

## PERSPECTIVES

# Improving access and quality of maternal and newborn care through the newly established Ayaan Specialist Hospital in Bosaso City, Puntland State of Somalia

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**ABSTRACT**

Somalia has one of the highest maternal mortality ratios globally, constituting an important public health issue for the country. The availability of free and quality obstetric and newborn care services is critical for reducing maternal and newborn deaths. The Ayaan Foundation for humanitarian assistance has established a specialized hospital in Bosaso, Puntland, Somalia and created a cost-free service for normal deliveries and caesarean sections with assistance from the UN Population Fund. The Ayaan Specialist Hospital aims to provide better health and free basic and emergency obstetric and neonatal services to reduce maternal and neonatal morbidity and mortality.

The hospital has high standard facilities, equipment, and supplies and is run by a highly specialized medical team implementing advanced quality services and supported by well-trained midwives and nurses that are available around the clock. The hospital has a clinical diagnostic laboratory, medical imaging facilities and provides quality drugs.

Services were initially paid out-of-pocket, which was a problem for low-income clients. Pregnant women now have access to a comprehensive package of services at the hospital regardless of their socioeconomic status. During the initial period of January 2020 to June 2021, only 223 pregnant women attended the hospital; however upon easing the requirement for payment between July 2021 and June 2022, a total of 1,213 women of childbearing age attended the hospital. Among the full-term mothers, 218 had a normal vaginal delivery (36%), while 386 (63%) underwent caesarean section. The majority (84%) of these were treated as situations of emergencies. This approach has successfully increased facility-based births among poor women in the city and its surrounding rural districts.

The initiative to establish the hospital was taken in view of the need to promote a free maternal health care policy to effectively realize universal access to and the full utilization of facility-based delivery across the country.

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## Background

The civil war, starting in 1991 and lasting for more than 20 years, made Somalia unstable, weakened the civil state, disrupted its institutions and led to the collapse of basic public health services in the country. The Federal Government of Somalia was established in 2012 under the current provisional Federal Constitution. Six Federal Member States were established [1]. Bosaso in Bari

region is the largest city in the Puntland Federal State of Somalia, situated on the Gulf of Aden and having a population estimated at 719,512, according to the national survey of 2014 [2]. The city hosts a substantial proportion of internally displaced people. In 2021, Somalia, Syria, and Yemen had the highest Fragility Index points [3]. Somalia also has one of the world's highest lifetime risks

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**Figure1.** The Ayaan Specialist Hospital

of maternal deaths, with women facing a one in 22 lifetime risk of maternal death [4]. Estimates from 2020 indicate a maternal mortality ratio of 692 per 100,000 live births in Somalia [5]. The majority of women, in low-income countries, die of complications due to haemorrhage, followed by eclampsia, obstructed labour etc during and following pregnancy and childbirth that are preventable or treatable [6-7]. This is consistent with findings of other studies including a World Health Organization (WHO) report and a recent publication from Bosaso, Somalia [6-11].

Women who have undergone female genital mutilation (FGM) are more likely to suffer from prolonged and obstructed labour, sometimes resulting in foetal death and obstetric fistulas [12]. In addition, the infants of mothers who have undergone more extensive forms of FGM are at an increased risk of dying at birth [12].

The Sustainable Development Goals (SDGs) and the target of Universal Health Coverage (UHC) include the reduction of maternal mortality as part of ensuring healthy lives and promoting wellbeing for all, at all ages by 2030 [13]. One of the main strategies to reduce maternal mortality is providing adequate medical care in obstetric emergencies in a timely manner, managing complications, providing care to the mothers before and after birth and also addressing prevention in order to avoid complications [13-16]. Thus, it is important to offer the Somali community opportunities to benefit from health care facilities that can provide adequate medical care in obstetric emergencies.

There are currently three private hospitals and only one general hospital in the city of Bosaso. Due to economic constraints, the majority of the care-seeking mothers cannot afford the cost of the private facilities.

The present initiative was organized by six senior health professionals of varying specialty backgrounds

who, for decades, worked at different international health institutions. After a careful and long planning process, the group created a solid foundation and set out to establish and develop humanitarian services infrastructure by building a hospital providing high quality standard, with special focus on Reproductive, Maternal, Newborn, Child and Adolescent Health services aiming to reduce maternal and neonatal morbidity and mortality.

### Setting up the hospital facilities

The hospital has emergency rooms, out-patient facilities, rooms for X-Ray, a pharmacy, laboratories, administration rooms, two extended ground sites for reception and waiting area, operation theatres, post-operation rooms, a maternity ward and other in-patient rooms. There is a secure supply of water, sanitation and electricity. All formal administrative procedures were completed by October 2019, including Registration and Operating Licenses.

### Hospital Services

The hospital has an out-patient department and a maternity ward of 28 beds, including single rooms and four double bedrooms with bathrooms. Furthermore, the hospital offers clinical services of internal medicine and general surgery, including laparoscopic procedures, out-patient clinics, and an emergency care unit supported by a clinical laboratory, ultrasound, echocardiogram, and X-ray diagnostics. It ensures availability of good quality essential medicines. It has a medical record system for clinical patient healthcare data management. The hospital focuses primarily on maternal and newborn health by taking a nominal fee or, when possible, providing free basic and emergency obstetric and neonatal care services to reduce maternal and neonatal mortality.

### **Human Resources**

To offer emergency and essential lifesaving services, the hospital recruited three highly specialized senior consultants from abroad: an obstetrician/gynaecologist, a paediatrician, and a specialist in medical emergencies/surgery. Local staffs are recruited according to their knowledge and experience.

### **Maternity Ward**

The key services that the hospital is offering are predominantly reproductive, maternal, neonatal and child health care. Financing of all hospital services of antenatal care (ANC) as well as Basic and Comprehensive Emergency Obstetric and Newborn Care was initially covered through out-of-pocket fees by the care-seeking mothers and their families. For normal childbirth, laboratory tests, bed charges and medications they had to pay a fee of US\$ 140 and for a Caesarean Section (CS) up to US\$700. This was unaffordable for most care-seeking mothers, leaving many of them seeking financial assistance from their kin and family networks. This network of support was not available for the internally displaced people.

### **Easing Financial Barriers**

To pursue a predominantly free healthcare strategy or significantly reduce the financial barriers for the care-seeking low-income women, the hospital management team reached out to several health partners. The hospital is strategically situated in an area where a majority of the vulnerable population (internally displaced persons and Yemeni refugees) can easily access and utilize the health services provided by the hospital. The United Nations Population Fund (UNFPA) offered the necessary financial assistance through a jointly set, essential service episodes-based payment system, easing access to the different maternal and newborn lifesaving interventions. This support has enabled the hospital to pursue an affordable path for the urban and rural mothers in need, to access antenatal care, normal delivery and CS quality services. Now a normal delivery service, consisting of six hours post-delivery hospital care, is charged at US\$ 50-70. This cost covers blood tests, medication and/or blood transfusion. A CS with three days of post-natal hospital care is charged at US\$ 150 to 200. This results in a cost reduction of 75% for both normal delivery and CS. The recruitment of voluntary blood donors for safe blood transfusions is directed at relatives or friends of the mothers requiring blood transfusions.

### **Achievements during the first two years**

The data has been accumulated from maternal and newborn health records. During the period spanning from January 2020 to June 2021, only 223 pregnant women attended the hospital. However, with the reduction of out-of-pocket fees between July 2021 and June 2022, a total of 1,213 women of child bearing age were able to attend the hospital. Following registration, pregnant women go

through routine investigations, including ultrasound, complete blood count, blood grouping and screening for Hepatitis B Virus surface Antigen (HBsAg), Hepatitis C Virus (HCV) and Human Immunodeficiency Virus (HIV) using commercially available rapid tests. The hospital has internal procedures for ensuring that their activities are ethical, and the shared information is only disseminated for program purposes.

Of the initial 223 pregnant women, 185 had normal deliveries and 38 successfully underwent CS. The number of patients during this period, January 2020 to June 2021, was low for several reasons. One was an outbreak of COVID-19 that took place in early March 2020. Schools were closed in the following summer, when the majority of the families moved away from the city to avert the soaring coastal temperatures. Additionally, financial constraints limited access and utilization of health services, particularly in the early phases of the hospital's coming into operation.

The UNFPA assistance has removed the financial barriers to accessing maternal care starting from July 2021. As a result, the access to and utilization of maternal health care has increased. Between July 2021 and June 2022, a total of 1,213 women attended the hospital. 604 of them were full term mothers, 391 women came for ANC and 218 women used other health services, such as infertility treatment, surgery for ectopic pregnancy, removing ovarian cysts, and other gynaecological diagnostic and care procedures.

Among the 604 full-term mothers, 218 had normal vaginal delivery (36%), while 386 (64%) underwent CS. The attending pregnant women's age ranged between 14 and 42 years and the mean age was 26 years. All went through routine investigations. Among the full-term mothers, the prevalence of HBsAg was 4.4%, while only one case was HCV positive, and none were HIV positive. A blood transfusion was given to 25% of the 604 pregnant women and high proportions (84%) of the CS cases were treated as situations of emergencies. The 386 mothers that underwent CS had pregnancy complications. The most observed were obstructed foetal distress (19%), previous multiple CS and uterine rupture (16%), post-date oligohydramnios and foetal distress (14%), placenta previa, preeclampsia/eclampsia, haemorrhage and breech presentation (38%). Due to the high-quality performance and excellent patient management, ASH maintained a zero direct obstetric case fatality rate.

There were 608 live births including two twins. In addition eight mothers had still birth babies and two mothers delivered premature babies. The live newborns were given BCG and Polio vaccinations, and those whose mothers were HBsAg positive received the hepatitis B vaccine at birth. Unfortunately, hepatitis B immune globulin is not available in the market, while Anti-D Immunoglobulin was given when the Rh-negative mother had a baby with Rh positive blood. A birth certificate was subsequently issued to all newborn babies.

The ASH has the necessary facilities to care for premature babies. Premature babies as well as infants



brought from other health facilities with asphyxia were given care. Two premature boys were delivered in the hospital, one delivered at the 29th week, weighing 975 g and the other at the 32nd week, weighing 1.4 kg. They were effectively managed by using incubators, providing oxygen, medicine, feeding as well as monitoring temperature and heart rate and by securing skin to skin contact with mothers.

Although the focus of ASH is on maternal and childcare, it also offers out-patient and in-patient services to patients with communicable diseases or surgical conditions. Ultrasound and X-ray examinations are available for diagnostic purposes. ASH offers some surgical interventions which are otherwise only available abroad, leading to increased costs. We deal with a range of surgical ailments and emergencies and perform advanced surgical procedures and provide post-operative care of high quality. Our expertise in laparoscopic surgery ensures minimal scars, a quicker recovery, less discomfort and the earliest return to a normal routine.

## Discussion

ASH offers affordable, basic and comprehensive emergency obstetric and newborn care services. In addition, it offers non-emergency obstetric care, prenatal care, family planning, and infection prevention care. ASH directly addresses the shortcomings of the existing infrastructure and provides facilities of good standards in terms of equipment and supplies consistent with WHO standards. The hospital is run by highly qualified, specialized doctors and well-trained midwives and nurses that provide services to clients around the clock in a compassionate, professional, ethical and knowledgeable fashion. Pregnant women now have access to a comprehensive package of services at ASH, regardless of their socio-economic status. The responsible medical team determines the pregnancy status of the attending mother. When CSs are indicated, written informed consent has to be obtained from the pregnant woman's spouse and or family members before starting the operation.

The CSs are well performed and handled with utmost sterility. Both the obstetricians and the paediatricians work side by side, in regular deliveries as well as in CSs. Around 84% of the CS cases have been emergency cases. The reasons for the high number of CSs in our setting included the direct referral of pregnant women with serious complications from other district hospitals in the region or adjacent regions, as well as from within Bosaso city health facilities. Many mothers prefer ASH's high-quality services and benefit from the removal of a substantial proportion of the cost related barriers. Moreover, women who are in premature labour are referred to ASH or turn directly to the hospital for services including quality health care to premature babies. However, the high number of referred CSs to the hospital demands huge resources in terms of supply and supportive staff, making expenses increasingly hard to cover.

A study from the WHO has shown the CS utilization to be on the increase, globally accounting for over 20% of all deliveries and expected to approach one third of all births by 2030 [17]. Similarly, an increasing CS rate was reported from high, middle and low-income countries in another study [18]. There is a need to increase resources for performing CS in Somalia. Our hospital faces significant challenges in providing essential emergency obstetric care services, where many of the mothers come with very low haemoglobin and in need of an immediate blood transfusion, while others present with eclampsia, severe diabetes related pregnancy complications, or ruptured placenta.

It is recorded that the utilization of antenatal care services at ASH is low and that many of those who attend do not complete the required number of visits. Antenatal care plays an important role in the prevention of conditions like anaemia, hypertension, diabetes and risk of abortion. Other challenges include when a pregnant woman is in critical condition and in urgent need of CS (to save her and the foetus) not being able to give consent on her own. In many instances, relatives and the spouse have to agree to whether or not CS is to be performed. This can be a time-consuming task to discuss before an agreement is reached, jeopardizing the mother's and foetus' chances of survival. Health-care providers and policymakers at national, regional and local levels need to encourage and empower women's decision-making capacity, in particular in regard to their reproductive lives and promote health seeking behaviour to manage high risk pregnancies in the first place.

Due to the high-quality performance and patient management, ASH maintains zero direct obstetric case fatalities. This contributes to the reduction of maternal and neonatal mortality in the Bosaso district. ASH has worked hard to become a reputable health service, in particular regarding the capacity to perform effective emergency services. All these activities have led to the reduction in the rates of poor pregnancy outcomes, maternal mortality and near miss maternal morbidity among pregnant women. Also, preventing birth asphyxia, neonatal sepsis and neonatal mortality are vital interventions offered by ASH. In coordination with the local ministry of health, ASH also carries out preventive measures such as the provision of childhood vaccination services, as well as the prevention of mother-to-child transmission of the hepatitis B virus.

The hospital team creates a safe environment for mothers to give birth and care for their babies. Mothers are encouraged to start breast feeding immediately. The mother leaves the hospital satisfied with a vaccinated baby, a vaccination schedule card and a birth certificate. In order to follow-up, mothers are asked to come back after a week to check the CS operation wound. The doctors/midwives give consultation to mothers on family planning and encourage them to come back 40 days after delivery to make use of the child spacing items that are available and provided by the UNFPA.

The support of UNFPA has appreciably contributed to the successfully attained service outcomes and to the workforce efficiency and motivation. The hospital management team will continue to peruse and attract the attention of different health stakeholders, the community business owners and the Minister of Health to keep the momentum going and contribute and support this noble act to provide quality health care and save our mothers and children.

Besides its focus on maternal and child health, the ASH initiative also includes efforts to meet the needs and demands of the community by covering the necessary primary healthcare in general. It has offered medical procedures and medicaments, emergency care, surgery and other specific interventions, clinical laboratory diagnostics, medical imaging, X-ray and safe drugs. We have made some surgical interventions enabling patients to forego travel abroad to seek services at a higher cost, ameliorating the financial burden of medical expenses incurred. From the customers' point of view, ASH has already built a reputation regarding the high-quality services and clean environment of its facilities. We built relationships with local hospitals and health institutions, and plan to create contacts with a network of medical doctors and expert technicians working at institutions abroad for support and consultancy services. This would also include the possibility of sending test samples and diagnostic materials such as soft copies of radiographic images to provide treatment advice. These actions will enable us to serve patients locally and provide less costly and more convenient health services relative to travelling abroad.

We monitor a variety of indicators that inform us as to how well ASH is progressing in terms of clinical outcomes, customer satisfaction, trust and perceived quality of care, as well as our own internal finances. We will gradually scale-up our services to include new specialties, such as intensive care of preterm babies and an orthopaedic unit. We will also increase our diagnostic capacity by introducing a pathology laboratory, Digital X-rays and CT- scans and embark on using solar energy as a power source. We envision the hospital to be a leading referral health institution in Puntland and the surrounding areas, with experienced medical personnel that are well versed in global standards of care. We plan to build partnerships and expect the government to facilitate public-private partnerships and engage international partners to support health development.

To enhance the performance capacity of the different categories of health workers, in-service professional training activities are organized to improve staff efficiency and the quality of health care services in the hospital. These in-service training activities are organized by the hospital's senior expert doctors, who provide on-the-job training for junior doctors, midwives and nurses. In addition, the hospital takes part in capacity building for medical professionals from the other health institutions in the city. We encourage and provide technical backing to young researchers to address priority health problems

with a view to improve the health care services in Somalia.

The Somali Federal and State Governments and their national and international health partners need to pursue a policy of free maternal health care to effectively promote and realize universal access and utilization of facility-based delivery across the country. The government has to engage both the public and the private sector to scale-up the initiative through joint financing. This will reduce the unacceptably high maternal and newborn mortality rates and accelerate the attainment of the national strategy of UHC.

Cost recovery is highly impacted by the high salary expenses for hired medical experts from abroad as there are a limited number of highly qualified medical professionals in Somalia. However, in the near future we expect our local staff to gain the required knowledge and experience to replace the foreign doctors. The costly electrical bills and the seasonal high temperatures cause families to move out from the city for four months during the summer, which reduces the hospital's activity and income. The COVID-19 pandemic caused delays in medical supply delivery and constrained the travel plans of contracted biomedical professionals for the maintenance of equipment, indicating the need to create access to local medical companies and knowledgeable biomedical engineers.

## Conclusion

The ASH Foundation for humanitarian assistance offers the necessary access to adequate Reproductive Maternal, Newborn, Child and Adolescent Health services, a priority field for the national health system. The free, basic and emergency services have significantly increased the demand for facility-based delivery and scaled up community awareness about the importance and utilization of these services as well as antenatal care. This will definitely have an impact on the reduction of maternal and neonatal deaths.

We have achieved tangible progress in tackling maternal and neonatal mortality in Bosaso and neighbouring areas with the support from UNFPA.

## Summary in Somali

### CINWAAN

Kor u qaadida helitaanka iyo tayada daryeelka hooyada iyo dhallaanka iyadoo loo marayo isbitaalka takhasusiga ah ee Ayaan oo laga hirgeliyey magaalada Boosaaso, Dawlad Goboleedka Puntland, Soomaaliya.

### SOOKOOBID

Soomaaliya waxay leedahay mid ka mid ah saamiyada ugu sarreeya ee dhimashada hooyada ee adduunka oo dhan, taas oo ka dhigaysa arrinkan mid ahamiyad weyn u leh caafimaadka guud ee dalka. Helitaanka adeegyo lacag la'aan ah oo tayo leh ee dhalmada ayaa aad muhiim ugu ah dhimista dhimashada hooyada iyo dhallaanka. Hay'adda gargaarka bini'aadantinimo ee Ayaan, ayaa isbitaal takhasusi ah ka hirgelisay magaalada Boosaaso ee Puntland, wuxuna isbitaalku lacag-la'aan ku bixiyaa

adeegyo loogu talagalay dhalnada caadiga ah iyo dhalnada qalliinka Qaysariga ah, iyadoo isbitaalku gacan ka heleyo hey'adda UNPFA ee Qaramada Midoobay. Isbitaalka Takhasusiga ah ee Ayaan wuxu higsanayaa in uu bixiyo caafimaadka ugu wanaagsan iyo adeegyada asaasiga ah iyo kuwa degdega ah ee hooyada iyo dhallaanka, si loo yareeyo cudurada iyo dhimashada hooyada iyo dhallaanka.

Isbitaalku wuxuu leeyahay qaybo leh tayo sare, qalab iyo agabyo heerkoodu sareeyo oy ku hawlgasho koox takhaatiir ah oo leh takhasusyo sare, oo fuliya adeegyo tayo sare leh, ayna taageeraan umulsooyin iyo kalkaaliyeyaal si fiican u tababaran oo heegan ah saacad walba. Isbitaalku wuxuu leeyahay shaybaar, baarista raajiga iyo ultrasound wuxuna bixiyaa dawooyin tayo leh.

Adeegyada markii hore hooyada ayaa ka bixinjirtey kharashka jeebkeeda, taasoo dhibaato ku ahayd macaamiisha dakhligoodu yar yahay. Haweenka uurka leh hadda waxay isbitaalka ka helaan adeeg dhammaystiran iyadoon loo eegin xaaladdooda dhaqan-dhaqaale. Markuu bilaabay isbitaalku hawshiisa, Muddadii hore ee hawlgalka ee Janaayo 2020 ilaa Juun 2021, waxa daryeel soo doontay oo kali ah 223 haween uur leh; lakin markii la fududeeyey shuruudihii lacag bixinta, waxaa muddadii u dhaxaysay bishii Luulyo 2021 ilaa Juun 2022, adeeg ka soo doontay isbitaalka wadar ahaan 1,213 oo ah, dumar ku jira da'da dhalnada. Hooyooyinka sid-buuxsaday, 218 ka mid ah ayaa si caadi ah u umulay (36%), halka 386 (63%) lagu sameeyay qalliinqeysari ah. Badidood kuwaasi (84%) waxa loo daryeelay iney yihiin xaalado degdeg ah.

Habkani waxa uu si guul leh u kordhiyey ku umulidda xaruntan caafimaad ee haweenka danyarta ah ee ku nool magaalada iyo degmooyinka ku hareeraysan. Hindisaha dhisidda isbitaalkan waxaa lagu saleeyey aragtida ah in loo baahanyahay horumarinta siyaasadda daryeelka caafimaadka hooyada oo lacag la'aan ah, si-wax-ku-ool ahna loo helo daryeel baahsan ee ku-umulidda xarumaha caafimaadka, si buuxdana looga fuliyo dalka oo dhan.

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## Author contributions

HJA conceptualized, drafted, and led the writing of the paper. All authors have contributed to the writing and reviewed and approved the final manuscript.

## Disclosure statement

None of the authors have any competing interest

## Ethics and consent

Not applicable

## Funding information

None

## Paper Context

Somalia has one of the highest maternal mortality ratios globally, constituting an important public health issue for the country. To contribute reduction of maternal and neonatal mortality, in 2020 Ayaan hospital was built in Bosaso, Puntland, Somalia. The initiative to establish the hospital was taken in view of the need to promote a free maternal health care policy services aiming to effectively realize universal access to the full utilization of facility-based delivery across the country.

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