Gakenke	Ruli	Ruli CS	Health Centre
180	North	Gakenke	Ruli	Ruli DH	District Hospital
181	North	Gakenke	Nemba	Rutake CS	Health Centre
182	North	Gicumbi	Byumba	Bushara CS	Health Centre
183	North	Gicumbi	Byumba	Byumba CS	Health Centre
184	North	Gicumbi	Byumba	Byumba DH	District Hospital
185	North	Gicumbi	Byumba	Giti CS	Health Centre
186	North	Gicumbi	Byumba	Kigogo CS	Health Centre
187	North	Gicumbi	Byumba	Manyagiro CS	Health Centre
188	North	Gicumbi	Byumba	Miyove CS	Health Centre
189	North	Gicumbi	Byumba	Muhondo (kageyo) CS	Health Centre
190	North	Gicumbi	Byumba	Mukono CS	Health Centre
191	North	Gicumbi	Byumba	Mulindi (gicumbi) CS	Health Centre
192	North	Gicumbi	Byumba	Munyinya CS	Health Centre
193	North	Gicumbi	Byumba	Musenyi (gicumbi) CS	Health Centre
194	North	Gicumbi	Byumba	Rushaki CS	Health Centre
195	North	Gicumbi	Byumba	Rutare (gicumbi) CS	Health Centre
196	North	Gicumbi	Byumba	Rwesero CS	Health Centre
197	North	Gicumbi	Byumba	Tanda CS	Health Centre
198	North	Musanze	Ruhengeri	Bisate CS	Health Centre
199	North	Musanze	Ruhengeri	Busogo CS	Health Centre
200	North	Musanze	Ruhengeri	Gasiza (musanze) CS	Health Centre
201	North	Musanze	Ruhengeri	Gataraga (MUSANZE) CS	Health Centre
202	North	Musanze	Ruhengeri	Kabere CS	Health Centre
203	North	Musanze	Ruhengeri	Karwasa CS	Health Centre
204	North	Musanze	Ruhengeri	Kimonyi CS	Health Centre
205	North	Musanze	Ruhengeri	Kinigi CS	Health Centre
206	North	Musanze	Ruhengeri	Muhoza (Ruhengeri) CS	Health Centre
207	North	Musanze	Ruhengeri	Musanze CS	Health Centre
208	North	Musanze	Ruhengeri	Nyakinama CS	Health Centre
209	North	Musanze	Ruhengeri	Ruhengeri RH	Regional Hospital
210	North	Musanze	Ruhengeri	Rwaza CS	Health Centre
211	North	Musanze	Ruhengeri	Shingiro CS	Health Centre
212	North	Rulindo	Kinihira	Buyoga CS	Health Centre
213	North	Rulindo	Kinihira	Kinihira (rulindo) CS	Health Centre
214	North	Rulindo	Kinihira	Kinihira PH	Provincial Hospital
215	North	Rulindo	Rutongo	Kinini CS	Health Centre
216	North	Rulindo	Kinihira	Kisaro CS	Health Centre
217	North	Rulindo	Rutongo	Kiyanza CS	Health Centre
218	North	Rulindo	Rutongo	Murambi CS	Health Centre
219	North	Rulindo	Kinihira	Mushongi CS	Health Centre
220	North	Rulindo	Kinihira	Muyanza CS	Health Centre
221	North	Rulindo	Rutongo	Remera-mbogo CS	Health Centre
222	North	Rulindo	Kinihira	Rukozo CS	Health Centre
223	North	Rulindo	Rutongo	Rutonde CS	Health Centre
224	North	Rulindo	Rutongo	Rutongo DH	District Hospital
225	North	Rulindo	Rutongo	Shyorongi CS	Health Centre
226	North	Rulindo	Kinihira	Tare CS	Health Centre
227	North	Rulindo	Kinihira	Tumba CS	Health Centre
228	South	Gisagara	Kibilizi	Agahabwa CS	Health Centre

229	South	Gisagara	Gakoma	Gakoma CS	Health Centre
230	South	Gisagara	Gakoma	Gakoma DH	District Hospital
231	South	Gisagara	Gakoma	Gikonko (Gisagara) CS	Health Centre
232	South	Gisagara	Kibilizi	Gikore CS	Health Centre
233	South	Gisagara	Kibilizi	Gisagara CS	Health Centre
234	South	Gisagara	Gakoma	Gishubi CS	Health Centre
235	South	Gisagara	Kibilizi	Kansi CS	Health Centre
236	South	Gisagara	Kibilizi	Kibayi CS	Health Centre
237	South	Gisagara	Kibilizi	Kibilizi (gisagara) CS	Health Centre
238	South	Gisagara	Kibilizi	Kibilizi DH	District Hospital
239	South	Gisagara	Kibilizi	Kigembe CS	Health Centre
240	South	Gisagara	Kibilizi	Kirarambogo CS	Health Centre
241	South	Gisagara	Kibilizi	Mugombwa CS	Health Centre
242	South	Gisagara	Gakoma	Musha (gisagara) CS	Health Centre
243	South	Gisagara	Gakoma	Save CS	Health Centre
244	South	Huye	Kabutare	Busoro-gishamvu CS	Health Centre
245	South	Huye	Kabutare	Butare Chu Hnr (huye)	CHU
246	South	Huye	Kabutare	Kabutare DH	District Hospital
247	South	Huye	Kabutare	Karama (huye) CS	Health Centre
248	South	Huye	Kabutare	Maraba (huye) CS	Health Centre
249	South	Huye	Kabutare	Matyazo CS	Health Centre
250	South	Huye	Kabutare	Mbazi CS	Health Centre
251	South	Huye	Kabutare	Rango CS	Health Centre
252	South	Huye	Kabutare	Rubona (huye) CS	Health Centre
253	South	Huye	Kabutare	Rusatira-kinazi CS	Health Centre
254	South	Huye	Kabutare	Simbi CS	Health Centre
255	South	Huye	Kabutare	Sovu (Huye) CS	Health Centre
256	South	Kamonyi	Remera Rukoma	Gihara CS	Health Centre
257	South	Kamonyi	Remera Rukoma	Kamonyi (gacurabwenge) CS	Health Centre
258	South	Kamonyi	Remera Rukoma	Karama (Kamonyi) CS	Health Centre
259	South	Kamonyi	Remera Rukoma	Kayenzi CS	Health Centre
260	South	Kamonyi	Remera Rukoma	Kigese CS	Health Centre
261	South	Kamonyi	Remera Rukoma	Mugina CS	Health Centre
262	South	Kamonyi	Remera Rukoma	Musambira CS	Health Centre
263	South	Kamonyi	Remera Rukoma	Nyamiyaga (Kamonyi) CS	Health Centre
264	South	Kamonyi	Remera Rukoma	Remera Rukoma CS	Health Centre
265	South	Kamonyi	Remera Rukoma	Remera Rukoma DH	District Hospital
266	South	Muhanga	Kabgayi	Buramba CS	Health Centre
267	South	Muhanga	Kabgayi	Gasagara (ex-birehe) CS	Health Centre
268	South	Muhanga	Kabgayi	Gitarama CS	Health Centre
269	South	Muhanga	Kabgayi	Gitega (kibangu) CS	Health Centre
270	South	Muhanga	Kabgayi	Kabgayi CS	Health Centre
271	South	Muhanga	Kabgayi	Kabgayi DH	District Hospital
272	South	Muhanga	Kabgayi	Kivumu (muhanga) CS	Health Centre
273	South	Muhanga	Kabgayi	Mata CS	Health Centre
274	South	Muhanga	Kabgayi	Mushishiro CS	Health Centre

275	South	Muhanga	Kabgayi	Nyabikenke CS	Health Centre
276	South	Muhanga	Kabgayi	Nyarusange (muhanga) CS	Health Centre
277	South	Muhanga	Kabgayi	Rutobwe CS	Health Centre
278	South	Muhanga	Kabgayi	Shyogwe CS	Health Centre
279	South	Nyamagabe	Kigeme	Cyanika (nyamagabe) CS	Health Centre
280	South	Nyamagabe	Kaduha	Jenda (nyamagabe) CS	Health Centre
281	South	Nyamagabe	Kaduha	Kaduha CS	Health Centre
282	South	Nyamagabe	Kaduha	Kaduha DH	District Hospital
283	South	Nyamagabe	Kaduha	Kibumbwe CS	Health Centre
284	South	Nyamagabe	Kigeme	Kigeme CS	Health Centre
285	South	Nyamagabe	Kigeme	Kigeme DH	District Hospital
286	South	Nyamagabe	Kigeme	Kigeme Refugee Camp CS	Health Centre
287	South	Nyamagabe	Kigeme	Kitabi CS	Health Centre
288	South	Nyamagabe	Kigeme	Mbuga CS	Health Centre
289	South	Nyamagabe	Kaduha	Musebeya CS	Health Centre
290	South	Nyamagabe	Kaduha	Mushubi CS	Health Centre
291	South	Nyamagabe	Kigeme	Nyamagabe CS	Health Centre
292	South	Nyamagabe	Kaduha	Nyarwungo CS	Health Centre
293	South	Nyamagabe	Kaduha	Rugege CS	Health Centre
294	South	Nyamagabe	Kigeme	Uwinkingi CS	Health Centre
295	South	Nyanza	Nyanza	Busoro CS	Health Centre
296	South	Nyanza	Nyanza	Gahombo CS	Health Centre
297	South	Nyanza	Nyanza	Gatagara (Nyanza) CS	Health Centre
298	South	Nyanza	Nyanza	Hanika I (NYANZA) CS	Health Centre
299	South	Nyanza	Nyanza	Kibilizi (nyanza) CS	Health Centre
300	South	Nyanza	Nyanza	Kirambi CS	Health Centre
301	South	Nyanza	Nyanza	Mututu CS	Health Centre
302	South	Nyanza	Nyanza	Ntyazo CS	Health Centre
303	South	Nyanza	Nyanza	Nyamiyaga (Nyanza) CS	Health Centre
304	South	Nyanza	Nyanza	Nyamure CS	Health Centre
305	South	Nyanza	Nyanza	Nyanza CS	Health Centre
306	South	Nyanza	Nyanza	Nyanza DH	District Hospital
307	South	Nyanza	Nyanza	Ruyenzi CS	Health Centre
308	South	Nyaruguru	Munini	Coko CS	Health Centre
309	South	Nyaruguru	Munini	Cyahinda CS	Health Centre
310	South	Nyaruguru	Munini	Kabilizi CS	Health Centre
311	South	Nyaruguru	Munini	Kibeho CS	Health Centre
312	South	Nyaruguru	Munini	Kivu CS	Health Centre
313	South	Nyaruguru	Munini	Maraba (nyaruguru) CS	Health Centre
314	South	Nyaruguru	Munini	Muganza CS	Health Centre
315	South	Nyaruguru	Munini	Munini (nyaruguru) CS	Health Centre
316	South	Nyaruguru	Munini	Munini DH	District Hospital
317	South	Nyaruguru	Munini	Ngoma CS	Health Centre
318	South	Nyaruguru	Munini	Nyabimata CS	Health Centre
319	South	Nyaruguru	Munini	Nyantanga CS	Health Centre
320	South	Nyaruguru	Munini	Ruheru CS	Health Centre

321	South	Nyaruguru	Munini	Runyombyi CS	Health Centre
322	South	Nyaruguru	Munini	Ruramba CS	Health Centre
323	South	Ruhango	Gitwe	Byimana CS	Health Centre
324	South	Ruhango	Gitwe	Gishweru CS	Health Centre
325	South	Ruhango	Gitwe	Gitwe CS	Health Centre
326	South	Ruhango	Gitwe	Gitwe DH	District Hospital
327	South	Ruhango	Gitwe	Karambi (ruhango) CS	Health Centre
328	South	Ruhango	Ruhango	Kigoma CS	Health Centre
329	South	Ruhango	Ruhango	Kinazi CS	Health Centre
330	South	Ruhango	Ruhango	Kizibere CS	Health Centre
331	South	Ruhango	Ruhango	Mbuye CS	Health Centre
332	South	Ruhango	Ruhango	Mukoma (ruhango) CS	Health Centre
333	South	Ruhango	Ruhango	Nyarurama CS	Health Centre
334	South	Ruhango	Ruhango	Ruhango CS	Health Centre
335	South	Ruhango	Ruhango	Ruhango PH	Provincial Hospital
336	West	Karongi	Kirinda	Birambo CS	Health Centre
337	West	Karongi	Mugonero	Gisovu CS	Health Centre
338	West	Karongi	Kibuye	Kibuye CS	Health Centre
339	West	Karongi	Kibuye	Kibuye RH	Regional Hospital
340	West	Karongi	Kibuye	Kirambo (gitesi) CS	Health Centre
341	West	Karongi	Kirinda	Kirinda DH	District Hospital
342	West	Karongi	Kibuye	Kiziba Camp CS	Health Centre
343	West	Karongi	Mugonero	Mubuga CS	Health Centre
344	West	Karongi	Mugonero	Mugonero DH	District Hospital
345	West	Karongi	Kibuye	Mukungu CS	Health Centre
346	West	Karongi	Kirinda	Munzanga CS	Health Centre
347	West	Karongi	Kibuye	Musango CS	Health Centre
348	West	Karongi	Kibuye	Rubengera CS	Health Centre
349	West	Karongi	Kibuye	Rufungo CS	Health Centre
350	West	Ngororero	Muhororo	Gashubi CS	Health Centre
351	West	Ngororero	Kabaya	Hindiro FOSACOM	Health Centre
352	West	Ngororero	Kabaya	Kabaya CS	Health Centre
353	West	Ngororero	Kabaya	Kabaya DH	District Hospital
354	West	Ngororero	Muhororo	Kageyo (Ngororero) CS	Health Centre
355	West	Ngororero	Muhororo	Muhororo CS	Health Centre
356	West	Ngororero	Muhororo	Muhororo DH	District Hospital
357	West	Ngororero	Kabaya	Muramba CS	Health Centre
358	West	Ngororero	Muhororo	Ntobwe CS	Health Centre
359	West	Ngororero	Muhororo	Nyange A CS	Health Centre
360	West	Ngororero	Muhororo	Nyange B CS	Health Centre
361	West	Ngororero	Kabaya	Ramba CS	Health Centre
362	West	Ngororero	Kabaya	Rubaya (ngororera) CS	Health Centre
363	West	Ngororero	Muhororo	Rususa CS	Health Centre
364	West	Ngororero	Kabaya	Sovu (Ngororero) CS	Health Centre
365	West	Nyabihu	Shyira	Bigogwe CS	Health Centre
366	West	Nyabihu	Shyira	GIHORWE HP	Health Post
367	West	Nyabihu	Shyira	Jenda (nyabihu) HP	Health Post

368	West	Nyabihu	Shyira	Jomba CS	Health Centre
369	West	Nyabihu	Shyira	JOMBA HP	Health Post
370	West	Nyabihu	Shyira	Kabatwa CS	Health Centre
371	West	Nyabihu	Shyira	Kareba CS	Health Centre
372	West	Nyabihu	Shyira	Kazirankara HP	Health Post
373	West	Nyabihu	Shyira	Kintobo CS	Health Centre
374	West	Nyabihu	Shyira	Kora CS	Health Centre
375	West	Nyabihu	Shyira	Mwiyanike CS	Health Centre
376	West	Nyabihu	Shyira	Nyakigezi CS	Health Centre
377	West	Nyabihu	Shyira	Rurembo CS	Health Centre
378	West	Nyabihu	Shyira	Rwankeri CS	Health Centre
379	West	Nyabihu	Shyira	Shyira DH	District Hospital
380	West	Nyamasheke	Bushenge	Bushenge CS	Health Centre
381	West	Nyamasheke	Bushenge	Bushenge PH	Provincial Hospital
382	West	Nyamasheke	Kibogora	Gatare (macuba) CS	Health Centre
383	West	Nyamasheke	Bushenge	Gisakura CS	Health Centre
384	West	Nyamasheke	Bushenge	Kamonyi (ruharambuga) CS	Health Centre
385	West	Nyamasheke	Kibogora	Karengera CS	Health Centre
386	West	Nyamasheke	Kibogora	Kibingo (nyamasheke) CS	Health Centre
387	West	Nyamasheke	Kibogora	Kibogora CS	Health Centre
388	West	Nyamasheke	Kibogora	Kibogora DH	District Hospital
389	West	Nyamasheke	Bushenge	Mugera CS	Health Centre
390	West	Nyamasheke	Bushenge	Mukoma (nyamasheke) CS	Health Centre
391	West	Nyamasheke	Bushenge	Muyange CS	Health Centre
392	West	Nyamasheke	Bushenge	Mwezi CS	Health Centre
393	West	Nyamasheke	Kibogora	Ngange CS	Health Centre
394	West	Nyamasheke	Kibogora	Nyamasheke CS	Health Centre
395	West	Nyamasheke	Kibogora	Rangiro CS	Health Centre
396	West	Nyamasheke	Kibogora	Ruheru (kanjongo Nyamasheke) CS	Health Centre
397	West	Nyamasheke	Kibogora	Yove CS	Health Centre
398	West	Rubavu	Gisenyi	Bugeshi CS	Health Centre
399	West	Rubavu	Gisenyi	Busasamana CS	Health Centre
400	West	Rubavu	Gisenyi	Busigari CS	Health Centre
401	West	Rubavu	Gisenyi	Byahi (rubavu) CS	Health Centre
402	West	Rubavu	Gisenyi	Gacuba Ii CS	Health Centre
403	West	Rubavu	Gisenyi	Gisenyi CS	Health Centre
404	West	Rubavu	Gisenyi	Gisenyi DH	District Hospital
405	West	Rubavu	Gisenyi	Kabari (Rubavu) CS	Health Centre
406	West	Rubavu	Gisenyi	Karambo (rubavu) CS	Health Centre
407	West	Rubavu	Gisenyi	Kigufi CS	Health Centre
408	West	Rubavu	Gisenyi	Mudende CS	Health Centre
409	West	Rubavu	Gisenyi	Murara CS	Health Centre
410	West	Rubavu	Gisenyi	Ndengera CLIN	Clinic
411	West	Rubavu	Gisenyi	Nyakiriba CS	Health Centre
412	West	Rubavu	Gisenyi	Nyundo (rubavu) CS	Health Centre
413	West	Rusizi	Mibilizi	Bugarama (rusizi) CS	Health Centre

414	West	Rusizi	Gihundwe	Bweyeye CS	Health Centre
415	West	Rusizi	Gihundwe	Gihundwe CS	Health Centre
416	West	Rusizi	Gihundwe	Gihundwe DH	District Hospital
417	West	Rusizi	Mibilizi	Gikundamvura CS	Health Centre
418	West	Rusizi	Mibilizi	Islamic (Bugarama) CS	Health Centre
419	West	Rusizi	Mibilizi	Mashesha CS	Health Centre
420	West	Rusizi	Mibilizi	Mibilizi CS	Health Centre
421	West	Rusizi	Mibilizi	Mibilizi DH	District Hospital
422	West	Rusizi	Gihundwe	Mont Cyangugu CS	Health Centre
423	West	Rusizi	Mibilizi	Mushaka CS	Health Centre
424	West	Rusizi	Gihundwe	Nkanka CS	Health Centre
425	West	Rusizi	Gihundwe	Nkombo CS	Health Centre
426	West	Rusizi	Mibilizi	Nkungu CS	Health Centre
427	West	Rusizi	Mibilizi	Nyabitimbo CS	Health Centre
428	West	Rusizi	Mibilizi	Nyakabuye CS	Health Centre
429	West	Rusizi	Mibilizi	Nyakarenzo CS	Health Centre
430	West	Rusizi	Mibilizi	Rwinzuki CS	Health Centre
431	West	Rusizi	Gihundwe	St. Francois Rusizi CS	Health Centre
432	West	Rutsiro	Murunda	Biruyi CS	Health Centre
433	West	Rutsiro	Murunda	Bitenga CS	Health Centre
434	West	Rutsiro	Murunda	Crete Congo Nil CS	Health Centre
435	West	Rutsiro	Murunda	Kabona CS	Health Centre
436	West	Rutsiro	Murunda	Kayove CS	Health Centre
437	West	Rutsiro	Murunda	Kinunu CS	Health Centre
438	West	Rutsiro	Murunda	Kivumu (rutsiro) CS	Health Centre
439	West	Rutsiro	Murunda	Mukura (Rutsiro) CS	Health Centre
440	West	Rutsiro	Murunda	Murunda CS	Health Centre
441	West	Rutsiro	Murunda	Murunda DH	District Hospital
442	West	Rutsiro	Murunda	Mushubati CS	Health Centre
443	West	Rutsiro	Murunda	Nyabirasi CS	Health Centre
444	West	Rutsiro	Murunda	Rutsiro CS	Health Centre