Essential Healthcare Services in the Face of COVID-19 Prevention: Experiences from a Referral Hospital in Ethiopia

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Abstract. Globally, healthcare systems are facing the enormous challenge of the COVID-19 pandemic. Ethiopia is currently implementing different preventive measures to interrupt the transmission of SARS-CoV-2. The early effect of these preventive measures on essential healthcare service delivery is unknown. In this study, we looked at the number of essential healthcare visits over 8 weeks, 4 weeks before and 4 weeks after the implementation of preventive measures. During the implementation of these measures, patient flow decreased in all elements of essential healthcare service. The decline was dramatic for family planning (98%), emergency surgery (77%), and follow-up of chronic surgical conditions (70%). An understanding of the reasons behind the decrease in patient flow is urgently needed to design ways of sustaining essential care.

In January 2020, a novel virus, the SARS-CoV-2, was identified as the causative agent for a cluster of pneumonia cases initially detected in Wuhan City, Hubei Province, China.1 SARS-CoV-2, which causes the disease now named COVID-19, has subsequently spread throughout the globe. By May 12, 2020, the virus infected more than 4.2 million people and claimed more than 280,000 lives.2

Health systems in the world are facing a rapidly increasing demand generated by the COVID-19 pandemic. Africa is still in the early stage of the COVID-19 outbreak. The Ebola outbreak is a good example of how outbreaks may disrupt programs such as tuberculosis, HIV, and maternal and child health care, increasing mortality from preventable and treatable conditions.3–4 To mitigate the impact of COVID-19 on health systems, the WHO prepared a guideline on how to continue essential services during the COVID-19 pandemic. The guideline recommends continuation of essential services like vaccination, chronic disease follow-up, and maternal and child health care, taking into consideration the local context and extent of the outbreak. In areas with a relatively limited number of COVID-19 cases, the health system may have the capacity to maintain routine service delivery in addition to managing COVID-19 cases.9

Ethiopia reported the first COVID-19 case on March 13, 2020. As of May 11, 2020, 250 cases were reported. Like other countries, Ethiopia started to practice different prevention strategies after confirming the first case. These include partial and selective total lockdown, stopping mass praying, avoiding mass gatherings, and closing schools. Different task forces were established at the national and local levels. The Federal Ministry of Health planned to continue essential services during COVID-19 prevention and management. The Ethiopian essential health service package includes reproductive, maternal, neonatal, child, and adolescent health services; major communicable diseases; noncommunicable diseases; surgical care; and emergency and critical care.10

The Amhara regional state zones passed different preventive decisions, like stopping public transport and different physical distancing rules. Hospitals across the region stopped elective surgeries and stopped receiving nonemergency and self-referred patients. The hospitals restricted the number of patient attendants and spaced appointments of chronic illnesses. Dessie Referral Hospital, one of the facilities in the region serving more than 8 million people of the catchment area (East Amhara, part of Tigray, and Afar region), applied these measures starting from March 23, 2020. The transport restriction was lifted on April 16, 2020.

As of May 12, there was no confirmed case of COVID-19 in the hospital, and a single case was reported from a neighboring Afar region on April 23, 2020. The prevention of SARS-CoV-2 community transmission has been attributed to early and rigorous preventive measures. However, its effect on essential health care remains uninvestigated and not well known. Therefore, this study assessed the effect of prevention measures on essential healthcare services at Dessie Referral Hospital. A better understanding of the effect of preventive measures on the healthcare system will help to design ways of sustaining essential health services during the COVID-19 pandemic.

The study was performed in Dessie Referral Hospital. The hospital is located in Dessie town, South Wollo zone of northeast Ethiopia, 401 km from Addis Ababa. It has different departments such as emergency, ophthalmology, surgery, obstetrics and gynecology, child health, medical care, neonatal care, laboratory, psychiatry, pharmacy, and HIV care, and other clinics. The hospital is staffed with more than 800 healthcare and administrative workers. Annually, more than 300,000 patients are seen in the hospital.

Ten days after the first case notification on March 23, 2020, Dessie Referral Hospital applied different preventive measures. These measures include reducing the number of patient attendants to one, exempting vulnerable hospital staff from activities, and stopping service for nonemergency and self-referred patients. In addition, public transport was stopped until April 16, 2020. Isolation and treatment centers were established. Training on COVID-19 prevention and treatment was given for more than 100 hospital staff.

We collected data on the number of patients attending different essential healthcare services from the registers in the different services. These include maternal and child health (delivery, gynecology emergencies, neonatal, and pediatric emergencies), medical and surgical chronic illness follow-up,
chronic medical illness patients will run out of medications, epide-
diac and central nervous system complications. In addition,
spread; patients with toxic goiter may develop different car-
tations. For example, malignancies may further grow and
leave patients without timely evaluation and treatment, pre-
pronounced in the surgical outpatient department. This may
chronic illness follow-up decreased, and the decline was more

cular accidents. As to HIV/AIDS patients, appointments were
develop diabetic ketoacidosis, and cardiac and hypertensive

table conditions.

In all components of the essential health services, the
number of cases declined. In addition to the preventive mea-
sures, the public fear toward the disease may have contrib-
uted to the decreased flow. This may directly or indirectly
increase mortality and morbidities from treatable and pre-
ventable conditions.

The number of patients coming for medical and surgical
chronic illness follow-up decreased, and the decline was more
pronounced in the surgical outpatient department. This may
leave patients without timely evaluation and treatment, pre-
disposing them for different medical and surgical complica-
tions. For example, malignancies may further grow and spread; patients with toxic goiter may develop different car-
diac and central nervous system complications. In addition,
chronic medical illness patients will run out of medications, epi-
lepsy patients may experience seizures, diabetic patients may
develop diabetic ketoacidosis, and cardiac and hypertensive
patients may develop ischemic heart disease and cerebrovas-
cular accidents. As to HIV/AIDS patients, appointments were
spaced for all patients including new and those with treatment
failure, which makes monitoring of adherence and side effects
difficult.

The number of visits at the emergency service decreased
substantially, particularly for urgent surgery. This may lead to
delayed presentation and severe complications.

Almost all components of maternal and child health services
suffered from a low case flow. The exception was the delivery
service, which was relatively stable. This may be because of
the strong programs and advocacies against home delivery.
The family-planning service was nearly closed, serving less
than five patients per week. This may increase the risk of un-
planned pregnancies and related complications. The gynec-
ology emergency care includes care for abortion. Preventive
measures may have resulted in more patients seeking help
from traditional healers, potentially leading to acute and
chronic complications of abortion. Both neonatal and other
childhood emergency visits have also decreased. Because
Dessie Referral Hospital is the only referral hospital in the
eastern Amhara region to deliver this service, there is a serious
risk that the health of neonates and children needing this
service is compromised. The number of tests for the diagnosis
of tuberculosis also decreased substantially, potentially
leading to delayed diagnosis.

This study has a number of important limitations. First, it
was conducted in a single hospital. However, our findings are
likely to reflect the status in the entire region, as all hospitals
were applying similar preventive actions. Second, we were not
able to collect information on the reasons behind the decrease
in patient flow, and whether patients attended other health-
care facilities. This needs further studies with a larger number
of health facilities.

The case flow of almost all essential healthcare services
decreased during COVID-19 preventive measures. Preventive
procedures should be implemented considering the continuity
of essential healthcare delivery. Public restrictions should be
selective; emergency cases should still find a way to access
hospitals. Early decentralization of chronic illness care to the
primary healthcare level should be envisioned. Moreover,

| Table 1 |
|-----------------------------------------------|
| **Number of visits to essential healthcare–delivering units** |
| | Essential healthcare type | Number of visits before preventive measures (from February 24 to March 22) | Number of visits after preventive measures (from March 23 to April 19) |
| | Essential healthcare type | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 |
| **Outpatient** | | | | | | | | | |
| Surgical | | 413 | 329 | 416 | 428 | 172 | 118 | 67 | 124 |
| Medical | | 306 | 259 | 369 | 431 | 315 | 300 | 206 | 234 |
| Psychiatry | | 201 | 193 | 241 | 181 | 184 | 137 | 101 | 157 |
| Oncology | | 30 | 24 | 33 | 46 | 24 | 24 | 19 | 21 |
| Antiretroviral therapy | | 622 | 486 | 565 | 678 | 625 | 610 | 399 | 505 |
| Adult emergency | | 194 | 214 | 154 | 222 | 141 | 139 | 88 | 102 |
| Emergency surgery | | 45 | 40 | 44 | 38 | 8 | 8 | 17 | 21 |
| **Maternal health** | | | | | | | | | |
| Antenatal care | | 87 | 68 | 73 | 117 | 37 | 45 | 76 | 85 |
| Family planning | | 77 | 68 | 73 | 8 | 1 | 3 | 1 | 1 |
| Delivery | | 155 | 206 | 151 | 193 | 162 | 171 | 137 | 185 |
| Gynecology emergency | | 35 | 46 | 30 | 26 | 28 | 18 | 26 | 20 |
| **Child health** | | | | | | | | | |
| Neonatal intensive care unit | | 57 | 63 | 44 | 104 | 49 | 58 | 30 | 43 |
| Pediatric emergency | | 132 | 157 | 159 | 144 | 88 | 36 | 36 | 90 |
| **Other** | | | | | | | | | |
| Blood units in the hospital | | 88 | 94 | 83 | 86 | 99 | 97 | 70 | 88 |
| Samples subjected for GenXpert | | 57 | 45 | 43 | 60 | 43 | 12 | 14 | 22 |
special attention should also be given to blood donation, HIV/AIDS care, and diagnosis of tuberculosis.

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