



THE AGA KHAN UNIVERSITY



# CONTINUITY OF ESSENTIAL HEALTH SERVICES STUDY

Exploring the Effect of the Covid-19 Pandemic on the Demand for, and Utilization of, Maternal, Newborn, and Child Health Services in Mozambique

December 2021



Prepared by the International Center for Reproductive Health – Mozambique and Agha Kahn University Center for Excellence in Women’s and Children’s Health - Kenya

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## Research team

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### The study team – investigators:

*Principal Investigator (PI):* Prof. Marleen Temmerman, Director, Centre of Excellence in Women and Child Health, Aga Khan University. Responsible for overall guidance and quality assurance of deliverables in all three countries participating in the Continuity of Essential Health Services Study (CES).

*Local Principal Investigator:* Málica de Melo, ICRH-M country Director. Responsible for study coordination; contribution to protocol development; adaptation of protocol for local ethical review; management of review process; quantitative data analysis; preparation of quantitative component of the Mozambique draft report, and quality assurance of deliverables.

*Co-Investigator:* Sally Griffin, ICRH-M Board Member. Responsible for overall backstopping in coordination with the Ministry of Health, UNICEF and local partners; contribution to protocol development and adaptation.

*Co-Investigator:* Emídio Cumbane, ICRH-M Monitoring and Evaluation Assistant. Responsible for data management and organization.

*Co-Investigator:* Gilda Gondola Sitefane, ICRH-M Board Member. Responsible for preparing and leading the training and data collection process; preparing the training material; training of research assistants; pre-testing and finalizing data collection tools; supervision/quality control of data collection; managing transcription, translation and reporting data analysis; and preparation of the qualitative component of Mozambique draft report, and quality assurance of deliverables

### Technical assistance from AKU-CoEWCH:

Dr. Michaela Mantel. Responsible for providing overall guidance and support in standardized protocol development, study implementation, and reporting.

Prof. Ferdinand Okwaro. Contributed to overall protocol and tool development; provided advice and guidance on the qualitative study and triangulation of data.

Prof. Violet Naanyu. Led the planning, preparation, implementation, data collection, and data analysis and guidance on report structure for the qualitative study component.

Ravi Ram. Led the secondary data component, analysis, triangulation of data for the three countries.

Dr. Jasmit Shah. Provided technical assistance in analysis of secondary data for the three countries.

## Acronyms

<b>AKU</b>	Aga Khan University
<b>ANC</b>	Antenatal care
<b>APEs</b>	<i>agentes polivalentes elementares</i> (community health workers)
<b>ART</b>	Antiretroviral therapy
<b>CES</b>	Continuity of essential health services
<b>CHV</b>	Community health volunteer
<b>CHW</b>	Community health worker
<b>CNBS</b>	National Committee for Bioethics in Health
<b>CoEWCH</b>	Centre of Excellence in Women and Child Health
<b>DPT3</b>	Combined diphtheria, tetanus toxoid, and pertussis vaccine
<b>EID</b>	Early infant diagnosis
<b>ESAR</b>	UNICEF Eastern and Southern Africa region
<b>FGD</b>	Focus group discussion
<b>FP</b>	Family planning
<b>HF</b>	Health facility
<b>ICRH-M</b>	International Centre for Reproductive Health – Mozambique
<b>IDI</b>	In-depth interview
<b>KII</b>	Key informant interview
<b>KMC</b>	Newborn Kangaroo Mother Care
<b>MCH</b>	Maternal and child health
<b>MNCH</b>	Maternal, newborn, and child health
<b>MoH</b>	Ministry of Health
<b>PHSM</b>	Public health and social measures
<b>PI</b>	Principal investigator
<b>PMTCT</b>	Prevention of mother-to-child transmission of HIV
<b>PNC</b>	Postnatal care
<b>PPC</b>	Post-partum care
<b>RA</b>	Research assistant
<b>RMNCH</b>	Reproductive, maternal, newborn, and child health
<b>SIS-MA</b>	National Health Information System
<b>SOP</b>	Standard operating procedures
<b>SRH</b>	Sexual and reproductive health
<b>SRMNCH</b>	Sexual, reproductive, maternal, newborn, and child health
<b>TBA</b>	Traditional birth attendant
<b>UNFPA</b>	United Nations Population Fund
<b>UNICEF</b>	United Nations Children's Fund
<b>WHO</b>	World Health Organization

## Executive summary

### *Background*

The World Health Organization (WHO) declared Covid-19 a pandemic in 2020, and the Government of Mozambique announced the first case in March 2020. While the impact of the Covid-19 pandemic – ranging from health system disruptions to vulnerabilities in everyday livelihoods – has been the principal focus for governments around the globe, it is also important to balance this threat of Covid-19-specific mortality and morbidity with the potential unintended impacts of mitigation measures.

This study specifically concerns itself with the unintended impact of these measures on the demand for, and utilization of, essential maternal, newborn, and child health (MNCH) services, while simultaneously investigating resilience of the healthcare system and supply-side factors that influence access to these services. The multi-country research took place in the Eastern and South Africa region (ESAR), specifically Kenya, Malawi, and Mozambique, and was led by the Aga Khan University Centre of Excellence in Women and Child Health (AKU-CoEWCH) with support from UNICEF at the country, regional, and global levels. This report focuses on the research activities carried out in Mozambique and its specific results.

### *Study purpose*

The overall aim was to understand the extent to which the Covid-19 pandemic has impacted people's willingness and ability to access essential MNCH services, their experiences of care, and the readiness of MNCH health services to provide essential care during the pandemic.

### *Methodology*

This study was cross-sectional in nature and consisted of (1) secondary data analysis of national-level Ministry of Health (MoH) data using an interrupted time series approach to determine changes in performance post onset of Covid-19; and (2) primary qualitative data collection, engaging 153 participants through key informant interviews (KIIs), in-depth interviews (IDIs), and focus group discussions (FGDs). Respondents included pregnant and breastfeeding women (adult, adolescent and living with HIV); caregivers of children under five years; facility-based and community based health workers and health managers. Qualitative data were collected in urban Matola District in Maputo Province and rural Nicosadala District in Zambezia Province.

### *Findings*

*Policy and guidelines:* Relevant World Health Organization (WHO) and Ministry of Health policies and guidelines were implemented to facilitate provision of MNCH services within the context of the Covid-19 pandemic. Mainly, they addressed preventive measures, including hand-washing, use of facemasks by users and providers, use of personal protective equipment (PPE) by providers, social distancing within the consultation room, reduction in the number of patients seen per day, and reduction in the frequency of non-emergency consultations from monthly to quarterly. Under prevention measures, at the community level, Ministry of Health instructions mandated that all activities, including individual and mass health education on routine topics, be stopped immediately.

*Effects of the Covid-19 pandemic on access to healthcare and service utilization:* From the service users' perspective, the low turnout for health services was mainly due to fear of contracting Covid-19 at health facilities and confusion over how to interpret the Government's 'stay at home' message; lack of transport; limited hours for circulation and associated expectation of police punishment for

movement during curfew hours; and scheduling of visits on a quarterly basis. Financial difficulties exacerbated by job losses or lower earnings during the pandemic further limited people's access to healthcare.

*Effects on readiness and provision of health-facility-based reproductive, maternal, newborn, and child health (RMNCH) services and referral system:* A lack of preventive material such as gloves, facemasks, and appropriate protective gowns and supplies compounded service providers' fear of contracting Covid-19 was quoted as main constraints for service provision. This was nevertheless outweighed by a sense of duty and responsibility to continue providing services to the public. While reducing the frequency of routine patient visits, e.g. for antenatal care, HIV, or growth control for children, was one of the mitigation measures implemented to reduce the exposure of health providers, such measures were applied in a blanket fashion, without considering the specific situation of particular healthcare users. Further, instructions to halt all activities implemented by community health workers had a profound impact on vulnerable populations. This affected services such as sensitization for and uptake of family planning, antenatal care, and institutional delivery; child health and growth control and vaccination; nutrition control, follow-up on HIV treatment; and referral to health facilities, often for the hardest-to-reach populations.

*Communication of Covid-19-specific policy and mitigation measures:* Suboptimal communication contributed to a reluctance to reach health services. In particular, misinterpretations of the key message 'stay at home' was reported as the main reason curtailing care-seeking behaviours. As soon as this became apparent, the Ministry of Health invested in a public communication campaign to encourage uptake of health services whenever necessary: the updated message was shared via mass media as well as through the network of community health workers and community leaders.

In the quantitative analysis, there was an observable effect of the Covid-19 outbreak and introduction of new measures during March 2020, a substantial variation in the Covid-related trends despite the limited available data. In the Covid-affected period, from March 2020 onward, apart from the indicator on pregnant adolescents aged 15–19 years attending their first antenatal care consultation and the one relating to the total number of fully immunized children, the indicators seemed to decline after March 2020 when Covid-19 was first detected and restrictions imposed by the Mozambique Government. However, interpretation of these findings should be subject to caution because of data quality limitations.

### *Lessons learned*

While the preventative measures implemented by the Ministry of Health to limit the spread of Covid-19 were necessary to protect the public, they also had an impact on the demand for, and access to, essential RMNCH services.

- **Policies, norms, and regulations:** should be sensitive to different types of services and needs. It is important that the regular supply of essential services and referrals for continuum of care, is secured both at community and facility level. Systems must be in place so emergencies can be responded to appropriately even in a pandemic situation.
- **Communication:** Healthcare providers recognized that initial messaging around Covid-19 prevention contributed to fear instead of awareness among community members, and stopped people from seeking the care they needed.
- **Impact of preventative and mitigation measures on the most vulnerable:** Some preventative and mitigation measures enforced during the Covid-19 pandemic had a negative impact on the most vulnerable population, making access to services more difficult.

The obligatory use of facemasks became a financial obstacle for some users who could not afford the cost: without a mask they would have to forego care. Financial difficulties were common given high levels of poverty in the country compounded by the fact many people lost their livelihoods or earnings during the pandemic. Curfews and limits on passenger numbers adversely impacted both ease of movement and ticket prices, further challenging people's access to health services. Thus, it is important to take into consideration a country's socioeconomic profile and the impact of any measures being introduced on the most vulnerable. Adequate financial support and distribution of any essential goods, such as facemasks, in the community would help level the playing field in access to healthcare.

- **Community and facility-based readiness for provision of and referral to essential services:** It is important that the regular supply of essential services, such as antenatal care and referrals for continuum of care, is secured both at community and facility level.

### Conclusions

The quantitative and qualitative results of the study reveal that the Covid-19 pandemic has negatively affected the demand for, access to, and uptake of maternal, newborn, and child health services. A number of prevention and mitigation measures have been implemented to limit the spread of Covid-19 in the country. This study found evidence that some of these measures, such as the obligatory use of facemasks in health facilities, became a *de facto* institutional barrier preventing some of the most vulnerable people who could not afford them from accessing care. The message to 'stay home' was also found to have been confusing to the public, hindering care-seeking behaviours.

We conclude suggesting that any measures put in place should take into account the socioeconomic context and their potential impact on demand and supply factors affecting access to essential health services. Care should be taken to ensure that even small pandemic control measures, such as the mandatory use of facemasks in health facilities, do not create insurmountable barriers for some users – especially at a time that many community members are experiencing additional financial hardship. Similarly, the confusion around the 'stay at home' message underscores the need for very clear and consistent messaging – delivered through appropriate channels, whether mass media or community-based awareness-raising campaigns – to promote continued demand of essential reproductive, maternal, newborn, and child health services. While it is important that safety protocols are in place to protect both service providers and users, the cost of essential supplies for Covid prevention in the context of seeking essential health services should not fall on the shoulders of users who can least afford it. It is also critical that the indispensable work of community health workers is allowed to continue to bring lifesaving care to those hardest to reach.

Finally, the health information system can support informed decision-making, as it enables a continuous evaluation of the impact of any measures on essential healthcare provision and utilization indicators, pointing the way for any fine-tuning to support better access to, and availability of, essential health services.

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## 1. Introduction

This report provides an overview of the effect of the Covid-19 pandemic on demand- and supply-side factors affecting maternal, newborn, and child health (MNCH) service utilization in Nicoadala District (Zambezia Province) and Matola District (Maputo Province) in Mozambique.

The report, which is based on an analysis of qualitative and quantitative data from Mozambique, is part of a series that also covers two other countries in the Eastern and Southern Africa region (ESAR): Kenya and Malawi. This series of reports has been commissioned by the UNICEF Eastern and Southern Africa Regional Office (ESARO) and led and coordinated by the Aga Khan University Centre of Excellence in Women and Child Health (AKU-CoEWCH) as part of a long-term agreement established in August 2019 entitled 'Evidence Generation for Improved UNICEF Health Programming in Eastern and Southern Africa'. The report follows a standard template across the three countries, with country-specific adaptations, as applicable. Common tools and standard operating procedures (SOPs) were used across the three countries.

In Mozambique, the study was implemented in 2021 by the International Centre for Reproductive Health in Mozambique (ICRH-M), a non-governmental research organization specializing in reproductive and sexual health, in coordination with the Ministry of Health at both central and provincial levels. ICRH-M led local protocol development, data collection, data processing and analysis, ethical approval and liaison with local stakeholders. A Steering Committee comprised of members from the UNICEF Mozambique Country Office, the Ministry of Health (MoH), the National Institute of Health (INS), the United Nations Population Fund (UNFPA), the World Health Organization (WHO), and ICRH-M was established to provide input into the study at various key points, including study protocol development, interpretation of findings, and dissemination.

This was a mixed-methods study comprising a desk review of documents, semi-structured and in-depth interviews in the field (at district management level; at service delivery level with providers at health facilities; and with community health workers and community members), focus group discussions (FGDs) with community members, and quantitative secondary data analysis of selected key MNCH indicators extracted from the National Health Information System (SIS-MA) for the period 2018–2020.

The study included a specific focus on vulnerable populations, including adolescents, women living with HIV, and infants and young children. The immediate target groups included pregnant and breastfeeding women and girls in the 15–49 age group, including those living with HIV, as well as parents and guardians of children under five. In addition, health personnel, both clinical and management, and relevant community health workers were included in the study.

# 1. Background and rationale

## 2.1 Covid-19 in Mozambique

The first case of Covid-19 in the Eastern and Southern Africa region was registered in South Africa on 6 March 2020. In Mozambique, the first documented cases of Covid-19 were announced on 22 March 2020. As of 31 December 2020, Mozambique reported 18,642 confirmed Covid-19 cases and 166 deaths.<sup>1</sup> A Level 3 State of Emergency was declared on 30 March 2020, resulting in the closure of educational institutions, suspension of visas, limitations on mobility, restricting gatherings above 50 people, and the recommendation to maintain a minimum distance of 1.5 metres between individuals.

Further measures were subsequently put in place, limiting gatherings to 10 people, placing restrictions on bars and other businesses, and recommending the use of masks on all means of public transportation and in public places; people were also encouraged to stay at home whenever possible. The State of Emergency was extended several times until 30 August 2020, and then converted to a State of Disaster, which remained in place as of August 2021. While initial Government messaging, issued in April 2020, discouraged people from visiting health facilities for non-Covid reasons, this was quickly amended and people were advised to continue seeking routine services as normal. Within the health system, changes have been introduced to limit in-facility transmission of Covid-19 and to provide treatment services for patients with Covid-19.

A second wave hit the country in early January 2021, reaching its weekly peak in February 2021 with 6,380 confirmed cases. A third wave hit the country at the end of July 2021, with a weekly peak of 13,268 confirmed cases<sup>2</sup>. As of 31 August 2021, there were 146,316 confirmed cumulative cases of Covid-19, and 1,864 deaths.<sup>3</sup> As of 20 August 2021, a total of 1,864,229 Covid-19 vaccine doses were administered.

To date, despite a steady increase in confirmed Covid-19 infections in the second half of 2020, infection and death rates in many African countries been much lower than in other parts of the world. Several theories have been proposed to explain this phenomenon, including limitations in terms of testing and difficulty in detecting asymptomatic cases. It is also almost certain that many factors – the quick administration of lockdowns and youthful demographics stand out – are likely to have contributed to the region's lower incidence and death rates compared to, e.g. the United States or European countries.

ESAR governments responded rapidly to curb the transmission of the virus by deploying a variety of public health and social measures. These included: suspension of international and domestic travel; closure of schools and universities; prohibitions on gatherings; curfews; requirement of public use of facemasks; and isolation and quarantine. The high-resolution living database 'The Health Intervention Tracking for Covid-19 (HIT-COVID)' of the Johns Hopkins Bloomberg School of Public Health and Boston University School of Public Health<sup>4</sup> that catalogues the implementation and relaxation of Covid-19-related public health and social measures (PHSM) shows that over the course of the year, Covid-19-related PHSM in some sub-Saharan African countries, including Mozambique, were less strictly implemented in September 2020 than in March 2020. Many countries across sub-Saharan Africa then tightened their Covid-19 containment measures again in December 2020 to prevent transmission during the Christmas and New Year holidays. Mozambique continued with the

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<sup>1</sup> Johns Hopkins University CSSE Covid-19 Data

<sup>2</sup> World Health Organization. <https://covid19.who.int/region/afro/country/mz>

<sup>3</sup> Johns Hopkins University CSSE Covid-19 Data

<sup>4</sup> <https://akuko.io/post/covid-intervention-tracking>

measures that were already in place during the second half of 2020.

While Government public health and social measures have likely forestalled some of the potential spread of Covid-19, they have also had deleterious indirect social, economic, and health impacts. Given relatively limited healthcare capacity, particularly for critical care, a 'flatten the curve' paradigm may be less apposite in the region and governments need to balance the threat of Covid-19-specific mortality with the potential secondary impacts of mitigation measures, which may also result in excess mortality. In this regard, the West Africa Ebola epidemic 2014–2016 can be considered instructive as it demonstrated that indirect mortality can at times exceed the direct mortality of the health emergency. Scenario-based modelling of excess maternal and child mortality due to reduced coverage of essential health and nutrition services suggests that the indirect impact of Covid-19 mitigation measures could result in an increase of between 9.8 per cent and 44.7 per cent in under-five deaths per month, and an 8.3 per cent to 38.6 per cent increase in maternal deaths per month, across 118 countries.<sup>5</sup>

Projections suggest that approximately 15 million additional unintended pregnancies could occur over one year if Covid-related service disruptions affected 10 per cent of women in need of sexual and reproductive health (SRH) services in low- and middle-income countries around the world.<sup>6</sup> Anecdotal evidence from the countries of sub-Saharan Africa, including Mozambique, indicates an increase in adolescent pregnancies since the closure of schools due to Covid-19.

While attention is understandably focused on the direct impact of the Covid-19 pandemic, it is essential to see the health crisis from a broader perspective. In the countries included in this multi-country study – including Mozambique – health systems are already fragile and people often live in extremely precarious conditions. The coronavirus pandemic risks further reducing vulnerable people's already limited access to healthcare, as resources – both human and financial – get diverted from regular healthcare to the Covid-19 response. During 2020, in Kenya, Malawi and Mozambique some health services were reorganized, downsized, or closed to limit the risk of transmission. Staff shortages became more common as frontline healthcare workers fell sick or died in places where there were already too few to provide essential services. Keeping essential health services available and accessible is vital to prevent losing even more lives, whether from malaria, measles, malnutrition, or complicated pregnancies.

The impact of Covid-19 on the availability and quality of maternal, newborn, and child health services, and the impact of the accompanying socioeconomic disruption on access to these services, require further investigation. The World Health Organization (WHO) *Pulse survey on continuity of essential health services during the COVID-19 pandemic* administered in 105 countries<sup>7</sup> showed disruption of essential health services in nearly all countries, and greater disruption in lower-income than in higher-income countries. The majority of service disruptions were partial, defined as a change of 5–50 per cent in service provision or use. All services were affected, including essential services for communicable diseases; non-communicable diseases; mental health; reproductive, maternal, newborn, child and adolescent health; and nutrition services. While emergency services were the least disrupted overall, 16 countries reported disruptions across all of their emergency services. The most severely affected service delivery platforms were mobile services, often suspended by governments, and campaigns, for example as used for malaria prevention or immunization. The disruption was caused by a mix of demand and supply factors. On the demand side, 76 per cent of

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<sup>5</sup> Timothy Robertson, DrPH. Emily D Carter, PhD. Victoria B Chou, PhD. Angela R Stegmuller, BS. Bianca D Jackson, MSPH. Yvonne Tam, MHS. et al. Early estimates of the indirect effects of the Covid-19 pandemic on maternal and child mortality in low-income and middle-income countries: a modelling study. *The Lancet Articles*; Volume 8, ISSUE 7, E901-E908, July 01, 2020

<sup>6</sup> Riley T, Sully E, Ahmed Z, Biddlecom A. Estimates of the Potential Impact of the Covid-19 Pandemic on Sexual and Reproductive Health In Low- and Middle-Income Countries. *Int Perspect Sex Reprod Health*. 2020;46:73–6.

<sup>7</sup> WHO. "Pulse survey on continuity of essential health services during the Covid-19 pandemic: interim report, 27 August 2020". WHO, August 2020

countries reported reductions in outpatient care attendance. Other factors, such as lockdowns hindering access and financial difficulties during lockdown limiting people's ability to pay, were also mentioned. On the supply side, the most commonly reported factor was cancellation of elective services (66 per cent). Other factors mentioned included staff redeployment to provide Covid-19 relief, unavailability of services owing to closures of health facilities or health services, and supply chain difficulties.

An August 2020 survey<sup>8</sup> carried out by the UNICEF Mozambique Country Office in relation to attitudes and behaviours related to seeking health services revealed that 54 per cent of the 5,286 respondents reported being scared of acquiring a coronavirus infection. At the same time, 59 per cent of the 4,713 people who responded said they would be willing to take their children to be vaccinated against common childhood diseases irrespective of the ongoing coronavirus pandemic. Of those, 52 per cent feared that their children might acquire a coronavirus infection at health facilities, and 32 per cent said they had been told it is not necessary to go to the health facility during the pandemic. A further 16 per cent said they do not trust the healthcare workers.

## 1.2 An overview of the health system in Mozambique

Mozambique's maternal mortality ratio stands at 408 per 100,000 live births, one of the 20 highest in the world<sup>11</sup>. One in 37 Mozambican women are at a lifetime risk of maternal death, and there are 30 newborn deaths and 97 under-five child deaths for every 1,000 live births.

The general fertility rate is still high at 5.3 and the unmet need for contraceptives is also high at 26 per cent. Among young women, the fertility rate increased dramatically from 167 births per 1,000 young women aged 15–19 in 2011 to 194 per 1,000 young women in 2015. The rise was higher in rural areas, where the fertility rate rose from 183 to 230 per 1,000 women aged 15–19.<sup>9</sup> Contraceptive prevalence among 15–19-year-olds remained low at 14 per cent in 2015 compared with the national prevalence of 25 per cent for people of reproductive age (15–49 years). In 2015, 46 per cent of girls aged 15–19 years were already mothers or pregnant. With the exception of Maputo city, all provinces presented an increase in the percentage of early pregnancies. The northern provinces – Cabo Delgado, Nampula, and Niassa – had the highest percentages: 64.9 per cent, 61.3 per cent, and 60 per cent, respectively.<sup>10</sup>

Mozambique's health system is made up of public services; private for-profit services, almost exclusively in urban areas; private services run by the not-for-profit sector; and community health workers. The last two provide educational and preventive services through public service platforms. The public sector remains the main provider of health services nationwide.<sup>11</sup>

The National Health Service has four levels of referral. Level I is the most peripheral and comprises Type I and Type II health centres in rural areas. These provide primary healthcare services comprising preventive and curative care. Level II includes rural and district hospitals with possibilities for admission, basic diagnostics, and surgery. Level III includes provincial and general hospitals with a variety of diagnostic, curative, and surgical services; this level also includes training centres. Level IV applies to the central hospitals at the highest level of referral; these provide more complex services.<sup>12</sup>

Primary care – the main entry point for patients' access to healthcare – is provided in 96 per cent of

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<sup>8</sup> UNICEF. SMS BIZ/U-Report poll on Demand of Health Services (Immunization) in times of Covid-19. August 2020

<sup>9</sup> Governo de Moçambique. Inquérito de Indicadores de Imunização, Malária e HIV/SIDA em Moçambique (IMASIDA). 2015

<sup>10</sup> Governo de Moçambique. Inquérito de Indicadores de Imunização, Malária e HIV/SIDA em Moçambique (IMASIDA). 2015

<sup>11</sup> Ministério da Saúde. Plano Estratégico do Sector Saúde 2014 – 2019 (2023)

<sup>12</sup> Governo de Moçambique. Plano Estratégico do Sector Saúde 2014 – 2019 (2023)

all National Health Service facilities. Secondary, tertiary, and quaternary care, i.e., more specialized healthcare services, represent 4 per cent of the services of the National Health Service. In general, access to healthcare in Mozambique is very limited: there are 8 doctors and 29 nurses for each 100,000 of the country's inhabitants.<sup>13,14</sup>

Only one-third (36 per cent) of the population have access to health services within 30 minutes of their home. The average distance to reach the nearest health facility ranges from 1.5 km in Maputo to 16 km in Tete Province; the national average is 13 km.<sup>15</sup> At community level, work is carried out by traditional birth attendants (TBAs) and *agentes polivalentes elementares* (APEs) – community health workers recognized and paid for by the Ministry of Health – as well as other trained community health workers. Such workers can offer education and health promotion services, including counselling on sexual and reproductive health (SRH): advising on the benefits of contraception use, and providing regular and emergency contraception methods. They can also refer users to the nearest health facility for reproductive, maternal, newborn, and child health services, including antenatal care (ANC) and delivery, as well as vaccination and HIV services, among others. In addition, APEs can provide basic treatment for diarrhoea, pneumonia, and malaria, and offer referral in case of complications.

### 1.3 Purpose of the study and rationale

While the public health and social measures targeting the spread of Covid-19 are considered both necessary and relevant, this study concerns itself with the unintended impact of these measures on the demand for and access to maternal, newborn, and child health services, as defined in the essential healthcare package of the country.

Several studies have examined levels of disruption to essential MNCH services from the supply side, and efforts have been undertaken to monitor these disruptions through existing health information.

This study focused primarily on an investigation of demand-side barriers to better understand the extent to which the pandemic impacted people's willingness and ability to access MNCH services in Mozambique. The study was undertaken in two sites: one urban (Matola District, Maputo Province), and one rural (Nicoadala District, Zambezia Province). This study explored the effect of the Covid-19 pandemic and related mitigation measures on the demand for and utilization of essential MNCH services by the target population at health facility and community levels, while simultaneously investigating the resilience of the healthcare system and supply-side factors that influenced access to these services.

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<sup>13</sup> World Health Organization. Global Health Observatory Country Views: *Mozambique statistics summary (2002–present)*. Retrieved from <http://apps.who.int/gho/data/node.country.country- MOZ?lang=en>.

<sup>14</sup> World Health Organization. *Mozambique's health system*. Retrieved from [http://www.who.int/countries/moz/areas/health\\_system/en/index1.html](http://www.who.int/countries/moz/areas/health_system/en/index1.html).

<sup>15</sup> Misau 2012. Relatorio de Revisao do Sector Saúde. Maputo, Moçambique

## 2. Research objectives, focus, and questions

### 3.1 Study objectives

The overall study objective was to understand the extent to which the Covid-19 pandemic has impacted people's willingness and ability to access essential MNCH services, their experiences of care, and the readiness of MNCH services to provide essential care during the pandemic.

**The specific study objectives were to:**

- (1) Understand how the Covid-19 pandemic has affected pregnant and breastfeeding women's demand for, access to, and uptake of maternal and newborn health services, including post-partum family planning (FP), and identify coping strategies they have used to overcome challenges.
- (2) Understand how the Covid-19 pandemic has affected demand for, access to, and uptake of child health services for children under five, and identify coping methods that parents/caretakers/custodians (including mothers, fathers, and female and male custodians and caretakers) have used to overcome challenges.
- (3) Identify any specific challenges in terms of demand for, access to, and uptake of MNCH services, including post-partum FP, faced by vulnerable groups during the Covid-19 pandemic, in particular pregnant and breastfeeding women living with HIV and/or living in remote geographical areas; these include adolescent women (15 to 19 years old) who are pregnant, breastfeeding, and/or living with HIV.
- (4) Assess MNCH, including post-partum FP, service readiness during the Covid-19 pandemic and changes in service delivery that may have affected access and demand for services.
- (5) Describe the national and local context with respect to Covid-19 response measures, Covid-19 epidemiology, and essential MNCH service continuity.

### 2.2 Research focus

The focus of interest for this research was on maternal, newborn, and child healthcare services, including:

- antenatal care (ANC)
- delivery by skilled personnel and post-partum care (PPC)
- post-partum family planning (FP)
- newborn care, including care for small and sick newborns
- immunization of pregnant women and children under five
- prevention and treatment of childhood diseases (malaria, pneumonia, diarrhoea) in children under five
- nutrition of pregnant and breastfeeding women and children under five
- MNCH services provided to pregnant and breastfeeding adolescent women (15–19 years of age)
- MNCH services provided to adolescent (15–19 years) and adult (20–49 years) pregnant and breastfeeding women living with HIV, including HIV testing and counselling during pregnancy;

early infant diagnosis (EID); antiretroviral therapy (ART) for prevention of mother-to-child transmission of HIV (PMTCT), viral load monitoring, and lifelong antiretroviral therapy.

### **3.3. Research questions**

The research questions were organized around four major themes:

- (A) Demand-side factors (intention-action gap drivers, reaching care, and receiving care)
- (B) Supply-side factors (providing care)
- (C) Utilization of MNCH services
- (D) Country-specific national and subnational environment during the Covid-19 pandemic.

The detailed list of research questions is included in Appendix 1.



## 4. Methodology

### 4.1 Qualitative study

#### 4.1.1 Study scope and study design

Mixed-method research combining a qualitative and quantitative approach was used to analyse demand- and supply-side factors affecting MNCH service utilization during the Covid-19 pandemic.

#### 4.1.2 Study sites

This research was carried out in agreement with national Government stakeholders and the UNICEF Mozambique Country Office in selected geographical areas chosen on the basis of relatively poor reproductive, maternal, newborn, and child health indicators.

Mozambique is administratively divided into 11 provinces, including Maputo city, the capital. The study included two provinces, namely Zambezia Province as an example of a rural setting, and Maputo Province as an example of an urban setting. In both provinces one district was purposely selected and included in the study: Nicoadala District in Zambezia Province and Matola District in Maputo Province.

#### 4.1.3 Study population and demographics

The target groups included:

- (1) Adult pregnant and breastfeeding women (aged 20–49 years)
- (2) Adolescent pregnant and breastfeeding women (aged 15–19 years)
- (3) Pregnant and breastfeeding women (aged 15–49 years) living with HIV
- (4) Parents/caretakers of children under five years of age
- (5) Facility-based healthcare workers and health facility managers
- (6) Community health workers/volunteers and other community-based health agents, such as peer mother supporters
- (7) Subnational healthcare managers.

Apart from the focus on adult pregnant and breastfeeding women and parents/caretakers of children under five years of age, this study also focused on disaggregated data for female and male adolescents (15–19 years of age) given the high rates of child marriage and teen pregnancy. This age group is likely to be differently affected by Covid-19 than older women. Age-specific fertility decline has been minimal in the 15–19-year age group due to limited access to sexual, reproductive, and maternal health services.

Furthermore, the study also included companions/partners of pregnant and breastfeeding women and pregnant and breastfeeding adolescents as well as male adolescents with children under five ('young fathers'). The importance of male involvement at any age in MNCH is recognized in health policy and development strategies in all three countries and will be considered through inclusion of men in this study.

#### 4.1.4 Sample size

As this component of the study is entirely qualitative, the sample size was determined based on convenience and experience that indicates the average number of discussions needed to achieve

saturation during the analysis. In total, 153 participants were included. The break down of the sample is presented below.

### *Zambezia Province (rural setting)*

Nicoadala District (Zambezia Province) has 7 health facilities. Data collection was conducted on 15–26 June 2021 in 3 health facilities and their catchment areas (Licuar, Quinta Girassol, and Amoro) instead of one as planned in the protocol. In the first selected health facility, the majority of health providers did not meet the inclusion criteria of having worked in that health facility before the Covid-19 pandemic, so a second and third health facility were included to complete the sample size. All three health facilities were located in Nicoadala District and were primary healthcare facilities. A total of 15 individual interviews and 11 focus group discussions (FGDs) were conducted. These were distributed as follows:

- 4 interviews with key informants
- 4 interviews with health facility and district-level managers
- 4 interviews with sexual, reproductive, maternal, newborn, and child health (SRMNCH) care providers
- 2 interviews with women living with HIV
- 2 focus group discussions with women living with HIV
- 3 focus group discussions with pregnant and/or breastfeeding adolescents (under 18 years old)
- 4 focus group discussions with pregnant and/or breastfeeding women aged 20–49 years
- 2 focus group discussions with adult men (over 18 years old) who are fathers of children under five.

### *Maputo Province (urban setting)*

Matola District (Maputo Province) has 22 health facilities. Data collection was conducted in 7 days between 23 June and 1 July 2021 in one primary healthcare facility (Matola II) and its catchment area as planned in the protocol. In total, 19 individual interviews and 6 focus group discussions were conducted, as follows:

- 5 interviews with key informants
- 3 interviews with health facility and district-level managers
- 4 interviews with SRMNCH care providers
- 7 interviews with women living with HIV
- 2 focus group discussions with mothers of children under five
- 1 focus group discussion with pregnant and/or breastfeeding adolescents (under 18 years old)
- 1 focus group discussion with pregnant and/or breastfeeding women aged 20–49 years
- 2 focus group discussions with adult men (over 18 years old) who are fathers/caretakers/custodians of children under five.

**Table 1 Planned and Executed Sample**

Sample	Planned			Realized		
	Matola District	Nicoadala District	Total	Matola District	Nicoadala District	Total
<b>Key informant interviews (KIs)</b>						
Community-based health workers (e.g., Community Health Volunteers, Community Midwives)	4	4	8	5	4	9
Facility-based health workers	4	4	8	4	4	8
Facility-based health service managers (health facility in-charges, MNCH Coordinator/Safe Motherhood Coordinator), and district/sub-county/province/county/region healthcare managers	4	4	8	3*	4	7
<b>Total key informant interviews</b>	<b>12</b>	<b>12</b>	<b>24</b>	<b>12</b>	<b>12</b>	<b>24</b>
<b>Focus group discussions (FGDs)</b> <i>Maximum of 6–8 participants per group in light of the Covid-19 pandemic</i>						
Women of reproductive age (20–49 years: Separate groups for pregnant and breastfeeding women and mothers of children under five)	4	4	8	3	4	7
Men/fathers above 17 years of age (adult fathers)	2	2	4	2	2	4
Adult women living with HIV	2	2	4	0	2	2
<b>Total focus group discussions</b>	<b>8</b>	<b>8</b>	<b>16</b>	<b>5</b>	<b>8</b>	<b>13</b>
<b>In-depth interviews (IDIs)</b>						
Pregnant and/or breastfeeding adolescent women and adolescent mothers (aged 15–19 years)	3	3	6	4	3	7
Key subgroups of people living with HIV: pregnant and breastfeeding adolescents (aged 15–19 years) and adult women (aged 20–49 years)	3	3	6	4	2	6
<b>Total in-depth interviews</b>	<b>6</b>	<b>6</b>	<b>12</b>	<b>8</b>	<b>5</b>	<b>13</b>

\* One district health service manager did not meet inclusion criteria

#### **4.1.5 Participant recruitment strategy**

Before the training and the data collection started, the study was presented to the subnational district and province authorities through introductory letters informing about the study; subsequent letters of support from the same entities were used by the team to facilitate entry at health centres and communities. Local health authorities were involved in the selection of communities and health units

where focus group discussions and in-depth interviews were to take place. Introductory meetings were held with community members to discuss the study in detail.

Community leaders or community health committees helped identify suitable community health agents or activists working in the area of MNCH in each selected community. The identified agents or activists were thoroughly briefed about the study, its objectives and procedures, as well as inclusion criteria for participants. It was then the role of the community health agent or activist to recruit participants and introduce them to the study. The research team then provided further detail on specific study objectives and procedures during the informed assent and consent process.

Participants were purposively recruited based on being members of the target groups described in section 4.1.3.

Healthcare providers or managers – were contacted at work and asked to participate in the project. Interviews were conducted at a suitable time and place for them – typically in the workplace.

At community level, participants living with HIV were selected from the ranks of established community support groups, so their HIV status had already been disclosed; some were working as peer supporters in their communities. Potential participants were informed about why they were approached for the study, and that inclusion criteria included HIV status. If they consented after being presented with the information, the interview was arranged in a private location selected by the participant at a time of their choosing. At facility level, potential participants were recruited at exit of RMNCH services and explained about the study.

Research team members then went through screening questions to confirm eligibility as participants arrived for their interview or focus group discussion. Researchers confirmed the purpose of the study and how the study participant was selected, and presented the interview procedure, including the expected duration, expectation of confidentiality, and potential risks and benefits.

Interviews and focus group discussions were carried out within communities in the catchment areas of health facilities, and took into consideration prevention measures related to Covid-19. These included the use of masks, the supply of soap and water or disinfectant by the study team, and limiting the number of focus group participants to a maximum of between 6 and 8 so that social distancing of 2 metres could be observed. Adolescent focus groups for participants aged 15–19 years were held separately from adult focus groups to encourage a more open discussion among peers.

#### **4.1.6 Fieldwork team recruitment, training, and pilot activities**

Both in Maputo and Zambezia provinces, four contracted data collectors received training on data collection. Training materials for the fieldwork team, including standard operating procedures (SOPs) and other documents and presentations, were translated from English to Portuguese. The translation was verified by a researcher fluent in both languages.

Data collectors were required to complete the training so they could:

- Become familiar with the key informant and in-depth interview (KII and IDI) and focus group discussion (FGD) guides, and topics to be addressed during the interviews and discussions.
- Assess and improve the interview and FGD guides.
- Understand the data collection strategy.

- Be aware of ethical considerations and procedures for the study.
- Practise facilitating FGDs, KIIs, and IDIs using role play and the study tools.
- Have an opportunity to ask questions and a chance to tweak and finalize study instruments, and discuss key considerations for data collection.

A separate session was held for field supervisors at the end of each day of the data collectors' training. This training session covered the roles and responsibilities of supervisors and all the materials and knowledge they needed to perform their task.

#### **4.1.7 Data collection management**

All individual key informant interviews (KIIs) with health managers and providers and individual in-depth interviews (IDIs) and focus group discussions with health service users were undertaken face-to-face. The research team and participants were required to wear facemasks during the data collection due to Covid-19 restrictions. Focus group numbers were kept lower than usual – with 6–8 rather than up to 12 participants – for the same reason. Focus groups were stratified by age, sex, mother/fatherhood, and HIV status for pregnant or breastfeeding women living with HIV – participants with their status disclosed in the community and organized in support groups were chosen in this context.

With the exception of one interview in Matola District, all the interviews and FGDs were audio-recorded with participants' consent. In addition, one of the facilitators took handwritten notes during the sessions. All KIIs with providers and managers were conducted in Portuguese. FGDs and IDIs with service users were conducted in Portuguese or a local language – Chuabo, Lomwe or Changana, Ronga – according to the participants' preference.

At the end of each day, all consent forms were given to the field supervisor to be safely stored and all audio recordings were transferred from the data collectors' audio recorders to the field supervisor's laptop.

Quality assurance procedures were carried out during both data collection and data storage phases. Quality assurance during data collection was mainly the responsibility of the field supervisors and consisted of ensuring that applicable ethical and standard operation procedures were observed. Field supervisors were responsible for checking if recruitment complied with the inclusion criteria; confirming consent forms were correctly filled out; verifying the quality of interviews and FGDs through daily spot-checks of the recordings; and discussing progress and challenges faced during data collection with the team and coming up with relevant strategies and solutions for subsequent days.

All qualitative data were transcribed in Portuguese and processed in Microsoft Word and stored in a computer secured with a password at the ICRH-M office in Maputo. After the transcription, a second quality check was performed by the data collection coordinator. Consistency between the audio and transcripts was checked by randomly selecting 10 per cent of the recordings and corresponding transcriptions.

#### **4.1.8 Ethical considerations**

The study was conducted in accordance with the Helsinki Declaration and the 'Recommendations to Guide Physicians in Biomedical Research Involving Human Affairs'. The research protocol was approved by the National Committee for Bioethics in Health (CNBS) of the Ministry of Health in

Mozambique (Ref: 312/CNBS/21).

Participation in the study was voluntary and all study participants received an information sheet explaining the purpose and procedures of the research and signed an informed consent form ahead of their interview or focus group discussion. Both documents were provided in Portuguese. Eligible participants read or heard the consent form in Portuguese or in the local languages of the two districts. Participants signed or stamped fingerprints on two copies of the consent form – one for the participant and one to be kept on file. The interviewer checked that the participant understood every section of the informed consent form before the interview.

For non-emancipated minor participants, who had children or were pregnant at the time of the study but were technically still in the care of their parents/guardians, the consent of the parent/guardian or other trusted adult was obtained in addition to the assent of the minor.

Focus group discussions and individual interviews took place in a space that allowed private and confidential conversation. All participants were compensated for the study, according to the approved requirements of the CNBS, based on the cost expenditure of transport. A small snack was offered to participants during focus group discussions.

#### **4.1.9 Data analysis**

A thematic content analysis approach was followed. The analysis team developed a code book to guide analysis of all qualitative data; data was coded using NVivo software. Analysis entailed coding the data; developing a list of emerging themes; categorizing the themes within a hierarchical framework of main themes and subthemes; looking for patterns and associations between the themes; and comparing and contrasting within and between the different groups of participants. Findings from this analysis are summarized and presented in the Results section.

## **4.2 Secondary data review**

### **4.2.1 List of indicators analyzed**

- (A) Number of first antenatal care consultations
- (B) Number of pregnant adolescents – aged 10–14 years and 15–19 years – at first prenatal consultation
- (C) Number of institutional births
- (D) Number of live births at institutional deliveries
- (E) Number of newborns attending their first postnatal consultation (PNC)
- (F) Number of fully immunized infants under one year of age
- (G) New cases of pneumonia in children under five

### **4.2.2 Data sources**

Selected key monthly MNCH indicators (secondary data) were extracted from the National Health Information System (SIS-MA) for the period January 2018 – December 2020.

### **4.2.3 Data analysis**

Quantitative descriptive cross-sectional analysis was performed using interrupted time series analysis (segmented regression) and looking at average differences.

Each time series analysed represents observed monthly cases between January 2018 and December 2020, except for infectious diseases (pneumonia, dysentery, diarrhoea, and malaria) for which the series begins in January 2019. Considering that the Covid-19 pandemic in Mozambique began in March 2020, March was defined as the breakpoint for segmented regression analysis. The objective of interrupted time series analysis was to evaluate the trend of MNCH variables before the breakpoint, the immediate effect at the breakpoint, and the trend after the breakpoint, comparing the average number of cases and identifying the statistical model applied to each variable with a 95 per cent confidence interval.

### The statistical model

$$Y = b_0 + b_1T + b_2D + b_3P + e$$

where:

Y is the outcome variable; T indicates the time (in months) that passed from the start of the observational period (January 2018); D is a dummy variable indicating observation collected before (=0) or after (=1) the Covid-19 pandemic; P indicates time passed since the Covid-19 pandemic was announced (before the pandemic, P is equal to 0).

For all the above indicators, three coefficients were analysed, which can be summarized as follows:

#### Time coefficient, before the Covid-19 outbreak ( $b_1$ )

- Positive indicating that the cases increase over time before the Covid-19 outbreak.
- Negative indicating that the cases decrease over time before the Covid-19 outbreak.

#### Time coefficient, Immediate effect ( $b_2$ )

- Positive indicating that the number of cases increased in March 2020 when the outbreak and prevention measures were announced.
- Negative indicating that the number of cases decreased in March 2020 when the outbreak and prevention measures were announced.

#### Time coefficient, Sustained effect, Covid-19-affected period ( $b_3$ )

- Positive indicating that the number of cases increased after March 2020.
- Negative indicating that the number of cases decreased after March 2020.

Statistical significance was based on the Kruskal–Wallis test, comparing the average of the respective indicator before Covid-19 was detected and the months after the outbreak of Covid-19.

## 4.3 Study limitations

The sample size for this study was limited due to the resources available. Mozambique is a multicultural country with considerable differences between its Southern, Central, and Northern regions. This study was conducted in a single district of one province in the Southern region and one district in one province in the Central region. Therefore, general conclusions about the broader

country context can only be made with caution. Nevertheless, the results do provide insight into the perceptions, challenges, and barriers on the demand side (clients) and supply side (providers) of RMNCH services at the time of the Covid-19 pandemic in urban and rural contexts.

Important indicators for sexual and reproductive health – such as family planning, pregnancy indicators for women aged 20–49 years, and postpartum consultations – could not be extracted from the SIS-MA national health information system and so were not included in the analysis. The analysed MNCH indicators were not extracted at provincial level, thus, triangulation of the qualitative with quantitative data is based on an analysis of MNCH indicators at the national level.



## 5. Study results

### 5.1 Policy change actions and mitigation measures instituted

'General guidelines on the prevention of infection by Covid-19: Maternal and child health sector' were issued as a simple written guidance document for MNCH service locations. Of the eleven recommendations included in the document, three in particular were referenced by both care providers and service users as having a tangible impact on the health service experience during the Covid-19 pandemic:

- *Guideline 6.* Maintain the entire routine package of antenatal care services offered both at the first visit and during follow-up consultations. (...) All prophylaxis during pregnancy should be offered for a period of 3 months.
- *Guideline 7.* As long as the Covid-19 pandemic is in force, the presence of a companion in the delivery room is not allowed.
- *Guideline 5.* Do not carry out mobile brigades (community outreach MNCH services) so as to avoid creating gatherings of people.

#### 5.1.1 Antenatal care

##### *Reduced schedule of antenatal care (ANC) visits*

Before the Covid-19 outbreak, it was typical for pregnant women to have monthly pregnancy monitoring appointments. Such consultations became quarterly at the time of the Covid-19 pandemic. The instruction that all prophylaxis during pregnancy should be offered for a period of 3 months, which changed the visits from monthly to quarterly, was referred by health providers as a preventative measure that negatively affected the quality of service provision.

*“At the beginning we received flowcharts reflecting guidance from the central level, and we as a district guided the health units to follow the flowcharts provided by the central level – which were created in order to reduce the spread of Covid at the level of work posts (...) [W]e also had the redefinition of the flow in the maternal and child health area at the beginning, whereby women came for antenatal care visits every 3 months (...) [W]e are going back on what was already gained in the district (...) [M]aternal deaths increased in comparison to 2019 (...) that interval of 3 months was too long to evaluate a pregnant woman; thank God that [guidance] was later revised for ANC”*

–Health Manager, Maputo District

#### 5.1.2 Maternity services

##### *No possibility of a companion in the delivery room during the pandemic period*

Mozambique had adopted the right of women in labour to have a companion in the delivery room as a standard for quality care. This move was reversed at the time of the Covid-19 pandemic. The presence of a companion during Covid-19 was no longer allowed in order to limit numbers and protect pregnant women and their newborns.

A number of pregnant women interviewed for this study expressed concern over this:

*“This part of the birth I think has changed (...) because before when you were going to give birth, you had the right to be with someone, you could be with your mother, your husband, the person you feel comfortable with (...) I don't know if they call it humanized childbirth or what, it was always with someone else who comes from home. But now this, as there is Covid, there*

*is nobody any longer (...) you have to be alone. I think that Covid-19 also made it change, you don't have that birth anymore, you have to be alone."*

– Pregnant Woman, Maputo

### *Use of a mask during labour*

While the need to use a mask during labour was not included in the written instructions for RMNCH care, it has been reported that this practice was implemented as a general preventative measure on maternity wards. Providers and clients both in Maputo and Zambezia provinces expressed negative feelings about women in labour being required to use facemasks.

*"At the time of labour, they [women] had a lot of difficulty breathing and collaborating with the birth (...) it was catastrophic."*

– Health worker, Maputo

*"In the maternity ward (...) we now have to put the mask on, despite all the suffering. [N]ow (...) when you arrive at the door of the maternity ward, they say 'go there, wear a mask now'; if you don't have a mask, you have to go home to get a mask."*

– Breastfeeding adult woman, Zambezia

## **5.1.3 Community sexual, reproductive, maternal, newborn, and child health (SRMNCH) outreach activities**

### *Interruption in RMNCH community outreach services*

As directed in the SRMNCH Covid-19 prevention guidelines and announced decree, community outreach activities – including HIV counselling and referral, family planning, and vaccination – were interrupted for a few months. Some examples of activities that were impacted by closure were mother-to-mother support groups for women living with HIV and 'champion men' activities (to encourage male engagement) on MNCH. In general, the measures were reported as negatively affecting service provision through community outreach.

*"We had many challenges because we had stopped the mobile brigades. It was routine at the level of health facilities to carry out integrated mobile brigades, where a team of maternal and child health (MCH) nurses would go to provide family planning, antiretroviral therapy, and nutrition services at strategic points in our health coverage areas (...) And we could no longer go to even those strategic points to do this because of the decrees that were implemented."*

– Health Manager, Maputo

## **5.2 Changes in the utilization and readiness of health-facility-based maternal, newborn, and child health services since the beginning of the Covid-19 pandemic – views and experiences of the target population**

### **5.2.1 Effects on the accessibility and provision of MNCH services**

Participants reported that the pandemic had affected the provision of, and access to, healthcare services. Some of the challenges related to the Covid-19 pandemic included: fewer available health professionals and service schedule changes; job losses and financial difficulties; curtailed availability and higher cost of transport; and preventative measures, such as a curfew, limiting the time available for movement of people and transport circulation; many users also reported fearing police punishment if seeking treatment after the curfew.

### Human resources (availability of health workers)

Covid-19 human resource management strategies varied between health facilities. In some facilities, health workers followed their regular schedules, while in others scheduling changes and rotation arrangements were instigated to reduce the number of staff working in the same room at the same time. While the number of health workers providing services at any one time was lower in the latter, no interruption in health services was reported due to a lack of availability of health workers.

*“We have a shortage of personnel that has been dragging on for a few years; it is not due to Covid (...) the number of providers that we had before Covid is the same as we have now (...) so, though we were afraid, we were always available (...) but in a room where usually perhaps three people worked, with the reorganization just one or two had to work there. So, availability of providers at the health facility changed in this sense.”*

– Health Manager, Maputo

*“In the health unit we haven't ever had a shortage of employees, we've had enough staff (...) and continued working normally.”*

– Health Manager, Zambezia

### Availability and cost of transport

Among of the Covid-19 prevention measures enforced by the Government was a limit on the number of people allowed in public transport vehicles. This affected the availability of transport, which had already been problematic, and led to an increase in ticket prices, which had an impact on access to services.

*“We found difficulties in transport: you had no way because the number of passengers to be carried at a time was reduced and also the prices of transport had already risen.”*

– Mother, Zambezia

*“Now things are very difficult, they have raised the price and reduced the number of passengers embarking to 3 people [in each seat]; they say it is because of Covid-19 (...) It is not easy to catch transport (...) It's very difficult for us pregnant women (...) even when I was about to open a file [at an ANC clinic] last month, it took me a long time to get to the hospital because of transport. By the time I arrived it was already 8.00 and when I arrived at the hospital a nurse said to go back home, and come back tomorrow at 6.00. So even if you can get to the hospital, if you don't get there in time, it doesn't help much.”*

– Pregnant woman, Maputo

Furthermore, curfews put in place did not allow public transport to operate later than 10 p.m.; this was subsequently changed to 9 p.m. These curfews were referred to by community members both in Maputo and Zambezia provinces as one of the barriers that made access to healthcare more difficult.

*“The child can get sick at night, you need to be able to go to the hospital (...) but after 10 p.m. you have to stay at home, what do you mean? (...) we mothers like that [pregnant], can start [having labour pains] at 10 p.m. (...) she can't go to the hospital because she doesn't have a car and there is no public transport available.”*

– Pregnant woman, Zambezia

*“I was sick with a tummy ache. Yes, I just stayed at home. I had to stay at home because the time was already after 10 p.m.”*

– Pregnant Woman, Maputo

### Financial barriers

Participants reported that their income had decreased either through job losses or reduced business as a result of the pandemic.

*“My life changed a lot: I had a job, now I don't work, I stay home doing nothing. When you didn't have a mask, you weren't seen at hospital.”*

– Adult mother, Maputo

*“There's no business now, it's hard, we don't know how we're going to survive here in the community.”*

– Adult father, Zambezia

Financial difficulties also limited the possibility to access healthcare. For example, the lack of obligatory facemasks – a standard preventative measure used in public spaces during the pandemic – was referred to by both community health workers and clients as a factor that prevented patients from accessing services. Some patients mentioned that a lack of money to buy a facemask prevented them from getting access to healthcare.

*“When you didn't have a mask, you weren't seen at the hospital.”*

– FGD\_adult mother of under-five\_ Mpt

Others suggested that such masks may be borrowed from other people – just so patients can get access to healthcare.

*“Now there's no mask. Will you sit at home sick? You will not sit [at home]. You'll borrow [one] from your friend, if you don't have money to buy it (...) you'll do it as you want to go to the hospital. My friends didn't have one, my neighbour didn't have [one], that other neighbour and I didn't have one, I stayed home while sick, recently my husband bought [one] (...) we had to wait to have money to buy it.”*

– Adult breastfeeding mother, Zambezia

### Fear of punishment by the police when seeking treatment after the curfew

Participants reported fear of punishment by the police as a barrier to healthcare seeking. Participants reported that police officers would sometimes punish people who were out past the curfew at 9 p.m., without first asking why someone was outside at this time. This perception deterred some users from promptly accessing care at night.

*“I don't know why, even when I said I am going to the hospital sometimes they made it difficult (...) it wasn't easy to get through. They only let me through after many questions, many demands (...) sometimes they forced us to get in their police car while we were going to the hospital.”*

– Adult mother, Maputo

While the greater part of respondents reported being scared to seek healthcare after the curfew, some reported that seeking health services was not prohibited and, as such, they did not fear seeking care even after 9 p.m., as long as they were able to show evidence that they were going to, or coming back from, the hospital.

*“It wasn't forbidden to go to the hospital even when it was past the time, but you were asked to prove that you were going to or leaving the hospital, for example, they demanded that you show pills or a prescription to prove that you are leaving the hospital.”*

### 5.2.2 Effects on the referral system

In light of Ministry of Health instructions, all community outreach health service activities were interrupted for a few months. Referrals from the community to the health facility for family planning, ANC, and other services consequently stopped, and this negatively affected timely care-seeking and use of services.

*“Yes, there were fewer people referred [from the community] to the health facility because our community work had stopped.”*

– Health worker, Maputo

Besides community-to-health-facility referrals, difficulties were reported both by providers and clients on referrals between different levels of the healthcare system. One of the challenges was a shortage of ambulances. As a preventative measure, specific ambulances had to be allocated for the referral of Covid-19 patients.

*“There was a challenge since we did not have good transport capacity in the district (...) it was a challenge for us to manage normal transfers and suspected or confirmed transfers of Covid patients”*

– Health Manager, Maputo

Clients also reported difficulties in getting access to planned services, such as surgery.

*“When coronavirus arrived, some things from the hospital side stopped (...) I have some documents since around 4 years, I should have had surgery this year and whenever I go to the hospital they reschedule it for another month (...) I've walked and I'm done, they're saying that there are no operations in Quelimane [provincial hospital] because of coronavirus.”*

– Adult mother, Zambezia

### 5.2.3 Continuation and utilization of community-based healthcare

When community outreach activities were paused for a few months in line with received guidelines, this had a significant impact on health services reaching service users.

*“Here in the community, we had to go door-to-door to visit these pregnant mothers and children, so we could raise awareness... now I'm not going to anyone's house, I actually stay home (...) we also had support from mobile brigades [community outreach services] for those mothers who don't take the children to the health facility to vaccinate them, for those who can't go for family planning (...) for mothers with malnourished children (...) we no longer have the mobile brigades with the health personnel that we had before. It makes a big difference, because there are certain mothers who no longer go to the health facility, nor take their children to be vaccinated or weighed (...) yesterday we had a problem of a mother who did stay at home almost 8 months [without taking her child to health facility], we had to take that mother and her child to the health facility for vaccination.”*

– Community health worker, Maputo

According to the interviewed health managers and community health workers, the Ministry of Health chose to restart community outreach services after some months. This time, community health workers had the additional task of spreading messages on Covid prevention and the need to seek care whenever needed. Outreach workers reported that this had the effect of making the work more challenging.

*“We ran into problems. For example, some communities did not come to [use the services offered by] the mobile brigades, thinking that we were the ones bringing Covid-19 to the community.”*

– Community health worker, Maputo

#### **5.2.4 Specific effects on the disadvantaged target population**

Providers reported that the Covid-19 measures in place made it more difficult to support patients who were newly placed on antiretroviral medication for HIV to adhere to treatment. Similarly, it was reported that the reduced frequency of antenatal visits made it difficult to effectively address malnutrition in pregnancy, with more pregnant women developing severe acute malnutrition compared with the period before the Covid-19 pandemic.

*“For example, in ANC consultations, for women on ART, we usually did consultations monthly, but in the new guidelines that were enforced for Covid prevention, that was switched to quarterly (...) that interval of 3 months was too long to evaluate a pregnant woman, particularly those starting treatment.”*

– Health worker, Maputo

At the same time, some clients, including pregnant women, found upsides to the change in the way consultations were scheduled and quarterly rather than monthly prescription renewal appointments during the pandemic and reported shorter waiting times and fewer trips to the clinic as positives.

*“People can now get a break from going to get the medication every month, now it is every 3 months (...) now the service is very different, it's not like before, now you go in small groups (...) before it was normal to stay there from morning until 6pm, or even (...) have to come back the next day, now they attend [to patients] well and quickly”*

– Adult woman living with HIV, Zambezia

*“[Now that] Coronavirus has appeared here, medicine [is given] every three months (...) When people come, for example, people came today, on the 18th, they will come back in three months' time (...) before, so many people had to come on the same date that there was a long queue at the hospital.”*

– Adolescent living with HIV, Zambezia

### **5.3 Reorganization of space for service provision**

In general, all services underwent changes in the way they were delivered. Reducing the number of patients attended to per day and scheduling regular quarterly visits were some of the measures taken in order to avoid overcrowding at health facilities and to respect social distancing. While there were instructions to reorganize maternity wards so as to maintain appropriate distances between women in labour, and to have a dedicated room for pregnant women with Covid-19 symptoms, this was not always possible due to infrastructure, equipment, and material limitations. It was easier to implement such guidelines in relation to child immunization services. Vaccination was offered in more open spaces, and only small groups were allowed in the health facility at any one time.

*“A long time ago, a child's consultation was held here, an adult's consultation was held there and now since this Covid-19 arrived, we've always been seen there [outside] (...). They go outside and call children's numbers and then they call adult numbers, too. People come here early with a child, go home late, because there is just one queue (...) If it was like in the days before, children here and adults there, people would come early and go home early, and what*

*we are seeing is not right.”*

– Adult mother, Zambezia

In addition to changes relating to the use of space, the schedule for well-child services was also amended.

*“While these ones [infants] are now attending quarterly instead of monthly, for the ones above one year of age, it's now a 6-month interval. For children over 2 years of age, you used to come until they were 5 years old, but now they do not [go to the clinic] for weight control.”*

– Adult mother living with HIV, Maputo

With regard to changes in service organization, clients reported a range of views and experiences: some were dissatisfied while others were happy. Many patients appreciated having clear appointment times, with fewer people seen per day, as this helped not only avoid overcrowding at the health facility, but also significantly reduced waiting times, and improved the quality of care.

*“Now, although we are in this pandemic, on the other hand we have some improvement in terms of care, the care now has improved a lot compared to the period before, now [when] you take your child to the hospital, he or she is soon attended to, and pregnant women are also well attended to in relation to the period before the coronavirus (...) a lot has changed, with Covid-19 the service is different, the number of nurses in hospitals has increased.”*

– Pregnant woman living with HIV, Zambezia

*“At the hospital, they provide good care, when you make appointments it doesn't take long, I'm enjoying seeing them. May it be that way forever – that things don't change and stay that way.”*

-Pregnant woman, Maputo

*“The way the hospital care has changed (...) you arrive at the hospital and it is no longer as crowded as it was before. You find hospital workers waiting for us patients, you arrive and they see you as soon as possible (...) the way of working changed, it's not like at that time that we slept waiting to be called and it took time to call us (...) we are asking that it continues [like this] and that it does not return to that old form of care. We are well attended, we can arrive at 9.00, and by 10.00 we have already been seen. The care changed in the hospital, and changed for the positive, we rejoice at what we see, you even had stress just to know that next day you go to the hospital and have to pack everything here at home, because you did not know what time you would return from the hospital.”*

– Breastfeeding mother living with HIV, Zambezia

#### **5.4 Communication of Covid-19-specific mitigation measures**

‘Stay at home’ was the principal message conveyed to prevent the spread of Covid-19 in Mozambique. Many community members thought that this message meant that going to health facilities was risky.

*“We fear going to the hospital to get treated (...) we are afraid of coronavirus (...) they said if we go there they will give us coronavirus vaccines (...) we go to traditional healers.”*

– Adolescent breastfeeding mother, Zambezia

*“For example, if I'm unwell, I need to go to the hospital but for now they're telling me to stay home.”*

– Pregnant adolescent, Zambezia

This line of messaging was later abolished. Health providers felt it had caused confusion and had had a negative impact on service utilization by reducing the demand for health services, including SRMNCH services.

*“Those first 3, 4, maybe 5 months, yes, this created panic, fear for us health professionals, for users, because even health facilities were empty, very empty (...) it was during this period that we realized that maybe the message that we gave the community to ‘stay home’ was not perceived well and they chose not to go to the hospital. Only when the messaging was changed did people start showing up at the health facility.”*

– Health manager, Maputo

## **5.5 Key maternal, newborn, and child health statistics – a summary of changes in key indicators**

An analysis of select MNCH indicators pre-Covid, in the index month of Covid onset in March 2020 and during the Covid-affected period of March – December 2020 is presented in Annex 2 (Methods are discussed in section 4.2.1). March 2020 is considered the index month because this is when the government introduced restrictive measures to prevent the spread of Covid-19 in Mozambique.

For the indicators ANC1, Pregnant adolescents presenting for ANC (both 10-14 and 15-19 age groups), institutional births, live births, first postnatal care (PNC) visit, children fully immunized and pneumonia cases among children under-five years, there had been an overall increasing trend from January 2018-February 2020. In March 2020, each of these indicators substantially declines aside from institutional births, first PNC and child pneumonia cases. Following March, some indicators began to increase very modestly (ANC1 and pregnant adolescents attending ANC in the 10-14 age group). For ANC1 the monthly increase post March 2020 was far lower than the before Covid-19 period. Some indicators began to increase more appreciably and exceeding pre-Covid average monthly increases: Pregnant adolescents seeking ANC in the 15-19 age group and children fully immunized. This could possibly suggest more adolescent pregnancies post Covid-19 onset and that immunization bounced back after an initial sharp decline. There were notable average monthly declines in Institutional births, first PNC and child pneumonia cases following March 2020. This should be analysed with other indicators, such as deliveries in the community, in order to be confirmed. Interpretation of these findings is subject to caution because of data quality limitations. In particular, there were gaps in the recording system after new registers were introduced by the Ministry of Health in the second half of 2020; the registers were not completely used correctly at first.



## 6. Lessons learned on demand for and access to maternal, newborn, and child health services during the Covid-19 pandemic in Mozambique

While the preventative measures implemented by the Ministry of Health to limit the spread of Covid-19 aimed to protect the public, they also had an impact on the demand for, and access to, essential RMNCH services. Some of the key areas to consider in order to support the continuity of essential care include:

- **Policy change and Covid-19 mitigation measures should consider the need to ensure continuity of health services:** It is important that policies, norms, and regulations be sensitive to different types of services and needs. Referrals from the community to the health facility and among different levels of facility-based care are crucial and systems must be in place so emergencies can be responded to appropriately even in a pandemic situation.
- **Communication must be clear and reinforce the continuity of health services:** Healthcare providers recognized that initial messaging around Covid-19 prevention contributed to fear instead of awareness among community members, and stopped people from seeking the care they needed. Communication of preventative measures should be very clear and delivered in a way that does not negatively impact care seeking.
- **Impact of Covid-19 mitigation measures on the most vulnerable should be considered:** Some preventative and mitigation measures in force during the Covid-19 pandemic had a negative impact on the most vulnerable population, making access to services more difficult. The obligatory use of facemasks became a financial obstacle for some users who could not afford the cost: without a mask they would have to forego care. Financial difficulties were common given high levels of poverty in the country compounded by the fact many people lost their livelihoods or earnings during the pandemic. Curfews and limits on passenger numbers adversely impacted both ease of movement and ticket prices, further challenging people's access to health services. Less frequent visits negatively impacted people living with HIV who were just beginning their treatment. Thus, it is important to take into consideration a country's socioeconomic profile and the impact of any measures being introduced on the most vulnerable. Adequate financial support and distribution of any essential goods, such as facemasks, in the community would help level the playing field in access to healthcare.
- **Continuity of community-based health service is critical to access:** Most of the Mozambican population relies on the community health system to access health services, and especially so in rural areas where facilities are particularly scarce. Both healthcare providers and service users highlighted the fact that a sudden interruption in community-based care negatively affected continuity of care and the supply of essential services, such as antenatal care, to the community. The importance of community-based care has to be taken into account as this can play a vital role in any emergency response.
- **Reorganization of services and appointment times were appreciated:** Reorganization of the way services were delivered – particularly the scheduling of timed appointments and limiting patient numbers – reduced waiting times and was widely reported as leading to an improvement in the quality of care. Quarterly rather than monthly consultations and prescriptions for people with chronic conditions such as HIV were reported as beneficial thanks to a reduced amount of time and transport money needed to attend appointments to renew prescriptions. It is recommended that some of the practices instigated at the time of Covid-19, such as having fixed appointments for consultations, should be discussed as a

measure to adopt to improve the way national health services are delivered in the longer term.

- **Evidence-based policy-making is critical:** Further studies on health systems, including the analysis of monitoring data from the Health Information System, should be used to formulate cost-effective policies based on the best available evidence. Active involvement of the public and private sectors as well as civil society in policy formulation can help minimize unwanted effects and maintain the gains achieved within the health system.

## 7. Conclusions and discussion

On the supply side, in the wake of the initial lockdown following the Covid-19 outbreak in March 2020 in Mozambique, the health system faced constraints in terms of both supplies and human resources – due to ill or absent health workers – which prompted some health facilities to reorganize the way they deliver services. On the demand side, the ‘stay at home’ messaging, curfews and higher costs of health seeking from transportation to masks may have contributed to community members worrying about the threat of Covid-19 infection and refraining from visiting health facilities to seek necessary care.

An earlier study on the impact of the pandemic on access to maternal and child health services in Nampula, a province in the north of the country,<sup>16</sup> found negative collateral effects on maternal and child health, including a reduction in the number of institutional births but overall the evidence on the effects of the pandemic and related government response to improve access in Mozambique remains very limited.

The quantitative and qualitative results of the study presented in this report reveal that **the Covid-19 pandemic has negatively affected the demand for, access to, and uptake of maternal, newborn, and child health services**. It is important to note that the qualitative aspect of this research study is based on only two districts in two provinces – Nicoadala District in Zambezia Province and Matola District in Maputo Province – and broader research evidence is needed to more fully inform health sector strategies and appropriate responses to this and similar situations in the future.

Thiede et al (2007) defines access as a multidimensional concept comprising affordability, acceptability, and availability of services.<sup>17</sup> Affordability is defined as the ability of users to cover the full cost of care; acceptability addresses beliefs and perceptions relating to the effectiveness of treatment, and overall trust in the health system; and availability looks beyond geographical proximity to include factors such as availability of resources and opening hours.

Understandably, a number of prevention and mitigation measures have been implemented to limit the spread of Covid-19 in the country. This study found evidence that some of these measures, such as the obligatory use of facemasks in health facilities, became a *de facto* institutional barrier preventing some of the most vulnerable people who could not afford them from accessing care, and this was the case in both urban and rural settings. The message to ‘stay home’ was also found to have been confusing to the public, hindering care-seeking behaviours. Curfews and higher transportation costs further inhibited access.

In addition, it has been demonstrated that community health systems are a pivotal enabler for health system resilience in emergencies, supporting the health system to quickly adapt, communicate with the population, and receive feedback. The fact that this system, which is very well developed in Mozambique, was not utilized as a major arm of the response to Covid-19, but instead had initially been shut down altogether caused rupture in the continuity of care at the community level. The absence of routine community outreach services affected provision of preventative care at the community level, as well as further referral for clinical services in health facilities.

The Covid-19 response also brought changes in health service organization that led to perceived

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<sup>16</sup> Paulo das Neves Pires, Cynthia Macaringue, Ahmed Abdirazak, Jaibo Mucufo, Martins Mupueleque, Mussa Bin Bique University, Ronald Siemens. Covid-19 Pandemic Impact on Maternal and Child Health Services Access in Nampula, Mozambique: A Mixed Methods Research. Research Square. <https://doi.org/10.21203/rs.3.rs-104405/v1>

<sup>17</sup> Thiede, M., Akweongo, P., & McIntyre, D. (2007). Exploring the dimensions of access. In D. McIntyre & G. Mooney (Eds.), *The Economics of Health Equity* (pp. 103-123). Cambridge: Cambridge University Press. doi:10.1017/CBO9780511544460.007

improvements in the quality of care. In particular, reduced frequency of mandatory routine appointments led to fewer people attending clinics at any one time, and the practice of introducing appointments for individual consultations was recognized as something to be continued beyond the pandemic period. Service users remarked on the reduced waiting times, fewer patients at the health facility, and better standards of care.

Overall, the results of this study suggest that pandemic containment measures can have important implications for people's willingness and ability to access essential maternal, newborn, and child health services; the provision of such services; and the experience of care. Any measures put in place should take into account the socioeconomic context and their potential impact on demand and supply factors affecting access to essential health services. The health information system can support informed decision-making, as it enables a continuous evaluation of the impact of any measures on essential healthcare provision and utilization indicators, pointing the way for any fine-tuning to support better access to, and availability of, essential health services.

Care should be taken to ensure that even small pandemic control measures, such as the mandatory use of facemasks in health facilities, do not create insurmountable barriers for some users – especially at a time that many community members are experiencing additional financial hardship. Similarly, the confusion around the 'stay at home' message underscores the need for very clear and consistent messaging – delivered through appropriate channels, whether mass media or community-based awareness-raising campaigns – to promote continued demand of essential maternal, newborn, and child health services. While it is important that safety protocols are in place to protect both service providers and users, the cost of essential supplies for Covid prevention in the context of seeking essential health services should not fall on the shoulders of users who can least afford it. It is also critical that the indispensable work of community health workers is allowed to continue to bring lifesaving care to those hardest to reach.

Finally, the pandemic experience also generated positive changes in the way routine medical care is being delivered. The introduction of specific appointments contributed to a more predictable, efficient service while limiting patient numbers in waiting areas. Such breakthrough solutions improving the quality of care for patients and the work environment for providers should be sustained wherever possible.

## Appendices

Appendix 1. CES List of Specific Questions

Appendix 2. Report on quantitative component (all the graphs) if not fully included in text

Appendix 3. Approval letter from the National Committee for Bioethics in Health of  
Mozambique

## Appendix 1. Continuity of Essential Health Services (CES) Study list of specific research questions

### A. Maternal, newborn and child health: demand-side factors

#### ***Intention action/gap drivers***

- a. Did the target groups of primary interest (as defined above) during Covid-19 pandemic use essential MNCH services (essential as defined in the national packages of care and provided by skilled personnel) to the same extent (frequency, based on needs/demands) as during non-Covid times?
- b. What were the main factors / reasons that affected the use of essential MNCH services by the primary target groups during Covid-19 pandemic? What was different to non-Covid times in regard to the topics below?

#### Topics to explore with regard to specific barriers:

- Challenges related to self-efficacy: a. women cannot attend the health services due to competing priorities (child caring, house chores, workload, etc.); b. woman need to seek approval from partner/husband/mother in law or other to access services; c. women usually use other than services by skilled personnel.
- Fear of stigma - fear of being stigmatized as a result of having Covid-19 positive test results.
- Fear of Covid-19 infection – e.g. lack of infection protection at health facility levels; fear of becoming infected through other clients/patients.
- Perceptions of community confidence in health seeking; decreased acceptability of essential MNCH health services during Covid-19 pandemic (e.g. mistrust regarding available staff, available supplies, poor quality of care, etc.).
- Official messaging about health seeking during Covid-19: potential existence of contradictory Government guidance and law enforcement (stay home v/s access MNCH services).
- Rumours/misinformation and miscommunication about Covid-19 and restrictions/health seeking; different messages through different channels: religious leaders, community leaders, TV/radio channels, social media, Government instructions on official websites, newspapers, etc.

#### ***Reaching essential maternal, newborn, and child health (MNCH) services***

- a. To what extent and how were the primary target groups able to reach to a health facility / seek essential MNCH services during Covid-19 pandemic compared to non-Covid times?
- b. What were the main factors/reasons that stopped or made it difficult for the primary target groups to reach essential MNCH care during Covid-19 pandemic compared to non-Covid times?

#### Topics to explore:

- Stay-at home advice/ restriction of movements/travel during Covid-19 pandemic

- Restrictions/disruptions in public transport during Covid-19 hampering reaching health facilities
  - Affordability: increased cost of accessing services, including hidden fees such as transportation cost and / or drop in income due to Covid-19 measures (out of pocket expenses while purchase power decreases). Additional costs of masks, other out of pocket costs?
  - Unfriendly enforcement of Covid-19 related measures (e.g. police brutality in informal urban settlements in Kenya) eroding trust.
- c. What alternative arrangements were made by households and communities to reach essential (skilled health workers') MNCH services during Covid-19 times?

***Receiving essential maternal, newborn, and child health (MNCH) services when the health facility is reached***

- d. To what extent and why were essential MNCH services not available to the primary target groups when reached?
- e. What kind of changes were observed or experienced by the primary target groups with regard to the quality of MNCH services provided during Covid-19 pandemic compared to non-Covid times?

Topics to explore:

- Waiting times, time of staff attention
  - Refusal of care / turned away from services
  - Neglect (e.g., not conducting all essential care steps), poor attitude of staff,
  - Physical abuse, verbal abuse by staff
  - Poor communication and explanation (including non-consented care)
  - Limited space for waiting / crowded areas
  - Lack of infection protection (e.g. social distancing, hand washing, sterilizers, people/health workers not wearing masks)
  - Privacy and confidentiality during service delivery
  - Payment for formerly “free services” during Covid-19 pandemic.
- f. How were the shortcomings of MNCH services during Covid-19 time communicated with the primary target groups at facility level? Were people correctly and politely informed? Were they told what to do / where else to go in case MNCH services were not available?
- g. If the essential MNCH services were not available, what alternative services were available and used by the primary targets groups during Covid-19 times?
- h. Were referral services functioning during Covid-19 times? Was there a difference compared to non-CIVID-19 times? Why?
- i. Where ambulance services functioning during Covid-19 pandemic? What were the reasons that ambulance services were affected in Covid-19 times?

## **B. Maternal, newborn and child health: supply-side factors**

### ***Providing adequate care to the primary target groups according to demand and needs***

- a. To what extent did essential MNCH services become disrupted and/or unavailable during COVID-19? How was the readiness of essential MNCH - to serve the primary target population as needed - affected?
- b. Which MNCH services were most affected and why?
- c. To what extent and why was quality of services affected during Covid-19 pandemic and/or by Covid-19? What kind of changes were seen or experienced with regard to the MNCH services provided to the primary target groups?

#### Topics to explore:

- Availability of staff
  - Availability of functioning equipment and supplies, medicines
  - Adequate space for service delivery, privacy
  - Change of payment procedures/prices due to Covid-19 pandemic.
- d. How was staff morale and motivation affected during Covid-19 pandemic? What factors strengthened or reduced staff morale? What was the impact of staff motivation on provision of MNCH services?

#### Topics to explore:

- Staff stressed by work load,
  - Low motivation and why?
  - Fear of infection
  - Lack of PPE and adequate orientation on Covid-19 prevention / infection prevention protocols
- e. To what extent were the referral pathways (from community to first line health service and hospital level) for MNCH care functioning / not functioning during Covid-19 in comparison to the pre-Covid-19 period?
  - f. Was emergency transport for pregnant women and children under five affected during Covid-19?
  - g. Were referral services available/ready at health centre/hospital levels and were patients received at referral level and appropriately treated during Covid-19 pandemic?
  - j. To what extent did available staff / health managers at facility and sub-county/county levels manage to keep up essential MNCH service provision and referral services?
  - k. What were the mitigation measures by the facility staff, and/or healthcare management to ensure continuation of essential MNCH service provision during Covid-19 times?

#### To explore:

- Revising patient flow pathways to ensure physical distancing
- Alternate modes of distribution of drugs (multi-month dispensing)



- Infection prevention and control; provision of IPC / PPE and other supplies to ensure safe working environment
  - Staff training and provision of guidelines for infection prevention and control
  - Changes to referral chain
  - Reorganization of services
  - Arrangement for alternative services including delivery of services through outreach/mobile approaches; Covid-19 centres
  - Other
- I. Were pregnant and breastfeeding women and parents/caretakers of children under five including adolescent women and women living with HIV/AIDS provided with adequate information about Covid-19 and infection prevention, including safe breastfeeding and how this was communicated.

### **C. Maternal, newborn, and child health service utilization**

- a. Did MNCH service utilization pattern change during Covid-19 pandemic?
- b. How did the service utilization pattern change?
- c. If yes, to what extent and for which MNCH services specifically?
- d. What were the main factors/reasons influencing utilization patterns?
- e. If there has been a change in the pattern of service utilization, what is the perception of the target groups and the healthcare providers/managers on the potential impact of this change on MNCH outcomes?

#### To explore:

- Complications, ill-health and death among pregnant women, newborns and children under five utilizing the facility-level services and for those who could not/would not use these services during Covid-19 pandemic?

### **D. Country specific and subnational environments**

This assessment will primarily be done through desk review. Some specific questions will also be included in the key informant interviews to healthcare managers.

- What was the epidemiological, national and local policy response context relating to MNCH service provision during Covid-19?
- Country specific national and local Covid-19 policies/response actions in relation to MNCH service provision
- Covid-19 epidemiology; Covid-19 surveillance data
- Essential MNCH service statistics and service delivery guidance in the context of C-19
- Major budget changes relating to provision of MNCH services during Covid-19 and potential changes compared to before.

## **Lessons learned: demand-side and supply-side**

The study teams will elaborate based on above raised questions on what were the main lessons learned from the Covid-19 pandemic in regard to demand for, access to and readiness of MNCH services. In addition, the interviews will include a question on what the lessons learned were.

### Focus will be on:

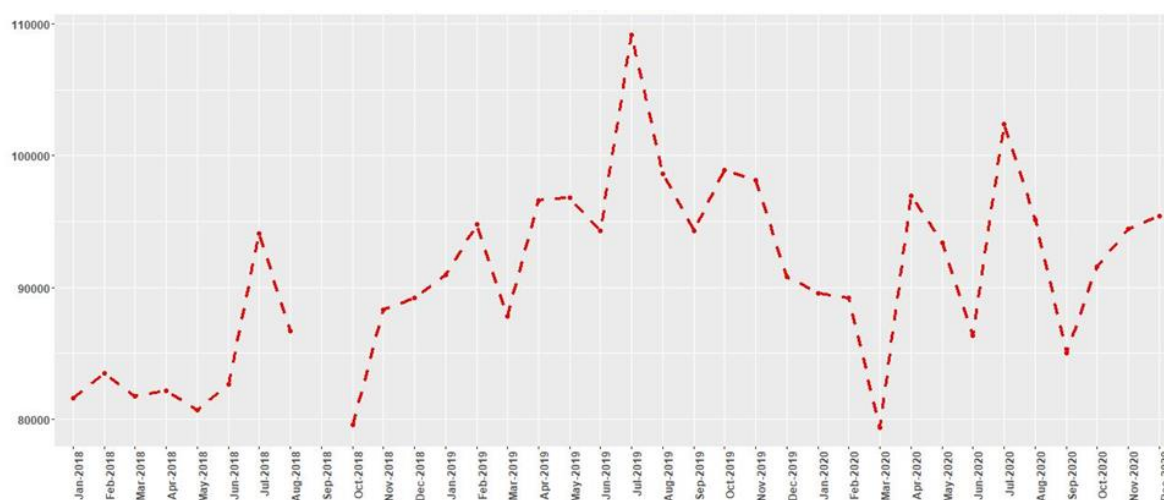
- Health services
- Health care providers
- Health care users
- Community-based health service delivery
- Referral pathways/linkages between community systems and health systems, and other.

## Appendix 2. Report on quantitative component / secondary data review (all graphs and descriptions/conclusions)

- *Number of first antenatal care consultations*

The number of first antenatal consultations held per month was the indicator used to measure the effect of the Covid-19 outbreak and related actions on women seeking antenatal care. Figure 6 shows the number of first antenatal visits per month. A sharp drop in consultations was observed between February 2020 and March 2020; this was followed by an increase with some small drops until December 2020.

Figure 1: Total number of first antenatal consultations, January 2018–December 2020



From January 2018 to February 2020, before the Covid-19 outbreak, there was a significant estimated average increase of 627.77 first ANC visits per month. In March 2020, the number of first ANC visits decreased significantly by 9,685.96 estimated cases. In the subsequent Covid-affected period, the number of ANC visits increased by an average of 17.39 cases per month.

Table 1. The effect of the Covid-19 pandemic on the total number of first antenatal care consultations in Mozambique (National, 2018–2020)

Mozambique	Time ( $b_1$ )	Covid-19 ( $b_2$ )	Time since Covid-19 ( $b_3$ )
National	627.77*	-9685.96*	17.39

Note: \*P value < 0.05

According to the new policies for the continuum of care introduced during the Covid-19 period, the frequency of ANC consultations, and related prophylaxis, changed from monthly to quarterly. According to the qualitative study the same instruction was applied to all pregnant women, so that even those close to their delivery date did not have clear information on how to proceed and some ended up giving birth in the community – a fact that may have influenced attendance at the fourth ANC consultation and the total number of institutional births (Figure 5) but further data is needed to confirm these assumptions.

- Number of pregnant adolescents – aged 10–14 years and 15–19 years – at first antenatal care consultation

Figure 2 shows the total number of pregnant adolescents aged 10–14 years at their first antenatal care consultation. The graph shows a decrease in the total number of pregnant adolescents in this age group attending their first antenatal consultation from March 2020 onwards.

Figure 2. Total number of pregnant adolescents aged 10–14 years at their first antenatal care consultation, January 2018–December 2020, Mozambique

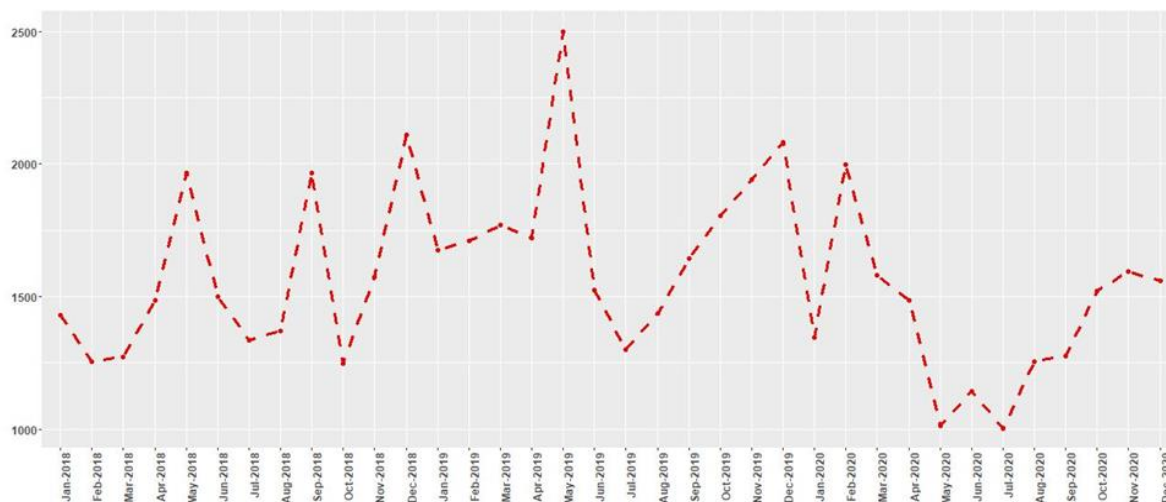


Table 2 describes the results of a segmented regression for pregnant adolescents aged 10–14 at their first antenatal care consultation. Before the Covid-19 outbreak, there was a pattern of an average monthly increase of 15.89 cases of adolescent girls aged 10–14 attending their first antenatal consultation that was statically significant up to the index month of March 2020 when the first Covid-19 social restrictions were introduced. When this happened, the number of young adolescents attending their first ANC appointment decreased by 633.12 cases (p.value < 0.05), and from this month until December 2020 the number of adolescent girls aged 10–14 attending their first antenatal consultation increased by an average of 6.91 cases per month (p.value > 0.05).

Table 2. The effect of the Covid-19 pandemic on the total number of pregnant adolescents aged 10–14 years in Mozambique (National, 2018–2020)

Mozambique	Time ( $b_1$ )	Covid-19 ( $b_2$ )	Time since Covid-19 ( $b_3$ )
National	15.89*	-633.12*	6.91

Note: \*P value < 0.05

Figure 3 shows the total number of pregnant adolescents aged 15–19 years at their first antenatal care consultation by month, from January 2018 to December 2020. The graph shows a decrease in the total number of pregnant adolescents in this age group attending their first antenatal consultation in March 2020.

Figure 3. Total number of pregnant adolescents aged 15–19 years at their first antenatal care consultation, January 2018–December 2020, Mozambique

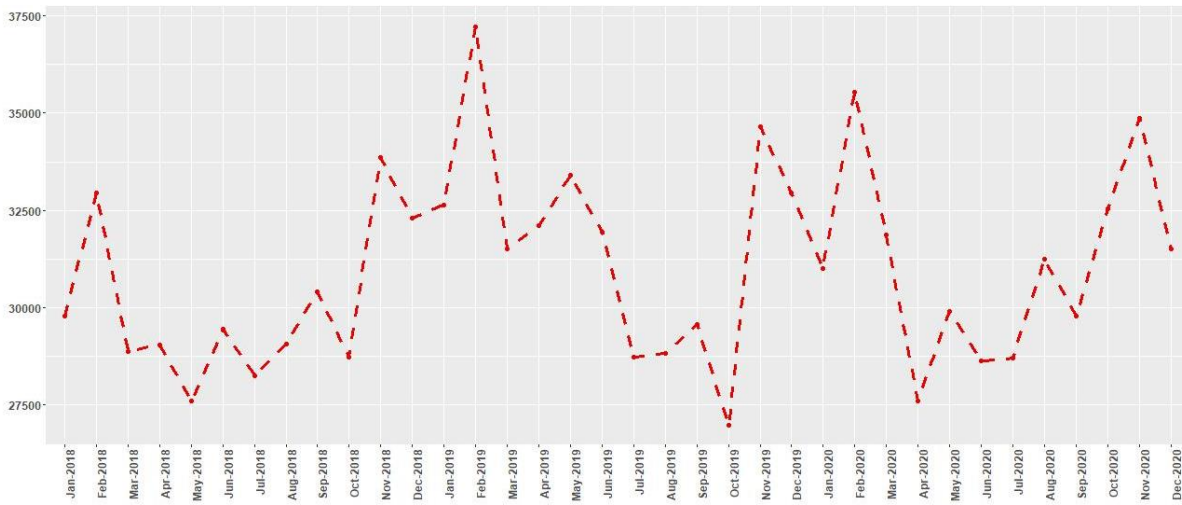


Table 3 describes the results of the segmented regression for pregnant adolescents aged 15–19 at their first antenatal care consultation. Before the Covid-19 outbreak, there was a pattern of an average monthly increase of 111.75 cases of adolescent girls aged 15–19 attending their first antenatal consultation that was statically significant up to the index month of March 2020 when the first Covid-19 social restrictions were introduced. When this happened, the number of pregnant older adolescents attending their first ANC appointment decreased by 4009.59 (p.value < 0.05). In the Covid-affected period thereafter, the number of adolescent girls aged 15–19 attending their first antenatal consultation increased by an average of 293.90 cases per month (p.value > 0.05), an estimated average higher than for the period before the index case.

Table 3. The effect of the Covid-19 pandemic on the total number of pregnant adolescents aged 15–19 years in Mozambique (National, 2018–2020)

Mozambique	Time ( $b_1$ )	Covid-19 ( $b_2$ )	Time since Covid-19 ( $b_3$ )
National	111.75	-4009.59*	293.90

Note: \*P value < 0.05

- *Number of institutional births*

Figure 4 shows the number of institutional deliveries per month between January 2018 to December 2020. Generally, there has been an increase over time until September 2020 when cases began to fall until December of the same year.

Figure 4. Total number of institutional births, January 2018–December 2020

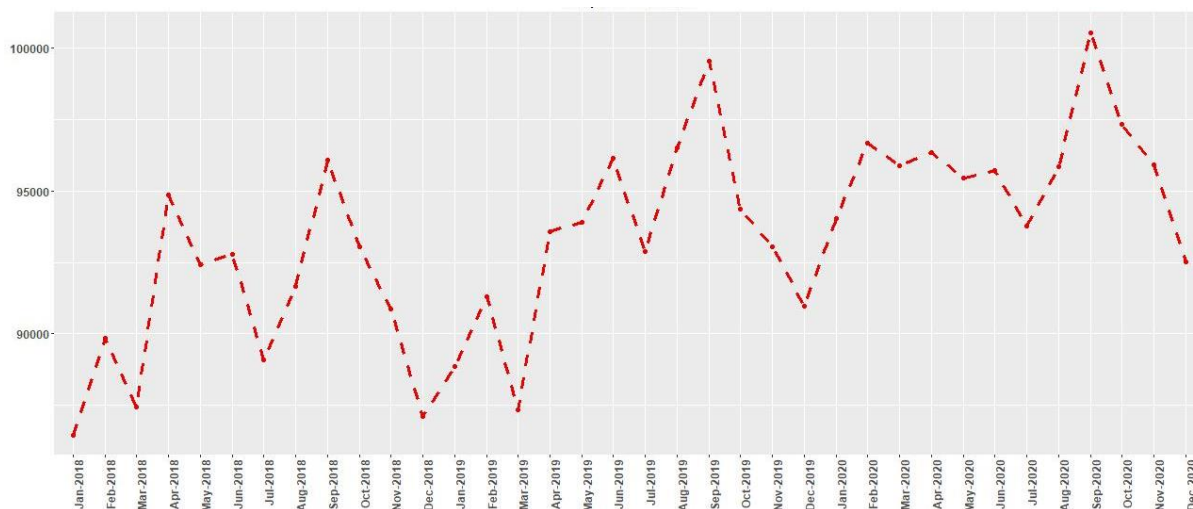


Table 4 describes the results of a segmented regression where from January 2018 to February 2020, before the Covid-19 outbreak, there was a significant estimated average increase of 225.24 cases of institutional delivery per month. After an initial fall in March 2020, in the subsequent Covid-affected period the number of institutional deliveries decreased by an estimated average of 271.29 cases per month. This finding may be in line with information reported in the qualitative study, in which participants emphasized a setback in family planning and institutional births. For a more robust analysis, an analysis of all births, including those outside the hospital setting, would be helpful.

Table 4. The effect of the Covid-19 pandemic on the total number of institutional births in Mozambique (National, 2018–2020)

Mozambique	Time ( $b_1$ )	Covid-19 ( $b_2$ )	Time since Covid-19 ( $b_3$ )
National	225.24*	1032.61	-271.29

Note: \*P value < 0.05

- *Number of live births at institutional deliveries*

Figure 5 below shows the monthly trends for the total number of newborns reported at institutional deliveries. An increase is shown over time, with the exception of some short-term drops along this period.

Figure 5. Total number of newborns reported at institutional deliveries in Mozambique, January 2018–December 2020



Table 5 describes the results of a segmented regression for the total number of newborns reported at institutional deliveries. Before the Covid-19 outbreak, there was a pattern of a statistically significant average increase of 298.65 estimated cases of newborns reported at maternity wards. After the index month, between March and December 2020 the total number of newborns reported at institutional deliveries increased each month by 148.7 cases on average.

Table 5. The effect of the Covid-19 pandemic on the total number of newborns reported at institutional deliveries in Mozambique (National, 2018–2020)

Mozambique	Time ( $b_1$ )	Covid-19 ( $b_2$ )	Time since Covid-19 ( $b_3$ )
National	298.65*	-1775.96	148.72

Note: \*P value < 0.05

- *Number of newborns attending their first postnatal consultation*

Figure 6 shows monthly national statistics for the first postnatal consultation for newborns, for the period January 2018 to December 2020. A similar trend is observed here as for the institutional births – a general slight increase, and a sharp fall between September 2020 and December of the same year.

Figure 6. Total number of first postnatal consultations for newborns, January 2018–December 2020

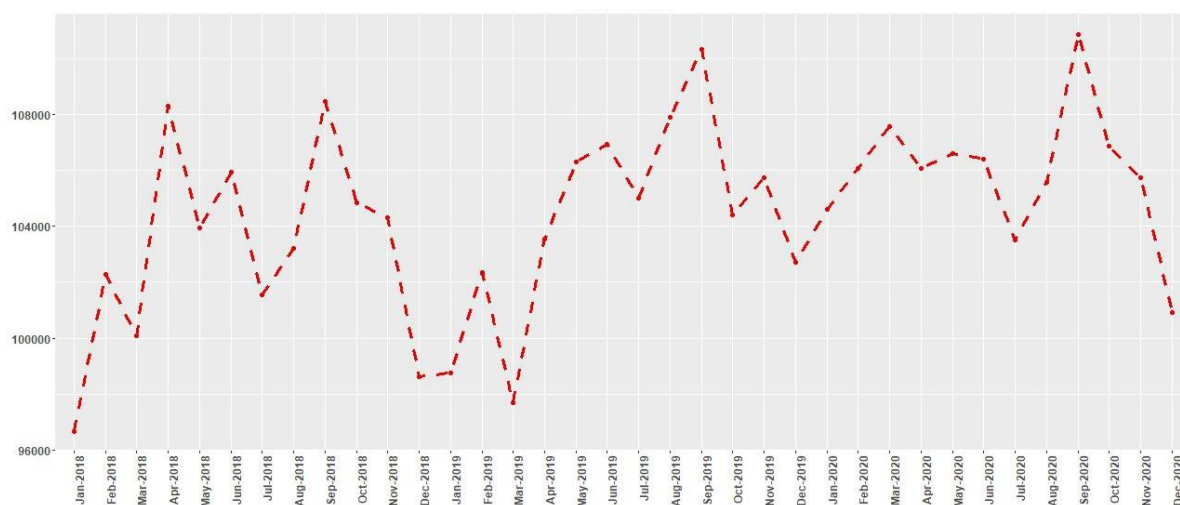


Table 6. The effect of the Covid-19 pandemic on the total number of first postnatal consultations for newborns in Mozambique (National, 2018–2020)

Mozambique	Time ( $b_1$ )	Covid-19 ( $b_2$ )	Time since Covid-19 ( $b_3$ )
National	158.50	1666.29	-431.90

Before the Covid-19 outbreak, there was an estimated monthly average increase of 158.50 first postnatal consultations per month, but this was not statistically significant. The Covid-19 outbreak in March 2020 (index month) and related social responses was estimated to have led to a substantial significant increase. The estimates for attendance at the first PNC visit during the subsequent Covid-affected period were negative but not significant.

- *Number of fully immunized infants under one year of age*

Figure 7 shows the number of children under one year of age who are fully immunized. The graph reveals a sharp decrease between March and April 2020, then a gradual increase until November, followed by a drop in December of the same year.



Figure 7. Number of fully immunized infants under one year of age, January 2018–December 2020

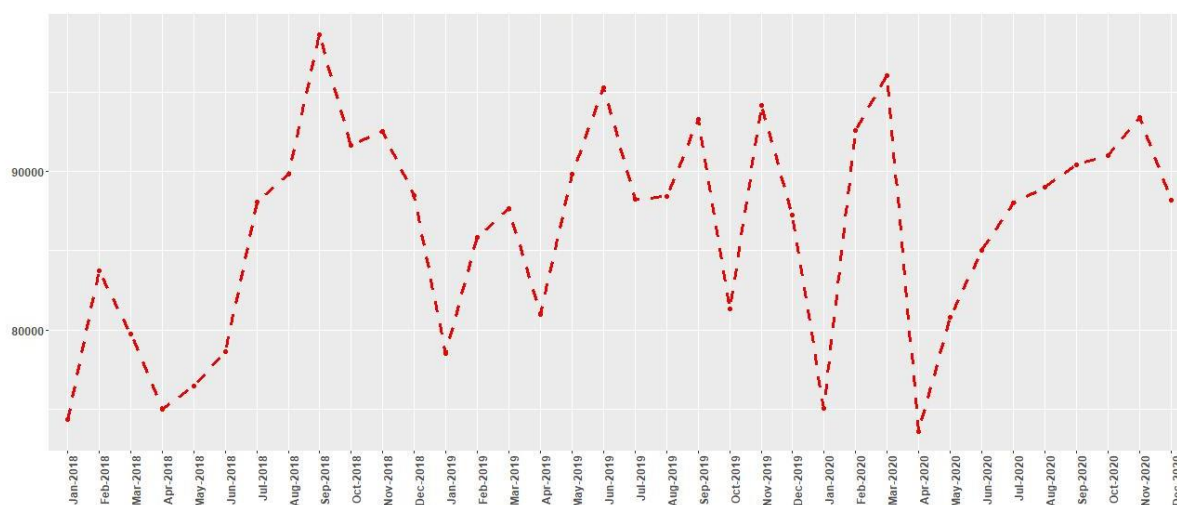


Table 7 describes the results of a segmented regression for the total number of fully immunized infants under 1 year of age. The numbers increased from January 2018 up to the index month of March 2020. The Covid-19 outbreak and related social responses were estimated to lead to a drop of 7120 cases in March 2020. The trend after the index month was positive but not statistically significant nationally.

Table 7. The effect of the Covid-19 pandemic on the total number of newborns reported at institutional deliveries in Mozambique (National, 2018–2020)

Mozambique	Time ( $b_1$ )	Covid-19 ( $b_2$ )	Time since Covid-19 ( $b_3$ )
National	332.74	-7120.27	490.97

- *New cases of pneumonia in children under five*

There was a significant increase in the number of new cases of pneumonia among children under five who presented at health facilities between January 2018 and March 2020, followed by a marked decrease between March 2020 and June 2020, after which the numbers stayed broadly stable. In addition to the likelihood that fewer people sought facility-based care immediately after the outbreak, it is also probable that measures to stop the spread of Covid-19 introduced in March 2020 (index month) contributed to the fall in the number of cases seen at health facilities nationwide. Figure 8 shows the number of cases of pneumonia seen in health facilities among children under five before and after the outbreak.

Figure 8. New cases of pneumonia in children under five at healthcare facilities, January 2018–December 2020

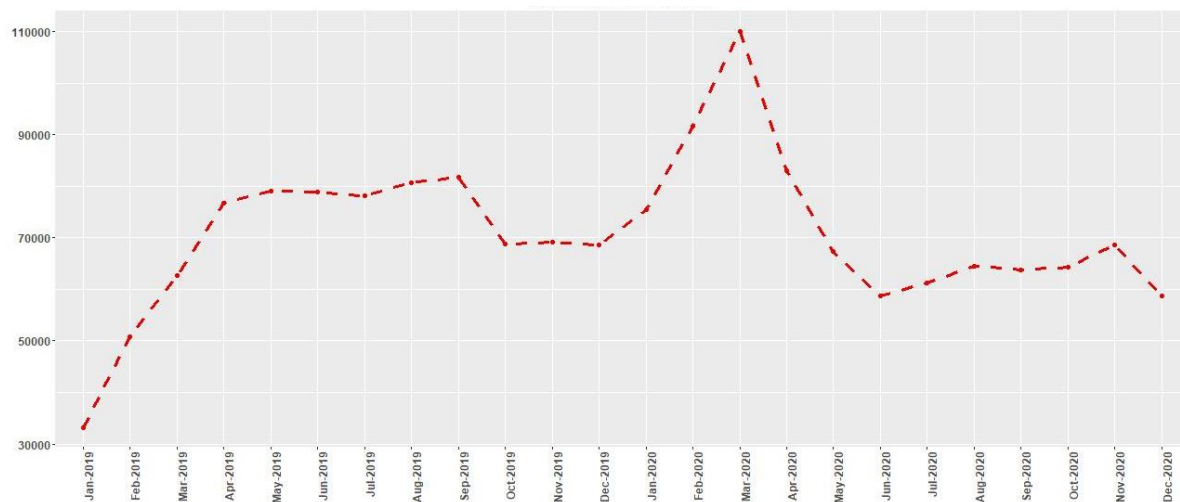


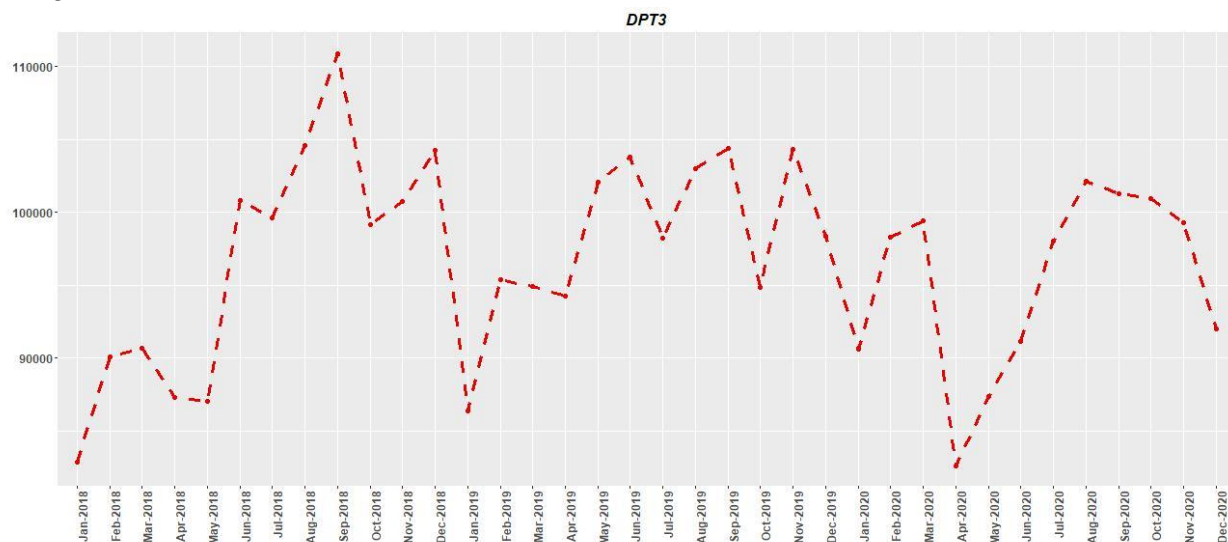
Table 8. The effect of the Covid-19 pandemic on the total new cases of pneumonia in health facilities among children under 5 years of age in Mozambique (National, 2018–2020)

Mozambique	Time ( $b_1$ )	Covid-19 ( $b_2$ )	Time since Covid-19 ( $b_3$ )
National	2178.51*	3410.40	-5572.53*

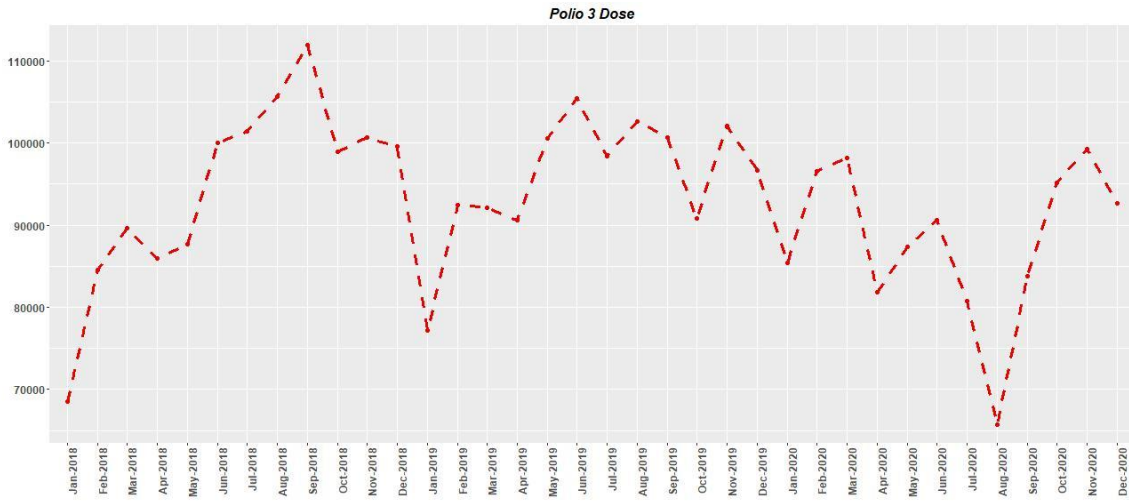
Note: \*P value < 0.05

**Additional Indicator Trendlines:**

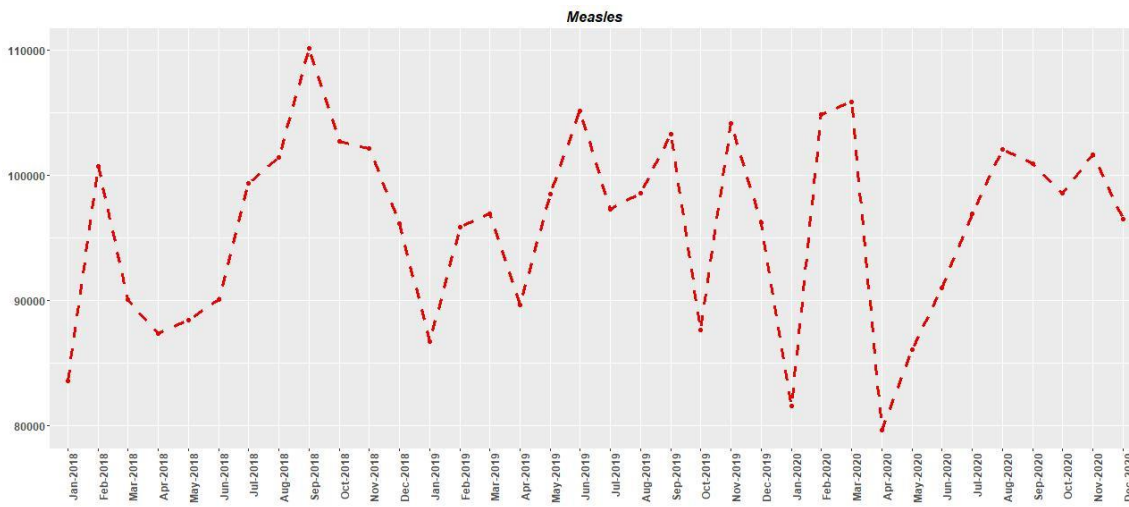
**DPT3**



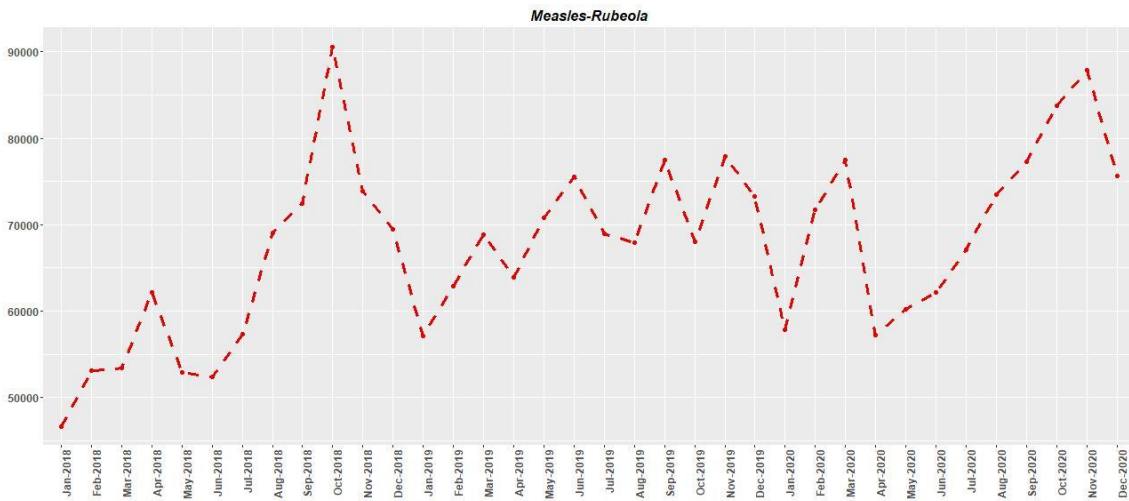
## Polio 3 Dose



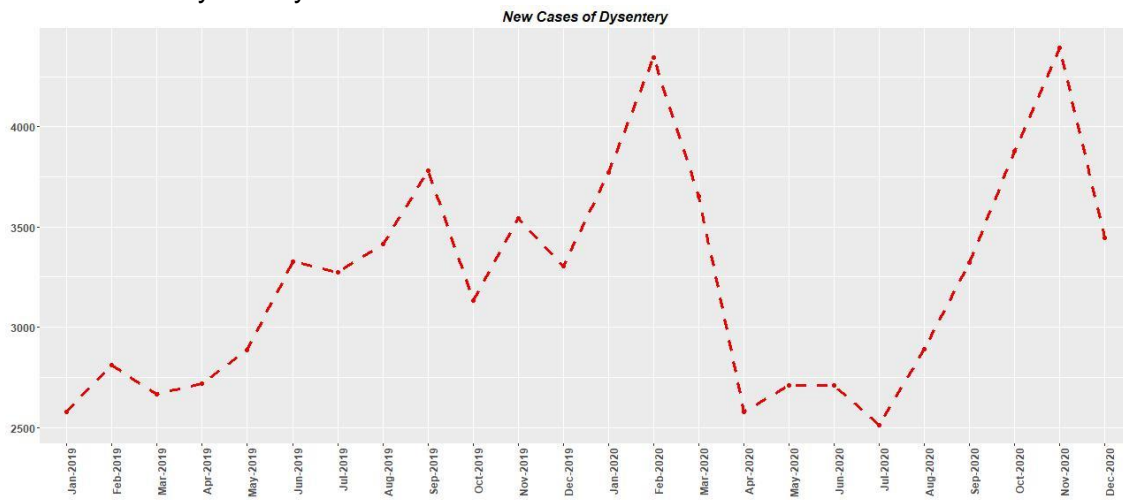
## Measles Vaccine



## Measles-Rubeola Vaccine

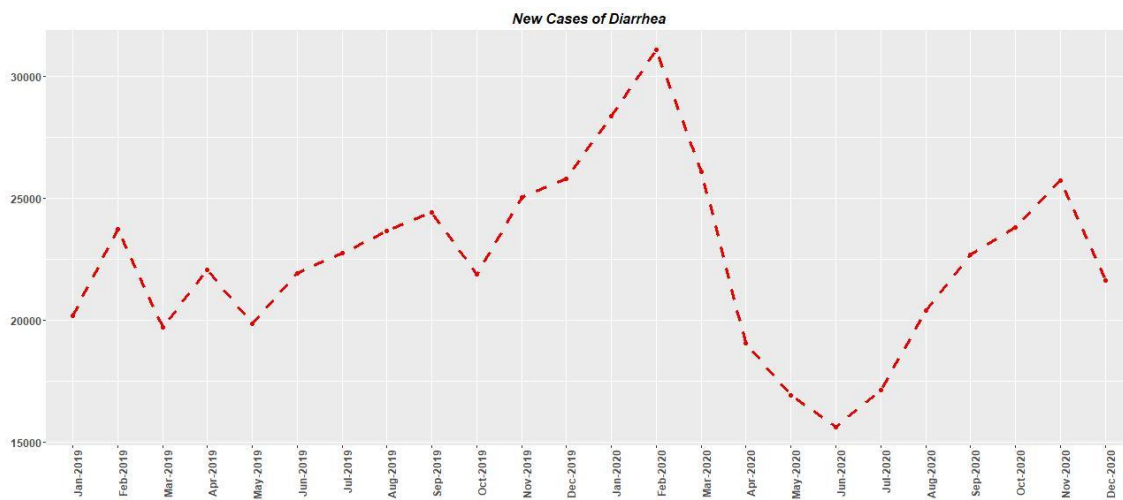


## New cases of Dysentery

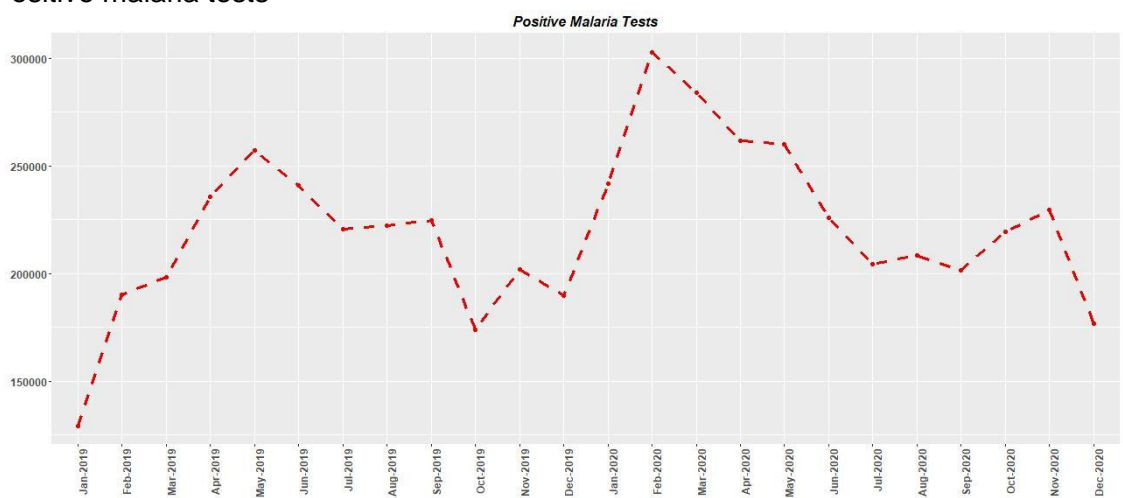


New cases

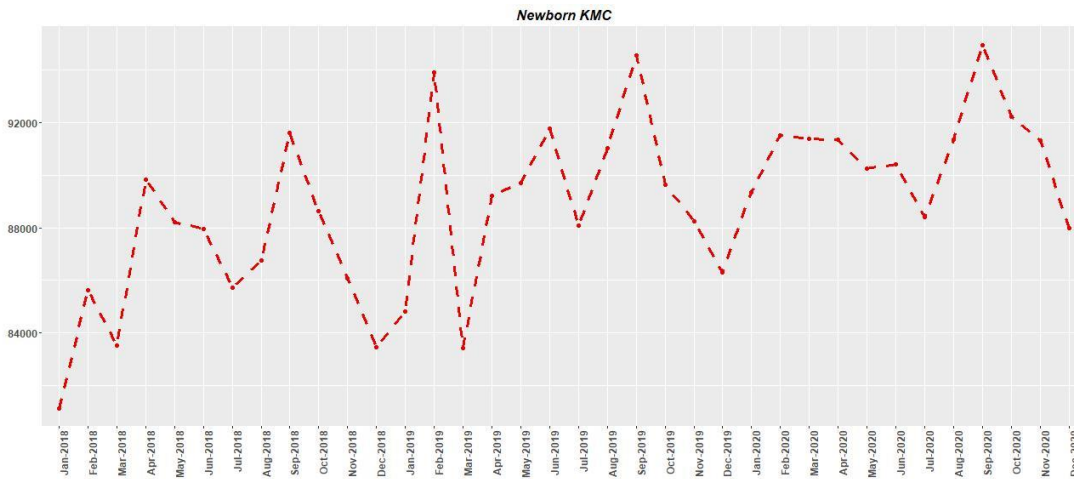
## of Diarrhoea



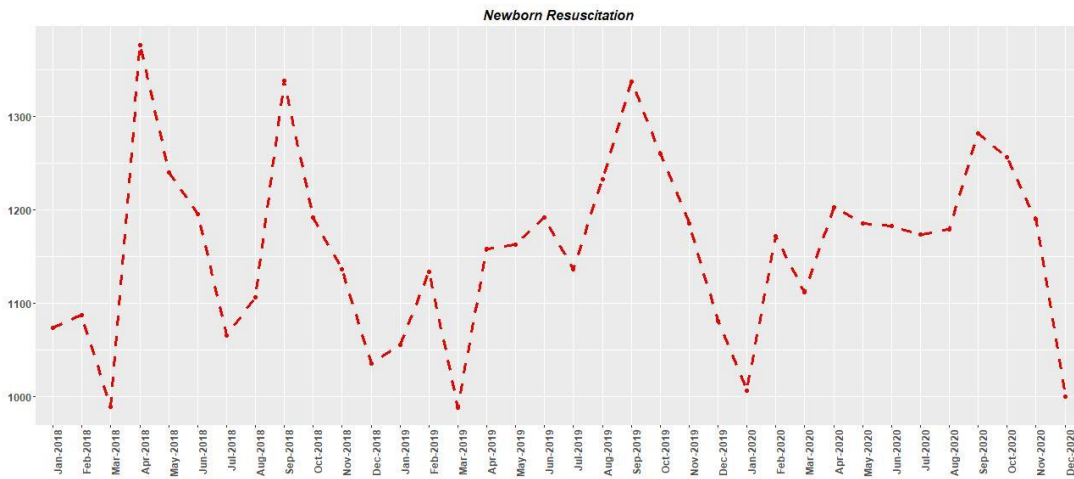
## Positive malaria tests



## Newborn KMC



## Newborn resuscitation



### Data Quality Notes:

New cases of Pneumonia, Dysentery, Diarrhoea and Positive malaria tests were missing data from Jan 2018 – Dec 2018.

## Appendix 3. Approval letter from the National Committee for Bioethics in Health



REPÚBLICA DE MOÇAMBIQUE  
MINISTÉRIO DA SAÚDE  
COMITÉ NACIONAL DE BIOÉTICA PARA A SAÚDE  
IRB00002657

Exma Senhora  
Dra Málica de Melo  
ICRH

Ref:312/CNBS/21

Data 10 de Junho de 2021

Assunto: Aprovação do Comité Nacional de Bioética para Saúde (CNBS) ao protocolo de estudo intitulado: "*Continuidade dos Serviços Essenciais de Saúde Materna, Neonatal e Infantil Durante a Pandemia COVID-19 (SES)*"

O Comité Nacional de Bioética para Saúde (CNBS) analisou as correcções efectuadas no protocolo de estudo intitulado: "*Continuidade dos Serviços Essenciais de Saúde Materna, Neonatal e Infantil Durante a Pandemia COVID-19 (SES)*", Registado no CNBS com o número 43/CNBS/2021, conforme os requisitos da Declaração de Helsínquia.

Não havendo nenhum inconveniente de ordem ética que impeça a continuação do estudo, o CNBS dá a sua devida aprovação aos seguintes documentos:

- Protocolo de estudo, *versão 2.0 de 31 de Maio de 2021*;
- Consentimento Informado, *S/n de versão*;
- *Instrumento de recolha de dados, S/n de Versão*.

Todavia, o CNBS informa que:

- 1- Qualquer alteração a ser introduzida no protocolo, incluindo os seus anexos deve ser submetida ao CNBS para aprovação.
- 2- A presente aprovação não substitui a autorização administrativa.
- 3- Não houve declaração de conflitos de interesse por nenhum dos membros do CNBS.
- 4- A aprovação terá a validade de um ano, terminando esta a 10 de Junho de 2022. Os investigadores deverão submeter o pedido de renovação da aprovação um mês antes de terminar o prazo.
- 5- Recomenda-se aos investigadores que mantenham o CNBS informado do decurso do estudo.
- 6- A lista actualizada dos membros do CNBS esta disponível na secretaria do Comité.

Sem mais do momento, queiram aceitar as nossas mais cordiais saudações.

  
Presidente  
Dr. João Fernando Lima Schwalbach

Endereço:  
Ministério da Saúde - 2º andar dto  
Av. Eduardo Mondlane / Salvador Allende  
Maputo - Moçambique

C.Postal: 264  
Telefone: +258 82 406 6350  
E-mail: cnbsmocambique@gmail.com

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UNICEF Eastern and Southern  
Africa Regional Office  
P.O. Box  
44145 Nairobi  
Kenya 00100  
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