Objectives 3.1 and 3.2 of the United Nations' Sustainable Development Goals focus on advancing the health of mothers and children. While reductions in maternal and neonatal mortality were seen throughout the world over the 20th century, the lives saved have been inequitably distributed, and there remains sizable room for improvement. One of the main goals for health system development over past decades has been to improve outcomes by increasing the proportion of women who seek skilled care and deliver in a health facility. However, reaching a facility does not, in itself, guarantee acceptable results.

Three countries were chosen as case studies to present a more in-depth view on reducing maternal and neonatal mortality: **Sweden**, **Sri Lanka**, and the **Democratic Republic of the Congo.** All three have high facility birth rates, yet their maternal and neonatal mortality rates vary greatly, as shown in the plots below. Sweden has long been hailed as one of the safest places in the world to give birth. Sri Lanka is a middle-income country that has leveraged a strong public health system to achieve large reductions in maternal and neonatal mortality over the latter half of the 20th century.

The Democratic Republic of the Congo represents a low-income country that has struggled to reduce maternal and neonatal mortality even though a high percentage of mothers deliver in a facility.

In generating these case reports, one thing stood out:

> A well-equipped and welcoming birthing suite is necessary, but not sufficient to reduce maternal and newborn mortality.

HISTORICAL MORTALITY RATES

Figure 1. Maternal Mortality Ratio (maternal deaths per 100,000 live births) for three selected countries presented in log scale. Dashed line represents Sustainable Development Goals 3.1 target for 2030 of 70 maternal deaths per 100,000 live births. Data are from national records as sourced from Gapminder.

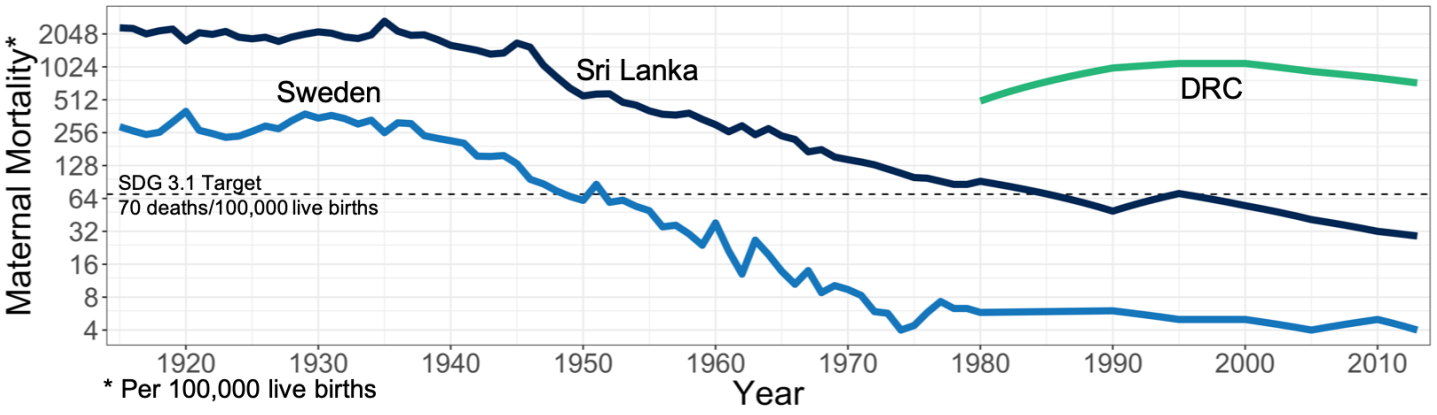
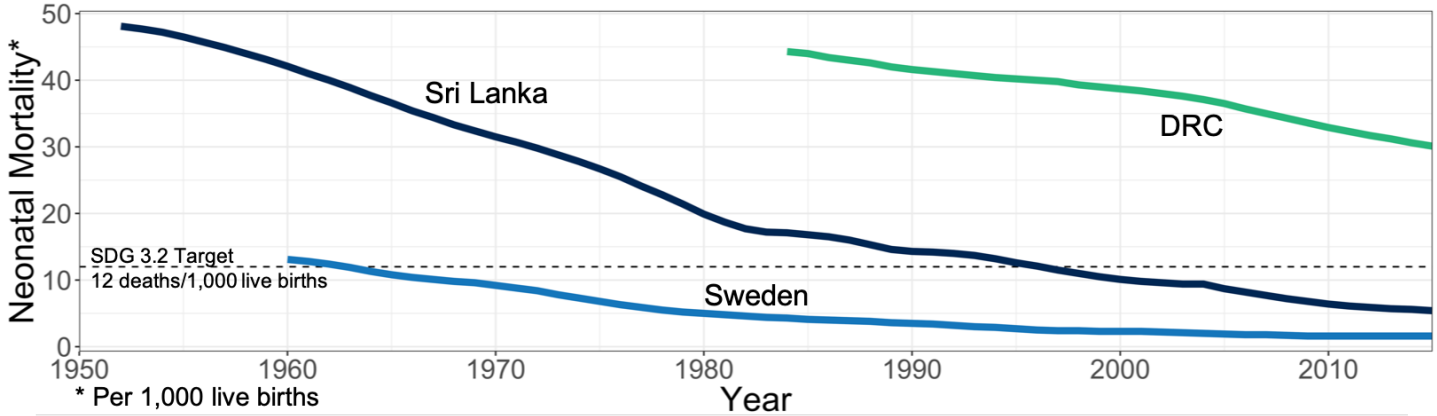


Figure 2. Neonatal Mortality Rate (infant deaths per 1,000 live births in the first 28 days of life) for three selected countries. Dashed line represents Sustainable Development Goals 3.2 target for 2030 of 12 deaths per 1,000 live births. Data are from modeled estimates by the UN Inter-agency Group for Child Mortality Estimation as sourced from Gapminder.



SWEDEN


Photo source: BB Stockholm

Sweden is regarded as one of the safest places in the world to give birth.[1] Only four countries have a lower Maternal Mortality Ratio (MMR).[2] The entire pregnancy and birthing process is managed by midwives.[3–6] Almost all births in Sweden occur in hospitals,[7] where physicians, operating rooms, and modern technologies are available if complications arise.[8,9] Women are encouraged to move around during labor and both pharmacological and alternative therapies are provided to assist with pain management.[10–12] While all maternity wards are equipped with technologies to keep mothers and babies safe,[13] the focus is not on technology, but rather on giving mothers agency over what is considered to be a natural process.[1]

MATERNAL MORTALITY RATIO[14]
4 per 100,000 live births
Rank: 4 of 182 (2013)

NEONATAL MORTALITY RATE[15]
1.6 per 1,000 live births
Rank: 13 of 193 (2015)

C-SECTION RATE[16]
17.3%
Rank: 6th lowest in OECD (2015)

TOTAL FERTILITY RATE[2]
1.85
Rank: 130 of 200 (2017)

PERCENT FACILITY BIRTHS[7]
>99% (2015)

SKILLED ATTENDANT AT BIRTH[17]
99.5% (2016)

PUBLIC-PRIVATE FACILITY BIRTHS[18]
24% of facilities are privately run, but government funded

COST TO CONSUMER[3]
Covered by Sweden's National Health Plan

HEALTH SYSTEM PERFORMANCE

National guidelines for care during pregnancy and childbirth are guided by the Swedish Board of Health and Welfare (SBHW) and the Swedish Society of Obstetrics and Gynecology (SFOG, acronym in Swedish). In addition to informing practices, all labor wards in Sweden are certified by the SBHW.[13,19] SFOG also publishes yearly reports and health metrics, including data following the Robson 10 Group Classification System.[12,20] The annual report includes statistics on the number of doctors and specialists at each clinic, total births, number of Cesarean sections (C-sections) performed, postpartum care (including mean days in hospital and breastfeeding), and screenings offered.[12] The report also tracks how clinics monitor labor and delivery events and conduct follow-up with mothers and babies. Guidelines from the SFOG include recommendations for prenatal care (including ultrasounds and genetic testing), induction of labor, and elective C-sections.[20,21] The SFOG has several working groups that continually review within-country data and relevant publications as well as make recommendations for improvements.[13,20] The SFOG tracks the performance of all birthing clinics in the country and what they are doing to monitor and improve the quality of childbirth care. Facilities mentioned several actions they took to monitor quality of care, including reviewing statistics from the national pregnancy register, reviewing journal articles, and holding joint meetings with physicians and midwives to discuss their performance and potential actions for improvement.[12] All cases of maternal death are evaluated each year by a special working group within the SFOG. This group analyzes the risk factors that were present in each case, evaluates records of the delivery process, and seeks to identify any signs of suboptimal care from a systems perspective.[20] Results are both published online and provided directly to the clinics that reported deaths.[12,20] Overall, Sweden has a strictly regulated, high-functioning health system that strives to ensure that birthing practices reflect the most current research and are responsive to preferences of women.[13]

THE BIRTH EXPERIENCE

Prenatal Care: Swedish women begin prenatal care around the ninth week of pregnancy.[22] Antenatal care is coordinated through defined catchment areas, each with an obstetrician and midwife coordinator. Midwives provide the care for most mothers throughout pregnancy, unless referral to a physician is needed.[5] National guidelines recommend a minimum of eight antenatal visits.[22] All women are offered at least one ultrasound between 17 and 19 weeks' gestation, and over 97% of women opt for at least one.[23,24] Genetic testing is not universally recommended and is only performed on physician advice or by maternal request.[22] Overall, prenatal care is non-invasive, with little reliance on costly testing and imaging unless indicated.

Communication Systems and Medical Records: When a woman begins labor she calls 1177, Sweden's central coordination center.[25] If it is determined that it is time to head to a facility, she is connected to a labor coordinator at the hospital of her choice.[5] This coordinator verifies that the hospital has capacity to accept her and, if not, helps find an alternative facility. No matter where a woman goes to give birth, her electronic medical record (EHR) and birthing preferences are available to the care team through a national *Journalen* online system.[26] This system is utilized in all hospitals and primary care centers. All events throughout pregnancy are entered into the EHR system and can be accessed at any health facility in the country. Additionally, all births in Sweden are registered through the Swedish Pregnancy Register, which was established in 2013 through the unification of two separate databases.[27] It is mandatory for healthcare providers and mothers to input information into the system.

Emergency Management: All maternity wards in Sweden have a fully-equipped operating theater available to perform C-sections in the same corridor as the delivery rooms.[13] To gain certification as a maternity clinic, hospitals must have procedures in place to perform an immediate C-section in case of an emergency.[13] Karolinska Hospital, the most specialized hospital in the country, describes this process on their website: in case of an emergency C-section, women will be wheeled directly to the operating theater, where staff from the surgery department are waiting after being informed by an alarm button.[28] Pediatricians are on call to assess the baby if required. In all delivery rooms, there is a space for newborn resuscitation that includes wall suction, oxygen source with regulator, air/oxygen blender, sterile suction tubes, clean linen, running water, and electricity.[29] In large centers, a neonatologist is on staff 24/7; in smaller hospitals, the anesthesiologist is trained in neonatal resuscitation and performs procedures until the on-call neonatologist can arrive. If a woman has hypertension or experiences post-partum hemorrhage, kits with appropriate essential medicines are available.[13] Finally, if a woman goes into premature labor, the clinic coordinators ensure that she is sent to a hospital equipped to care for premature infants. Six of the university hospitals are able to provide care for women who go into labor as early as 22 weeks.[12]

Immediate Postnatal Care: After giving birth, undisturbed family time is encouraged.[30] Skin-to-skin contact is promoted through Sweden's national guidelines[20] and the baby's weight and length are not measured until after the family has had adequate time for immediate skin-to-skin and bonding time.[30,31] Breastfeeding is strongly encouraged and birthing centers have breastfeeding consultants on hand. Approximately 80% of women exclusively breastfeed on discharge.[22] Women usually have three options for postnatal care: 1) the maternity ward if mother or baby needs special medical care; 2) early discharge with home-based follow-up care; or 3) transfer to a family suite in the hospital or a hospital hotel.[32] Family suites allow mother, baby, and partner to be together in a relaxed environment, but nursing staff is available 24/7 to offer support and assistance.[13,32] All postnatal care is individualized and a plan is created with the family and midwife.[13] Newborns are examined by a pediatrician before discharge.[13,29,30] The median length of stay at the birth clinic post-delivery ranges from 2.2 days for uncomplicated vaginal deliveries to 4.1 days following emergency C-section.[12]

A TYPICAL BIRTHING SUITE

*Some devices hidden behind paneling to avoid "medicalizing" the delivery

Labor Aids

1. ***Gåbord* (walking table)** – allow women to walk around during labor and provide support during contractions.
2. **Pilates ball** – allow women to labor while sitting and rocking
3. **Bean bag** – provides support to laboring woman in kneeling positions
4. **Labor bed** – adjustable bed allows woman to labor in bed, but not on her back. Bottom of bed drops out if needed for delivery.

Pain Management

5. **Nitrous Oxide*** – all rooms have nitrous oxide (NO_2) next to the bed and some also have NO_2 available in the bathroom
6. **TENS Unit*** – most delivery rooms provide a TENS Unit to help with contraction pain
7. **Bath tub** – all delivery rooms are private and include a private bathroom with a labor tub

Medical Devices

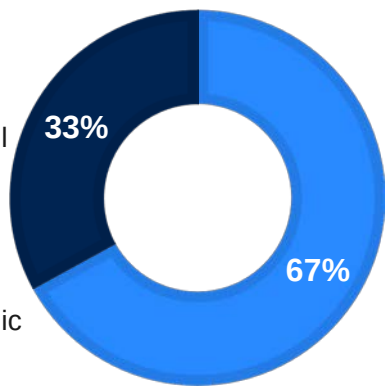
8. **EDAN Wearable monitors*** – track maternal and fetal heartbeat and contractions while mother can move freely
9. **Fetal ultrasound*** – to visualize baby if needed
10. **Oxygen*** – always available if needed
11. **Newborn Resuscitation Table*** – each room has this sterile table with oxygen, masks and tubes

WOMEN'S EXPERIENCE

A study conducted by the Department of Woman and Child Health at Karolinska Institutet in 2007 analyzed aspects related to intrapartum care such as interpersonal care, information and decision-making, information and support, and the physical environment.[33] Women's perceptions of quality of care was most influenced by emotional dimensions of care, particularly the women's relationship with the healthcare worker and the interpersonal approach of the healthcare worker. The outcome of the birth, such as infant health, affected women's perception of intrapartum care. Additional elements of intrapartum care that influenced women's satisfaction or dissatisfaction are described below.

Dissatisfaction

- Lack of individualized care
- Absence of a tolerant and respectful attitude toward mothers
- <1 day hospital stay
- Emergency C-section
- Newborn transfer to a neonatal clinic



Satisfaction

- Small, family-oriented wards during postpartum period
- Talking through the birth experience postpartum
- Breastfeeding support
- Sufficient time for personal support, information, and involvement in care decisions

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SRI LANKA


Photo source: John Fraser Hospital

Sri Lanka has long been hailed as an exemplar in maternal health among low- and middle-income countries.[1,2] In response to high maternal mortality in the 1950s, the government invested heavily in health infrastructure and training programs to improve access to quality health care.[1] As a result, nearly all pregnancies occur in a well-equipped facility,[3] and skilled birth attendants are present at 100% of deliveries.[4] Pregnancy and births are managed by highly trained public health midwives (PHMs)[1,5] and investment in education has led to a high proportion of trained obstetricians who are prepared to manage more complicated cases.[6] The government of Sri Lanka is committed to continually improving the labor and delivery process to ensure that all women have access to safe, high quality birthing facilities.

MATERNAL MORTALITY RATIO[7]
29 per 100,000 live births
Rank: 65 of 182 (2013)

NEONATAL MORTALITY RATE[8]
5.4 per 1,000 live births
Rank: 60 of 193 (2015)

C-SECTION RATE[9]
30.6% (2007)

TOTAL FERTILITY RATE[10]
2.03
Rank: 89 of 200 (2017)

PERCENT FACILITY BIRTHS[3]
96.8% (2016)

SKILLED ATTENDANT AT BIRTH[4]
100% (2016)

PUBLIC-PRIVATE FACILITY BIRTHS[3]
Public: 91.4%
Private: 5.4% (2016)

COST TO CONSUMER[1]
Supported by national universal health care

HEALTH SYSTEM PERFORMANCE

The Family Health Bureau (FHB), part of the Ministry of Health, Nutrition, and Indigenous Medicine, maintains national guidelines for pregnancy and postpartum care.[11,12] Sri Lankan citizens have access to universal healthcare – which covers all aspects of reproductive health, from preconception wellness exams through postnatal examinations – as outlined in the Sri Lanka Essential Service Package.[11,12] Care during pregnancy is offered at health facilities throughout different levels of the administrative divisions of the country;[11] more than 90% of women obtain healthcare during pregnancy from the public system.[13,14] The FHB frequently distributes circulars with communications to update policy related to maternal and neonatal care (e.g., policy on prenatal services, admission to labor wards, and prevention of/care for influenza in pregnant women).[15–17] The FHB also routinely publishes statistics on maternal and neonatal outcomes, which are available to the public on their website and in routine reports.[14,18] In particular, the Maternal and Child Morbidity and Mortality Surveillance Unit, within the FHB, tracks maternal mortality through a national maternal death surveillance and reporting system.[12,19] It is national policy that maternal deaths, as well as near misses, are reported within 24 hours. Each case is analyzed and reviewed within two weeks.[19] These data are used to inform discussions at regular forums aimed at taking action to improve maternal outcomes.[20,21]

THE BIRTH EXPERIENCE

Prenatal Care: Nearly all expectant mothers in Sri Lanka attend antenatal care and over half have their initial visit in the first eight weeks of pregnancy.[3] Over 90% of those attending ANC clinics had blood pressure measured, urine samples tested for glucose, blood samples tested for hemoglobin and HIV, received a tetanus vaccine, and were given nutritional supplements and deworming medications.[3] Midwives, who undergo an 18-month training program, are heavily relied upon to register pregnancies, conduct home visits, and assist in managing antenatal clinics.[1,5] Current guidelines call for a nine-visit approach for antenatal care, with ultrasonography performed at 11-13 weeks.[22] Screening is performed to identify high risk pregnancies and these women are referred for closer surveillance in specialist centers.[16,22] As of 2013, the Sri Lanka Medical Association recommended that evidence-based education be provided to mothers and partners to help them to understand antenatal and delivery management plans, spot early warning signs of complications, and allow them to contribute to shared decision-making.[22]

Communication Systems and Medical Records: There is no formal referral system in Sri Lanka, so women in labor may choose to seek care at any health center.[23] Admission is not denied to anyone, which can lead to overcrowding in specialty hospitals.[24] If a woman needs to be referred, all provincial hospitals and major district hospitals have ambulances to facilitate transfer.[1] The Electronic Reproductive Health Management Information System facilitates reporting to the Ministry of Health but, at the level of care, paper records continue to be common.[12] The Sri Lankan government has made digitization of health services a priority and envisions both public and private facilities contributing to a centralized National Health Information System.[25] Both public and private health facilities have begun transitioning to electronic health records over the past ten years.[26] Barriers in adoption of electronic medical records systems include high setup cost, reticence by physicians to change habits, a dearth of human resources for data entry, lack of sufficient technical hardware, and inconsistent internet connectivity.[26,27]

Emergency Management: Sri Lanka has 77 public Comprehensive Emergency Obstetric and Newborn Care (CEmONC) hospitals in which it is possible to perform both Cesarean sections (C-sections) and blood transfusions.[28] This equates to 1.65 CEmONC facilities per 500,000 population and 86% of the population lives within 30km (approximately 45 minutes) from a CEmONC facility. There are an additional 517 hospitals with Basic Emergency Obstetric and Newborn Care (BEmONC) services. Despite these provisions, approximately 25% of women with complicated deliveries are not able to deliver in CEmONC facilities.[6,29] A report of CEmONC facilities in the Western Province found that all hospitals had a neonatal bag valve mask, and all but two had neonatal suction available in the delivery room for immediate newborn resuscitation.[6] Only four of nine CEmONC facilities in this province had neonatal resuscitation trolleys, but all had oxygen, incubators, and phototherapy kits.[6]

Immediate Postnatal Care: The health of the mother and newborn remain the central focus post-delivery, with standardized practices for care detailed in guidelines from the Ministry of Health.[11] Healthcare workers closely monitor the mother and newborn for at least 24 hours. Initially, the woman remains in the delivery room, during which time bleeding, uterine contractions, fundal height, blood pressure, and pulse are monitored every 15 minutes.[13] During this period, nurses encourage skin-to-skin contact between mother and baby and support breastfeeding.[11,13] After two hours, the woman and her baby are transferred to a postnatal ward where nurses check on them at least every four hours over the next 24 hours.[13] During this time, nurses give mothers vitamin A supplements and continued breastfeeding support. In many facilities, screening for congenital conditions is also performed during the first 24 hours.[11,13] If complications occur, the mother and/or baby may be transferred to higher-level (e.g., provincial) facilities. Prior to discharge, a doctor provides a complete examination of the mother and refers all mothers for home-based postnatal care, which occurs throughout the six-week postnatal period.[13] Throughout the postpartum stay, the mother and baby remain together.[13] Despite national guidelines explicitly allowing for labor companions, other members of the family (e.g., male partners) are not necessarily present due to hospital policies.[30] Median lengths of hospital stay post-delivery are not routinely reported in Sri Lanka.[11,13,18]

A TYPICAL BIRTHING SUITE

Birthing suites in Sri Lanka are equipped with modern labor aids and medical devices. When possible, hospitals offer large rooms to foster a family-friendly environment.

Photo source: John Fraser Hospital

Medical Devices

1. **Infant Warmer** – table equipped with oxygen, suction, and warming lights for infant.
2. **Contraction and Electronic Fetal Heart Monitor (EFM)**– monitors mother's contractions and fetal heart rate during delivery.
3. **Ultrasound** – used to monitor fetal head status and placental separation during labor and delivery.
4. **Refrigerator** – stores human milk and other perishable medical supplies.

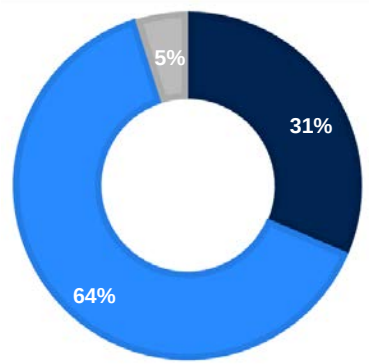
Labor Aids

9. **Private Room** – in most private hospitals, women have private rooms for labor and delivery. In most public hospitals, private rooms are not available.
10. **Labor Bed** – adjustable bed designed for labor, delivery, and rest. Labor beds are available in both private and public hospitals. Each women is provided a separate delivery bed.
5. **Blood Pressure Cuff**– mothers are monitored for signs of high blood pressure during labor.
6. **Partogram** – while not shown, all labor rooms use partograms to track progression of labor and fetal wellbeing during delivery

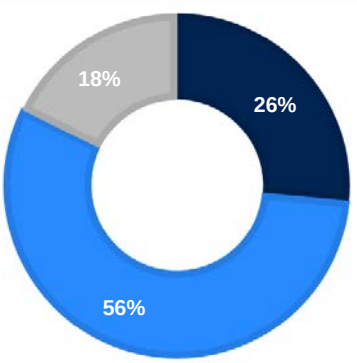
WOMEN'S EXPERIENCE

In Sri Lanka, women interface with both public and private hospitals when receiving labor and delivery care. Many women perceive technical aspects of care such as history, examination, investigations and management as better in the public sector than the private sector. However, women reported that the private sector is better in areas related to patient education and interpersonal satisfaction.[31] Women reported that waiting time, cleanliness, time spent with the doctor, and advice given were key factors for satisfactory care.[32] A 2014 study by Govindaraj, et al. found that women desired respect for privacy. In many private hospitals, patient privacy is facilitated through the availability of private birthing suites for labor and delivery.[32] In addition, husbands are now encouraged to be present in the labor room to provide their partner with emotional support during birth. This change has enhanced women's experience during labor and delivery.[33] A 2006 study in the Puttalam district of North Western province evaluated women's satisfaction with several aspects of the perinatal care in state sector hospitals.[34] Overall, women reported satisfaction with the interpersonal and technical aspects of care. The graphics below highlight the percentage of women who indicated they were satisfied with select aspects of care.

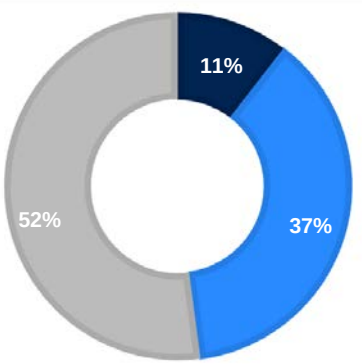
POLITENESS, COURTESY & RESPECT



MEDICAL FACILITIES IN THE WARD



COMMUNICATION ABOUT CARE



■ Highly Satisfied ■ Somewhat satisfied ■ Dissatisfied

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Photo source: Jean-Jacques Kayembe

Case Report | Democratic Republic of the Congo

Facility births have been encouraged in the Democratic Republic of the Congo (DRC) since the colonial period.[1] As a result, close to 80% of births occur in a facility.[2] Despite these high levels of facility-based births, the DRC continually is ranked as one of the worst places in the world to give birth.[3] High maternal and neonatal mortality ratios have persisted for decades.[4] Facilities, especially in rural areas away from large cities, lack trained personnel, essential medicines, electricity, and running water to provide safe facility births and emergency obstetric care.[1,5] In addition, conflict and complex humanitarian emergencies such as Ebola place substantial demands on health resources, diverting them from maternal and child health care.[1] As a result, facility births are not a guarantee of a safe delivery attended by a skilled health worker.

MATERNAL MORTALITY RATIO[6]
730 per 100,000 live births
Rank: 176 of 182 (2013)

NEONATAL MORTALITY RATE[7]
30.1 per 1,000 live births
Rank: 173 of 193 (2015)

C-SECTION RATE[8]
5.5% (2010)

TOTAL FERTILITY RATE[9]
6.0
Rank: 198 of 200 (2017)

PERCENT FACILITY BIRTHS[2]
79.9% (2013)

SKILLED ATTENDANT AT BIRTH[4]
84.0% (2016)

PUBLIC-PRIVATE FACILITY BIRTHS[2]
64.5% Public
15.4% Private (2013)

COST TO CONSUMER[10]
Costly and variable; USD $45-350

HEALTH SYSTEM PERFORMANCE

The National Reproductive Health Program develops national policy and guidelines on maternal and child health in the DRC.[1] Policy is revised every five years based on WHO recommendations[11] and informed by the findings from the most recent Demographic Health Survey (DHS). [1] However, policy implementation is irregular and often ineffective due to governance and resource limitations.[1,12] Care during pregnancy and delivery is provided by numerous entities including the Ministry of Health (MoH), private organizations, non-governmental organizations (NGOs), and faith-based organizations (FBOs). Quality of care varies widely by implementor and location.[1,12] Frequently, NGOs and FBOs offer services that are less costly (often due to subsidies) and superior in quality compared to services offered through the MoH. Private facilities also tend to offer better care, but are more expensive for the patient than MoH services.[1] Payment is expected for facility births, and in many poorly funded facilities, women must purchase their own delivery materials such as gloves, soap, razor blades, and essential medicines.[1,10,12,13] There is no routine data collection through a health information system, so statistics on maternal and neonatal outcomes are not readily accessible in the DRC; data for decision making come from community based surveys, which happen infrequently.[14] However, according to a key informant, there is routine assessment of maternal and neonatal data in each health zone, with special investigation of maternal deaths by the provincial health team.[1] Implementing partners work with the government to use existing data to plan and monitor interventions.

THE BIRTH EXPERIENCE

Prenatal Care: Almost 95% of Congolese expectant mothers seek antenatal care, but less than 20% meet the WHO recommendation of 4+ visits beginning in the first trimester.[15] Due to poor regulation and a lack of guidelines, the costs and availability of services vary between antenatal clinics.[10] The government does not fully finance the health system in DRC. As a result, women are expected to pay for antenatal, delivery, and neonatal services, which prevents many from receiving adequate care.[10] Antenatal care is provided by physicians, qualified nurses, and midwives.[16] One study estimated that only 22% of mothers attending antenatal care received all recommended routine components: blood pressure, urine and blood samples, tetanus vaccination, iron supplementation, and education about potential complications.[15] A second study, focused on rural clinics, found great variability in antenatal care practices, facilities, and resources.[17]

Communication Systems and Medical Records: When a woman goes into labor in the DRC, there are no formal systems to coordinate where she should deliver. The location of delivery is often determined by distance or price. In the case of a complicated birth, the MoH has established a referral system that requires a transfer note from the health center.[1] Transportation for referral varies depending on location and funding.[1,18] Some hospitals offer ambulance services, but few patients can afford them. In Lubumbashi, a lack of ambulances results in referred women having to be transferred via taxi or public transportation, typically not accompanied by a medical professional.[19] Patient medical records are kept mainly on paper and are often stored in lockers or multiple registries scattered throughout a hospital.[20,21] Barriers to adoption of Electronic Health Records (EHR) include inconsistent electricity (or daily brownouts), limited internet connectivity, a dearth of capable hardware, and insufficient technical skills in the workforce.[22] With the assistance of NGOs, a few hospitals and health centers have transitioned to proprietary EHR systems, but this remains the exception.[20,21]

Emergency Management: The capacity for emergency care for mothers and newborns is present in DRC, though extremely variable in accessibility and quality.[23] Studies in rural East and Central DRC have found a lower proportion of births attended by skilled professionals and fewer facilities providing emergency care.[17,24] Some women in rural areas live more than two days' walk from facilities capable of providing Basic Emergency Obstetric and Neonatal Care (BEmONC).[24] During a 3-month observation period in Central DRC only one General Hospital (GH) of 12 provided all nine Comprehensive Emergency Obstetric and Neonatal Care (CEmONC) functions.[17] Antibiotics, anticonvulsants, and oxytocin were available in 69% of all facilities, and only 50% had electricity and 25% had drinking water.[17] During observation, few Health Centers (HCs) performed newborn resuscitation and less than half of both HCs and GHs performed placenta removal, removal of retained placental products, or assisted delivery.[17] In urban Lumumbashi, a 2010 study found that only 7% of women who had a birth complication were treated at a CEmONC facility.[5] Additionally, over 30% of facilities providing delivery services lacked sterile platforms and over 20% lacked transfer forceps.[5] Often, since families were expected to provide supplies such as surgical kits, blood, and IV fluids, the functional availability and quality of a service at a facility is thrown into doubt.[5]

Immediate Postnatal Care: Post-delivery care is minimal and can vary widely in the DRC, as guidelines for postnatal care are not easily accessible, understood, or followed. Skin-to-skin is not widely practiced immediately post-birth; a study in eight health zones reported only 10% of births had skin-to-skin.[25] Following C-section, infants are often separated from mothers and sent to a neonatal intensive care unit.[12] Support for breastfeeding remains minimal, with just over half of mothers initiating early breastfeeding.[2526] Lack of skilled providers and minimal supplies for medical interventions in the postpartum period also hinder the services that can be offered.[19,27–29] Postpartum care is provided in communal wards consisting only of beds.[30] Anecdotally, women tend to stay at the hospital for approximately three days following a vaginal delivery and ten days following a cesarean section. Typically, they are not permitted to leave until they can pay the hospital fees.[12]

A TYPICAL BIRTHING SUITE

Birthing suites in the DRC vary based on geographical location, funding, and partnerships with international governmental and non-governmental organizations. Birthing Suite A is an example of a delivery room in a highly resourced urban area, while Birthing Suite B is a typical delivery room in a low-resource rural area.

BIRTHING SUITE A

Photo source: Jean-Jacques Kayembe, Monkole Mother and Child Hospital

BIRTHING SUITE B

Photo source: Ruthie Schaad, Centenaire Clinic

Labor Aids

1. **Delivery bed with stirrups** – In well resource, high-fee facilities, an adjustable bed with clean linens is available in each room. In low-resource facilities, women enter the delivery room when it is time to push; beds are not also used for labor.

Medical Devices

2. **Baby Scale** – used to weigh baby after birth.
3. **Paper covering** – without ability to launder, many facilities use paper to cover the delivery bed, or ask women to bring their own linens.
4. **Exam light** – used to optimize anatomical view during labor and delivery.
5. **Infant warmer** – table equipped with oxygen, suction, and warming lights.
6. **Bucket** – plastic buckets are used to catch the placenta in low-resource delivery rooms and may also be used to provide water for handwashing.
7. **Contraction and Fetal Heart Monitor & Ultrasound** – to monitor mother and baby during delivery.
8. **Resuscitation kit** – instruments to revive mother and/or baby (not shown but in room).

WOMEN'S EXPERIENCE

Women's experience in both urban and rural hospitals depend on staff prioritization of care tasks, staff attitudes, time constraints, and resources available in the facility. Rural facilities are typically understaffed, lack cleanliness, do not have running water, and have difficulty arranging transportation for referrals.[31] In a 2011 study, some families had to resort to violence for women to be admitted during labor. Time constraints resulted in delayed care. Major contributors to maternal mortality included lack of available blood for transfusion and the unavailability of the operating theater for emergency cesareans (C-sections).[32] Women who give birth in urban hospitals experience similar barriers to quality of care. In many instances, women report unsatisfactory experiences due to unexpected C-sections.[33] Women's experience during birth and the overall quality of care in DRC is frequently insufficient due to many health system barriers.

ASPECTS OF HEALTH FACILITY THAT INFLUENCE WOMEN'S EXPERIENCE

- Lack of facility resources: (medicines, blood, equipment, qualified staff)
- Inappropriate attitude of staff
- Poor organization of care
- Water and facility cleanliness
- Violence towards patients
- Cost of care

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