The Experience of the Continuity of Essential Health Care Services during the COVID -19 Pandemic: The Case of Ethiopia.

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Abstract

Introduction: The COVID - 19 pandemic has brought about an unprecedented impact on health systems across the globe and in Ethiopia. Panic, uncoordinated response efforts, inadequate community awareness, lack of experience in handling similar public health emergencies – all of which were challenges faced during the initial pandemic period. Furthermore, the initial pandemic period shed light on the weak resilience of the healthcare system, where essential health services saw a decline in visits across most of the service areas, including RMNCH, chronic care, emergency and critical care, and a number of other clinical services. The government took a series of measures to curb this risk, including prioritization of essential services for ensuring their continuity and a set of interventions cascaded through an interim guideline issued by the MoH. This enabled the swift recovery of the services across most of the indicators. This article aims to share the experiences in Ethiopia and to share the lessons learnt from the gaps identified and the success stories for the impact of the interventions aimed at maintaining essential health care services during the COVID -19 pandemic.

Methods: This article primarily utilized secondary data derived from the DHIS2 system as well as guidelines, reports, and protocols produced by the Ministry of Health - Ethiopia and other bodies during the COVID -19 pandemic.

Results: March 2020 is exactly two months prior to the first case being detected in Ethiopia, this is a period when essential health services were compromised across many service areas. Particularly, emergency visits, inpatient admission, new TB case detection, elective and major surgeries declined during this period and remained lower as compared to the same period in 2019. Unexpectedly, skilled birth attendant and live births were higher than last year. Critical ICU and emergency related death rates were slightly higher as compared to the same period in 2019. Furthermore, measles vaccinated children and malnutrition screened children were higher during this period.

Conclusion: This study has found that, essential health care services delivery revived and performed well following the strong commitment and visible interventions taken by the government after the initial period of the pandemic. However, stronger, and more resilient healthcare systems need to be put in place, to ensure continuity of essential healthcare and other existing services. [*Ethiop. J. Health Dev*: 2021:35 (SI-4): 00-00]

Keywords: continuity of essential health services, COVID - 19 pandemic

Introduction

The COVID - 19 pandemic has continued to shed light on the fragile state of health services and public health systems globally; even robust health systems are rapidly overwhelmed and have been compromised by the outbreak. The impact of the COVID - 19 pandemic on essential health services is a source of great concern. Major health gains achieved over the past two decades can be wiped out in a short period of time, as has been shown previously in humanitarian emergency situations caused by armed conflict or disease outbreaks such as Ebola (1, 2). The collapse of essential health services, including health promotion, preventive services, diagnosis, treatment and rehabilitative and palliative services is likely to have serious adverse health effects, especially on the most vulnerable populations, such as children, older persons, and people living with chronic conditions or disabilities, and minority groups (3).

Both demand and supply factors, people staying away from health services with the fear of contracting COVID - 19, the operation of existing health services affected by shifting resources to fight the COVID - 19 pandemic, closures of health services, supplies of medicines and commodities disruption has brought forward a great challenge for the continuity of essential services. In addition, societal measures such as a strict lockdown to combat the pandemic, affect people's socioeconomic status and their ability to reach the health services they need (3,7,14).

Evidence from previous outbreaks has demonstrated that a breakdown in the provision of essential medical services results in deaths that may outnumber those from the cause of the outbreak (4, 5). In the 2014 the Ebola outbreak in West Africa, saw over 11,000 deaths which were attributed to Ebola and an estimated 11,000 to 26,000 additional deaths occurred because of interruptions in vaccinations and treatment for HIV/AIDS, malaria, tuberculosis and measles (6).

The World Health Organization (WHO) estimates that disruptions during the COVID - 19 pandemic could almost double the number of deaths due to malaria in sub - Saharan Africa (7) and interrupts the vaccination of around 80 million babies, putting them at a higher risk of diphtheria, measles and polio (8). In addition, emergency departments in the United States reported reductions in visits of up to 50%, including reductions

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in the number of heart attack and stroke cases, leading to fears among the health care providers those patients were delaying seeking care (9).

According to a recent WHO survey, access to services for non-communicable diseases (NCDs) such as diabetes, cancer and cardiovascular diseases have been partially or completely disrupted in many countries (7). Moreover, the effects may continue after the outbreak subsides due to factors such as loss of health care workers.

In Ethiopia, in the earlier phase of the pandemic, fear, misinformation, and limitation of movement have affected the essential health care services. It was reported that there were poorly coordinated response efforts during the 1st t two months of the pandemic. Reports indicate that vaccine preventable diseases are reappearing as an outbreak in different parts of the country and some of the essential programs and services like TB, HIV, Malaria and maternal-child health were not being accessed (11).

Through a gradual increase of awareness and the attention given by the government, the essential health care services recovered significantly, but not entirely (11). The caseload of COVID - 19 patients in Ethiopia has been steady in the first phase of the pandemic, which provided an opportunity to balance the demand of responding to COVID - 19 whilst maintaining the delivery of other essential health care services. However, with the increasing caseload since Mid-July, it has been feared that the challenges to come may disrupt the balance of care currently and pose further challenges.

Major efforts and interventions

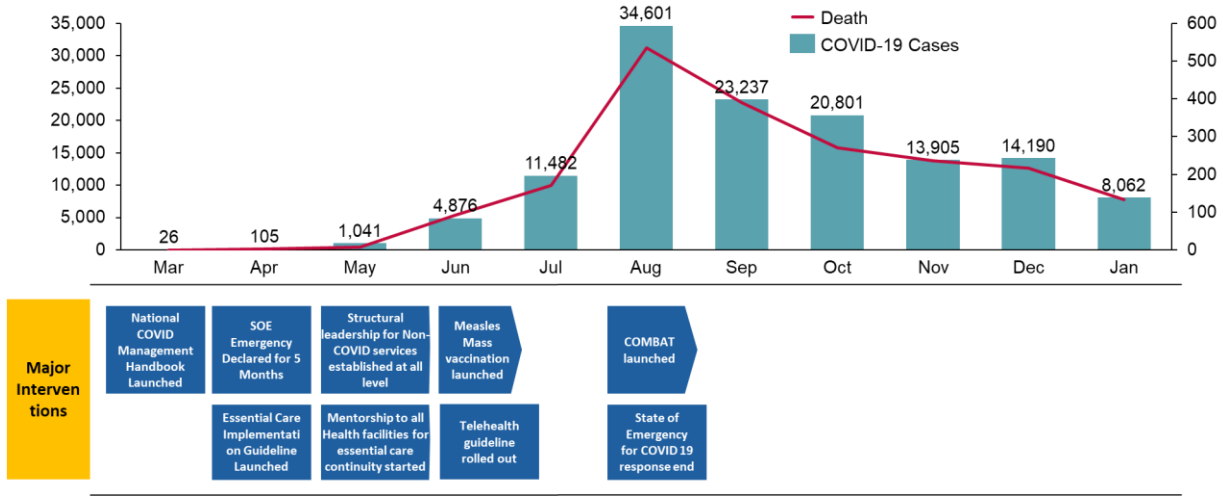
Prioritize essential care services: According to WHO, for COVID - 19 operational guidance, countries need to prioritize certain essential services based on the local disease burden, the extent of the COVID - 19 disease progression and the health care systems capacity to deal with the challenges brought about by COVID - 19(12). Accordingly, Ethiopia prioritized the following services: 1) Emergency and other general services (Emergency and critical care, pre-hospital, outpatient services, liaison, and referral, diagnostic services, 2) Maternal, infants, child and newborns routine health services including nutrition,3) Essential health services for the prevention and control of communicable diseases-TB, Malaria, HIV, and non-communicable diseases like high blood pressure, heart disease, diabetes, chronic respiratory diseases (Asthma & COPD) and cancer, 4) Hygiene and environmental health –drinking water quality management, the WASH program, and to strengthen community basic sanitation and hygiene services, 5) Ensuring the blood supply safety during COVID - 19, 6) Facility disaster planning and preparedness, 7) Surveillance of traditional outbreaks during COVID - 19 response and enforcement of responsibilities at all levels (11).

Strategies put in place to maintain essential health care services: In order to optimize the delivery of essential services during the COVID - 19 outbreak and hence respond to the unnecessary compromise of these services during the outbreak, there was a need to rearrange and make changes to the methods used to deliver essential health services, which included but was not limited to repurposing some of the physical spaces to meet the demand and to use appropriate technologies as required. The following strategies have been put in place to strengthen essential care services: **1)** Ensuring that the services are available for a longer duration of time including additional working hours, **2)** Refer clients with decentralized principles for essential services from highly burdened health facilities to less client burdened facilities, **3)** Approach clients by telephone for their appointment date and time including tele-consultation services, **4)** Modify medication top ups to reduce frequent visits and reduce defaulter rates, **5)** Recruit new professionals and volunteers, mobilize human resources and supplies to places where these services are more compromised due to challenges brough about by the COVID – 19 pandemic **6)** Refocusing public health information communications for resumption of essential services, **7)** Monitoring and evaluation with weekly reporting, **8)** Appropriate PPE for professionals with potential COVID - 19exposure, **9)** Providing COVID - 19 testing and isolation facilities for all suspected case, **10)** Immediate isolation and transfer of confirmed COVID - 19 cases to treatment centers, **11)** Resource mobilization from all relevant stakeholders for financial sustainability and **e**ngagement of professional associations and private facilities, **12)** The national TBL control program has also prepared a model algorithm for TB/COVID - 19 integrated screening and management.

To maintain those essential healthcare services amid the pandemic, the Ministry established a taskforce led by the state minister (program wing). The task force took the responsibility of monitoring the non-COVID - 19 essential health care services with selected key indicators in each program. To avoid disruption of the critical supply chain, including blood supply, the agencies were also included in the taskforces, to enable monitoring of their respective areas with key indicators.

The Ministry conducted an assessment on selected key areas of essential care services in Addis Ababa hospitals, federal hospitals, and university hospitals. The assessment findings, including challenges faced were discussed at the Addis Ababa, regional and university hospital interface platform virtually.

To cope with any unforeseen interruptions of the essential services amid the COVID – 19 pandemics, planning exercises were initiated from the ministry addressing human resources, IPPS, logistics and supply management and preparedness, medical oxygen-related supplies, and mental, psychosocial support for staff. This planning exercise was cascaded to all health facilities, which is included in the assessment to monitor its establishment regularly. The figure below summarizes the major strategies intervened against the COVID - 19 surge (11).



The purpose of the study

The purpose of this study is to share Ethiopia`s experiences and success stories in dealing with the COVID - 19 pandemic and to learn from the gaps identified in maintaining essential health care services during the pandemic

Methods and Materials

The present secondary data review study was extracted from the DHIS2 system at the ministry for selected key indicators which could indicate the impact of interventions on different programmatic levels, which include maternal and child health, disease prevention, emergency, and critical medicine and both outpatient and inpatient. Comparative trend analysis and a nine-month data output was reviewed for selected key indicators during the COVID - 19 pandemic between the period of April 2020 and November 2020 and between April 2019 and November 2019. For the review purpose, the national non COVID -19 essential health care guidelines and WHO protocols were used. The review was done by a team of national clinical advisories, together with the office of directorate for Plan and Policy at MoH.

Result: In this secondary data review, a total of 14 indicators which indicates mainly the performance of essential health care services extracted nationally from the DHIS2 system were reviewed. Generally inpatient admission, emergency visits, new TB case detection and both elective and emergency surgery procedure showed significant decreases during the COVID - 19 pandemic. While professionals assisted with delivery, live birth, CS delivery rate, maternal death, and Measles vaccination, which had a similar trend with the pre COVID - 19 era and even indicated a good performance during the pandemic.

Outpatient Unit Attendance: As shown in figure 1, the overall trend of OPD visits during the pandemic period remained like the same period last year. The biggest drop in OPD visits was during April, a month after the first COVID - 19 case was detected. In May, the OPD visits started to revive again.

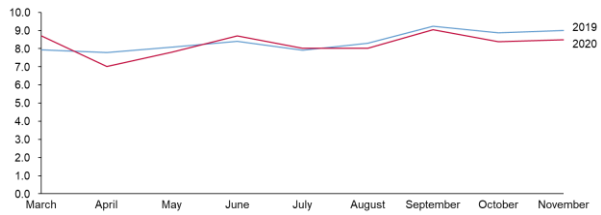


Figure 1: OPD Visit (Millions)

Emergency Unit Attendance: Overall emergency visits were only higher than 2019 during the first month of COVID - 19 detection, while for the following months it remained significantly lower. The biggest drop in emergency visits was recorded in April after the first COVID - 19 case was detected.

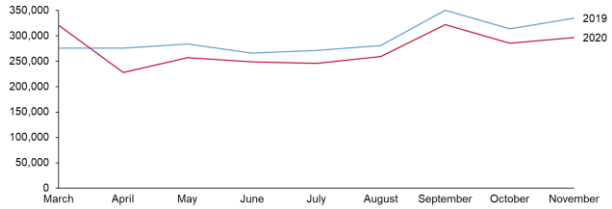


Figure 2: Emergency visit

Inpatient Admission: Overall inpatient admissions across the pandemic period was lower than in 2019 with a similar trend.

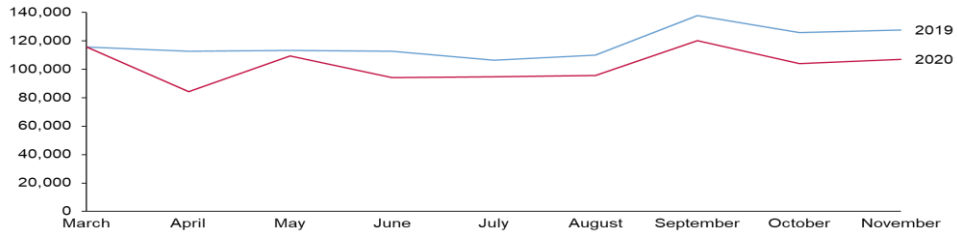


Figure 3: Inpatient admission

Skill Birth Attendance: The trend for both professionals assisted delivery and live birth during the pandemic has indicated a similar trend with 2019, even for most of the months the total live births and deliveries were higher in 2020.

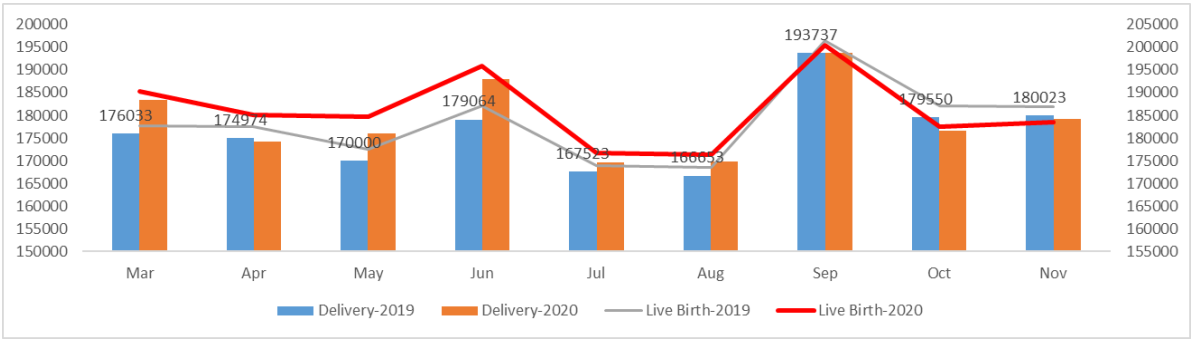


Figure 4: **Professional assisted delivery and live births**

Caesarian Section: CS delivery rate as a percentage of total delivery during the pandemic period was higher across all the months as compared to 2019.

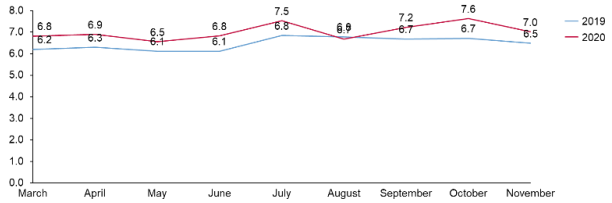
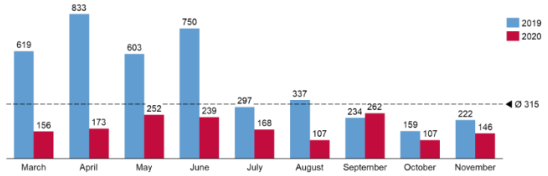


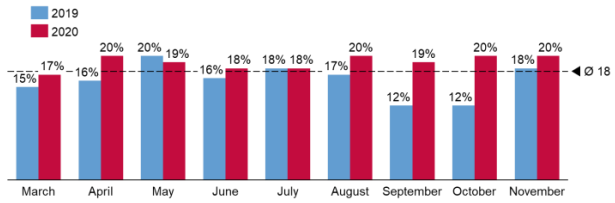
Figure 5: Caesarian Section as a Percentage of Delivery

Maternal Death (community and facility): Maternal death during the COVID - 19 pandemic was significantly lower than in 2019, except for the month of September.



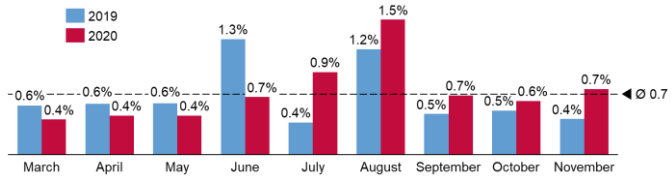
Figures 6: Maternal Deaths (Community + Institutional)

ICU Death Rate: ICU death rates during the pandemic were higher by 3-8% on average monthly as compared to 2019. A Significant ICU death rate has been found following the month of July in 2020.



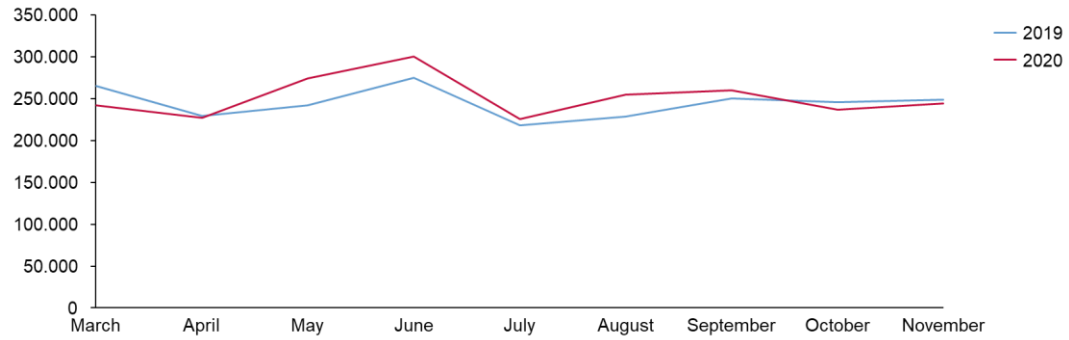
Figures 7: **ICU Death Rate**

Emergency Death: During the first 3 months of the COVID - 19 pandemic in 2020, the emergency death rate was lower as compared to 2019. From June 2020, the death rate indicated a sharp increment until August 2020 and thereafter indicated a decline during the subsequent months though they remained higher than in 2019.



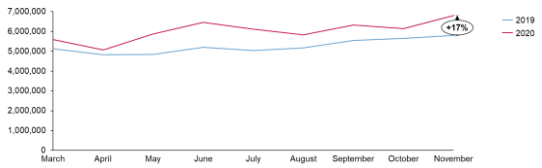
Figures 8: **Emergency Death Rate**

Number of children under one year of age received first dose of measles vaccine: Measles vaccination had a similar trend for both years. Comparative increases in the number of vaccinated children were recorded in June and August of 2020.



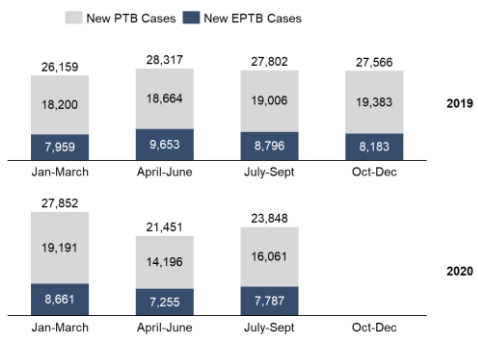
Figures 9: **1st dose of the Measles vaccine for children under 1**

Total number of children <5yrs screened for acute malnutrition: Children screened for acute malnutrition were significantly higher across all months of the pandemic as compared to 2019.



Figures 10: Under 5 Children Screened for Acute Malnutrition

TB new cases detected: As compared to 2019, the TB case detection in both pulmonary and extra pulmonary have decreased during the 2020 COVID - 19 pandemic; following the month of April of the pandemic period.



Figures 11: Number of TB Cases Detected

Malaria cases detected: The number of new malaria case detection was higher during the 1st 4 months of the COVID - 19 pandemic, between March and June which later indicated a decline trend as compared to 2019.

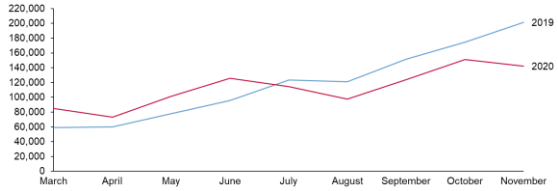


Figure 12: New Malaria cases detected

Chronic Care: A new data capturing system commenced from September 2020 and the comparative result for the whole period may not indicate actual figures for both hypertensive and diabetic new cases enrolled in care and cases on follow up. The number of new cases enrolled to care and on follow up for both hypertensive and diabetes diseases were very high during the pandemic following the actual data system configuration as shown in figure 13 and 14.

Figure 13. New hypertensive cases enrolled in care

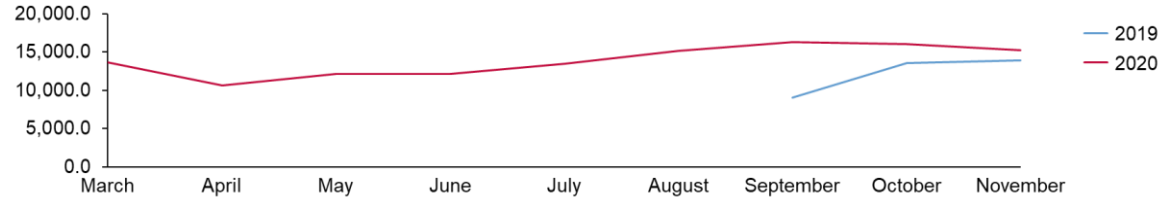


Figure 14: Hypertensive patients put on drug treatment (on follow up):

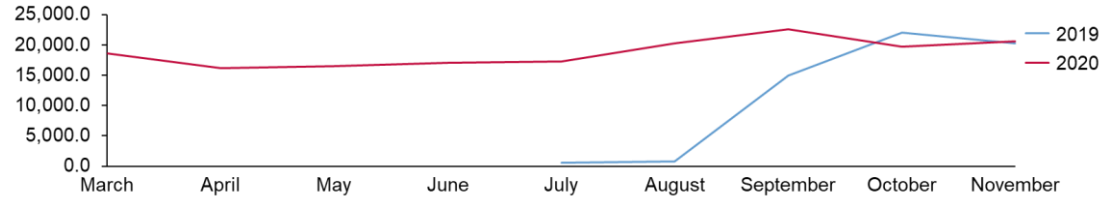


Figure 15: New diabetic patients enrolled to care

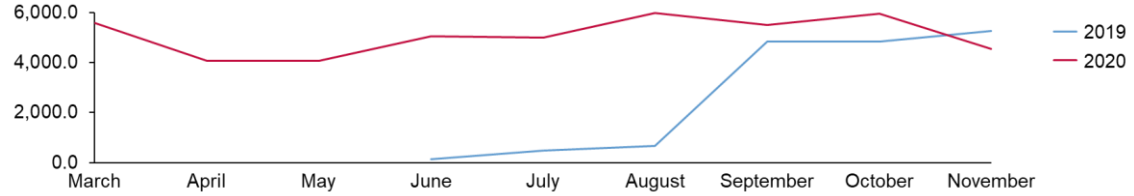
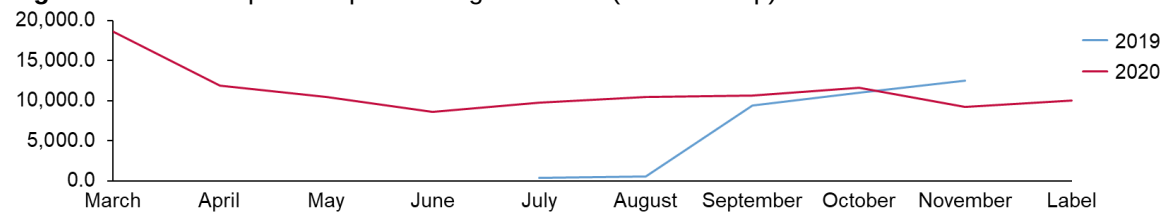


Figure 16: Diabetic patients put on drug treatment (On follow up)



Surgeries: As shown in figure 17 and 18, both elective and major surgical procedures performed during the COVID - 19 pandemic period were very low as compared to 2019.

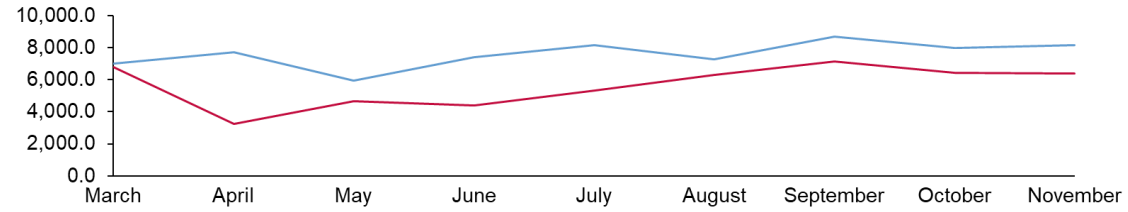


Figure 17: Elective surgeries

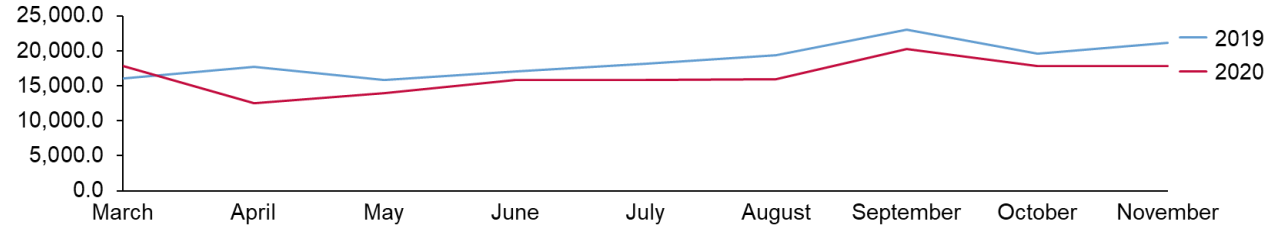


Figure 18: Major surgeries

Discussion

In this study it was observed that during the months of March and April where COVID -19 cases were identified and resulted in an increment in COVID - 19 caseloads; emergency visit attendance, inpatient admission, new TB cases detection and both elective and major surgeries performed were among the essential care services which experienced a decline. This finding has been similar even in countries who have built resilient health system like South Korea (3, 19). This was due to a number of ascertained reasons; the populations fear and frustration which resulted in reduced health seeking behavior, limited general service provision and a focus on emergency and COVID - 19 services by facilities, limited population movement following the State of Emergency act, emergency, and ICU capacity of facilities in major cities particularly in Addis Ababa had limited patient acceptance for regular services. This finding has also been similar at different times in humanitarian emergency situations caused by armed conflict or disease outbreaks such as Ebola which wiped out major health gains achieved over the past two decades in a short period of time (1, 2 and 3).

Almost all essential care services after the month of April started to revive as a result of coordinated interventions enacted both at federal and regional levels. Among the many reasons for this improvement are the enactment of the guidelines to maintain essential health services, which created a confidence in the public and forced facilities focusing on essential health services while responding to the challenges posed by COVID – 19 (11, 12). The commitment of the government in collaboration with different partners who were also heavily invested in providing adequate PPE for non-COVID - 19 services, in order to decrease infection acquisition created confidence for health professionals during service delivery. Aside from the COVID - 19 response structure, essential health service monitoring teams and leadership structures were created at the federal Ministry level, which was led by the state minister and similarly at regional and sub-regional levels which ensured that essential health care services and measures were monitored timeously.

In this study, the number of professional assisted delivery and live births indicated an increment during the COVID - 19 pandemic period as compared to 2019. As clearly observed and as some studies and early estimates indicated, disruptions to routine health care services provision due to COVID - 19 has resulted in a higher impact on maternal and child health service delivery. In a retrospective study in Nepal, the mean weekly numbers of live births declined by 52% (18), and in another study in Zimbabwe, Harare had a reduced utilization of maternal health services at 2 hospitals (17). The findings in our study have been in disagreement with the results found in those aforementioned countries. This may reflect either the true nature of the service provision following the interventions taken or the poor documentation and handling of data which requires further clarification.

The total number of under five children screened for acute malnutrition during this pandemic in this study was higher than the previous years during the same period. Thus, more children are becoming malnourished due to the deteriorating quality of their diets, interruptions in nutrition and other essential services. The socioeconomic disruptions created by the pandemic in LMICs may also be due to the internal displacement seen in the nation which relatively puts strain on the existing systems as compared to previous years (20). UNICEF reports from the early months of the COVID - 19 pandemic suggest a 30% reduction in the coverage of essential nutritional services in LMICs and declines of 75–100% under lockdown contexts (21). New estimates by Derek Headey and colleagues in an accompanying comment in the Lancet, estimates that an additional 6 - 7 million children are affected by wasting during the first 12 months of the pandemic—80% of them in sub-Saharan Africa and South Asia (22).

Comparative increment in under one age children vaccinated for the 1st dose of measles were recorded in June and August 2020 during the COVID - 19 period. This has been due to a measles supplementary immunization activity in June, which helped close to 15 million children aged 9 to 59 months, to get vaccinated across the country. This finding is

supported according to a benefit–risk analysis of health benefits for immunization versus excess risk of SARS-CoV-2 infection (23). This finding also reinforces the guidance issued by WHO and a statement from the Measles & Rubella Initiative which assert that a routine childhood immunization program should be sustained if essential health services are operational while maintaining physical distancing and other infection control measures to ensure the safety of communities and health workers (24,25).

The risk of death during the pandemic is expected to increase, following the high number of sick people requiring critical care beds due to COVID - 19. This increased demand reduces access for people with other critical care needs not related to COVID - 19. In this study, the ICU average death rate during the pandemic was higher by 3-8% each month as compared to the same period in 2019. In addition, a significant ICU death rate has been found following the month of July in 2020. The different religious holidays, which increase people's movement out of their homes for holiday preparations and family gatherings associated with the non-pharmacologic intervention breach and the unrest experienced could possibly account for the surge in COVID – 19 cases, which causes health facilities to be overwhelmed and prevents people requiring care related to non-COVID - 19 services from accessing these services, thus leading to death. Similar reasons also may apply for the sharp increment of emergency death rate during the periods of June to August 2020, as shown in figure 8. This finding was supported according to the national center for health death analysis where, 33% of deaths were not attributed to COVID - 19 (26).

The very low maternal death seen during the COVID - 19 period in 2020 as compared to the same period prior to COVID - 19 may be due to the essential care service delivery effort following different interventions taken by the MOH and other regions. This finding is in contrast to other areas where a trend of reduced health service utilization and a rise in maternal mortality was observed in a Zimbabwe study and also according to early estimates of COVID -19 on maternal health care services by Roberton.et.al. (14, 17). However, the findings in this study needs to be reviewed further for possible causes; such as poor data access and documentation of maternal deaths both at facility and community level.

According to Rogerson et al. in the worst-case scenario, a 75% decrease in ITN distribution coupled with a 75% decrease in access to artemisinin combination therapies (ACTs) was expected to result in a 22% increase in malaria cases and doubling of malaria deaths within a year to 769,000, 70% of them being in children under 5 (27). Likewise, malaria programs are being affected in many ways by COVID - 19. COVID - 19 may be an obstacle for insecticide-treated nets distribution campaigns and regular renewals, which may delay or cancel attending health facilities for treatment due to fear of exposure and environmental preventive measures which were also compromised. This may be the reason why a high number of malaria cases were seen in our findings in the first four months of the COVID - 19 pandemic as compared to the same period in 2019, which later indicated a drop in malaria cases following the integrated action put in place for continuity of essential care services by the government (28).

The chronic care essential services trend during the pandemic, which commonly includes new cases enrolled in the care and cases on follow up for both hypertension and diabetes, generally indicated an increased trend as compared to the 2019 report before COVID - 19. Therefore, the introduction of national Telehealth implementation guidelines in June 2020 as an intervention implemented specially to support the delivery of chronic care services may be of great significance. However, the findings are in contrast to the facility based cross sectional telephone survey at Black Lion hospital in Addis Ababa where 70% of respondents missed their appointment with decreased care seeking behavior at the follow up clinic (7). This discrepancy may be due to poor data handling, which is clearly visible from the results which require detailed work at the ground level for verification of data.

The major limitations of this study were the use of secondary data where missing or incomplete reports of data from the health facilities is a major problem and the organization of data here at the center was also a challenge.

Conclusion

In conclusion, as shown in this study, most essential health care services delivery was revived and performed well following the month of April with strong commitment and visible interventions taken by the government after the initial period of the pandemic. However, stronger and more resilient health systems need to be put in place, in order to ensure continuity of essential health and other existing services before the system becomes fragile. Ethiopia needs to use the COVID – 19 pandemics as a learning curve for future public emergencies and pandemics. The study has also indicated that even strong data management systems need to be strengthened further in order to adapt to the challenges that come with pandemics. In general, as this study was based on secondary data and it highlights the very limited key indicators performance on essential health care services, it is recommended that a detailed study be carried out to clearly understand the pandemics impact on every aspect of essential care services.

Acknowledgment

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